

STELLENBOSCH MUNICIPALITY

PROPOSED LOUW'S BOS PUBLIC CEMETERY AND MEMORIAL PARK

on remainder of Louw's Bos Farm No. 502, Stellenbosch Municipality, Western Cape



POST APPLICATION FINAL BASIC ASSESSMENT REPORT

in terms of the National Environmental Management Act, No. 107 of 1998 (as amended)
and associated environmental impact assessment regulations, 2014

(VOLUME 1 OF 4)

13 September 2019



FINAL BASIC ASSESSMENT REPORT
IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT NO. 107 OF 1998
AND ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014
(AS AMENDED)

October 2017

PROJECT TITLE

Proposed Louw's Bos Public Cemetery and Memorial Park on Louw's Bos, Farm RE/502, Stellenbosch Municipality

JULY 2019

Table with 3 columns: REPORT TYPE CATEGORY, REPORT REFERENCE NUMBER, DATE OF REPORT. Rows include Pre-Application Basic Assessment Report, Draft Basic Assessment Report, and Final Basic Assessment Report.

Notes:

- 1. In terms of Regulation 40(3) potential or registered interested and affected parties, including the Competent Authority, may be provided with an opportunity to comment on the Basic Assessment Report prior to submission of the application...
2. In terms of Regulation 19(1)(b) if significant changes have been made or significant new information has been added to the Draft Basic Assessment Report...

DEPARTMENTAL REFERENCE NUMBER(S)

Pre-application reference number:	16/3/3/6/7/1/B4/45/1341/18
File reference number (EIA):	
NEAS reference number (EIA):	
File reference number (Waste):	19/2/5/3/B4/45/WL0132/19
NEAS reference number (Waste):	
File reference number (Air Quality):	N/A
NEAS reference number (Air Quality):	
File reference number (Pollution & Chemicals):	19/3/2/4/B4/45/PMIM058/19
NEAS reference number (Other):	
File reference number (DWS):	
NEAS reference number (Other):	
File reference number (HWC):	19012115KB0417E
NEAS reference number (Other):	

CONTENT AND GENERAL REQUIREMENTS

Note that:

1. The content of the Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended), any subsequent Circulars, and guidelines must be taken into account when completing this Basic Assessment Report Form.
2. This Basic Assessment Report is the standard report format which, in terms of Regulation 16(3) of the EIA Regulations, 2014 (as amended) must be used in all instances when preparing a Basic Assessment Report for Basic Assessment applications for an environmental authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA") and the EIA Regulations, 2014 (as amended) and/or a waste management licence in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) ("NEM:WA"), and/or an atmospheric emission licence in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("NEM:AQA") when the Western Cape Government: Environmental Affairs and Development Planning ("DEA&DP") is the Competent Authority/Licensing Authority.
3. This report form is current as of October 2017. It is the responsibility of the Applicant/ Environmental Assessment Practitioner ("EAP") to ascertain whether subsequent versions of the report form have been released by the Department. Visit the Department's website at <http://www.westerncape.gov.za/eadp> to check for the latest version of this checklist.
4. The required information must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The tables may be expanded where necessary.
5. The use of "not applicable" in the report must be done with circumspection. All applicable sections of this report form must be completed. Where "not applicable" is used, this may result in the refusal of the application.
6. While the different sections of the report form only provide space for provision of information related to one alternative, if more than one feasible and reasonable alternative is considered, the relevant section must be copied and completed for each alternative.
7. Unless protected by law, all information contained in, and attached to this report, will become public information on receipt by the competent authority. If information is not submitted with this report due to such information being protected by law, the applicant and/or EAP must declare such non-disclosure and provide the reasons for believing that the information is protected.
8. Unless otherwise indicated by the Department, one hard copy and one electronic copy of this report must be submitted to the Department at the postal address given below or by delivery thereof to the Registry Office of the Department. Reasonable access to copies of this report must be provided to the relevant Organs of State for consultation purposes, which may, if so indicated by the Department, include providing a printed copy to a specific Organ of State.
9. This Report must be submitted to the Department and the contact details for doing so are provided below.
10. Where this Department is also identified as the Licensing Authority to decide applications under NEM:WA or NEM:AQA, the submission of the Report must also be made as follows, for-
 - Waste management licence applications, this report must also (i.e., another hard copy and electronic copy) be submitted for the attention of the Department's Waste Management Directorate (tel: 021-483-2756 and fax: 021-483-4425) at the same postal address as the Cape Town Office.
 - Atmospheric emissions licence applications, this report must also be (i.e., another hard copy and electronic copy) submitted for the attention of the Licensing Authority or this Department's Air Quality Management Directorate (tel: 021 483 2798 and fax: 021 483 3254) at the same postal address as the Cape Town Office.

DEPARTMENTAL DETAILS

CAPE TOWN OFFICE		GEORGE REGIONAL OFFICE
REGION 1 (City of Cape Town & West Coast District)	REGION 2 (Cape Winelands District & Overberg District)	REGION 3 (Central Karoo District & Eden District)
Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 1) Private Bag X 9086 Cape Town, 8000	Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 2) Private Bag X 9086 Cape Town, 8000	Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 3) Private Bag X 6509 George, 6530
Registry Office 1 st Floor Utilitas Building 1 Dorp Street, Cape Town	Registry Office 1 st Floor Utilitas Building 1 Dorp Street, Cape Town	Registry Office 4 th Floor, York Park Building 93 York Street George
Queries should be directed to the Directorate: Development Management (Region 1) at: Tel.: (021) 483-5829 Fax: (021) 483-4372	Queries should be directed to the Directorate: Development Management (Region 2) at: Tel.: (021) 483-5842 Fax: (021) 483-3633	Queries should be directed to the Directorate: Development Management (Region 3) at: Tel.: (044) 805-8600 Fax: (044) 805 8650

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ACRONYMS USED IN THIS BASIC ASSESSMENT REPORT AND APPENDICES:

BAR	Basic Assessment Report
BGIS	Biodiversity Geographic Information System (from the South African National Biodiversity Institute)
CBA	Critical Biodiversity Area
DEA	National Department of Environmental Affairs
DEA&DP	Western Cape Government: Environmental Affairs and Development Planning
DWS	National Department of Water and Sanitation
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESA	Ecological Support Area
HWC	Heritage Western Cape
I&APs	Interested and Affected Parties
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:AQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
NEM:ICMA	National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
PPP	Public Participation Process

DETAILS OF THE APPLICANT

Applicant / Organisation / Organ of State:	Stellenbosch Municipality		
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DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

Name of the EAP organisation:	EnviroAfrica CC		
Person who compiled this Report:	Vivienne Thomson		
EAP Reg. No.:	A.I.A.I. (S.A.) Membership Number: 219 (Bernard de Witt, Owner, EnviroAfrica)		
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EAP Qualifications:	<p><u>Vivienne Thomson</u>: BSc, Zoology (UCT); EIA short course (PU), Environmental Law (PU), Advanced Environmental Law (Mandela Institute School of Law, Wits), ISO 14001 Lead Auditors Course (WTH Management and Training), Root Cause Analysis Technique (IRCA), Environmental Performance Measurement Workshop (African Centre for Energy and Environment), Basic Principles of Ecological Rehabilitation and Mine Closure (PU), Member: National Association for Clean Air; South African Coal Ash Association</p> <p><u>Bernard de Witt</u>: BSc Forestry (SU); BA (Hons) Public Administration (Stellenbosch); National Diploma in Parks and Recreation Management; EIA Short course (UCT); ISO 14001 Auditors course (SABS); Member: AIAI-SA</p>		

Please provide details of the lead EAP, including details on the expertise of the lead EAP responsible for the Basic Assessment process. Also attach his/her Curriculum Vitae to this BAR.

Vivienne Thomson:

Vivienne holds a BSc in Zoology from the University of Cape Town (1995) and has over twenty years industry experience in the construction, power generation and mining sectors. She has completed an ISO 14001 Lead Auditors course, as well as several environmental short courses and has guest lectured for the MSc in Environmental Science Environmental Impact Assessment (EIA) course at the University of the Witwatersrand.

Vivienne is a member of the National Association for Clean Air (NACA) and has served as NACA National Council Member. She is a member of the South African Coal Ash Association and an affiliate of the Institute of Innovators and Inventors. She was also a member of the Committee of Interested Parties which acted as an independent, advisory body to ensure impartiality of Pricewaterhouse Coopers' Certification Body in their governance and sustainability division.

Since 2004, Vivienne has been involved in environmental consulting with experience in EIAs, establishing and implementing ISO 14001 EMSs, contract management, legal compliance

evaluations, as well as developing, implementing and assessing environmental management plans and monitoring programmes.

Bernard De Witt:

After qualifying with a BSc in Forestry and a BA (Hons) in Public Administration at the University of Stellenbosch, Bernard joined the Department of Forestry as an Indigenous Forest Planner in 1983, going on to become Manager of the Table Mountain Reserve with the Cape Town Council.

He then joined Cape Nature Conservation (CNC) and headed its Conservation Planning Section before taking up the position of District Manager of the Boland area (including the Hottentots Holland and Kogelberg).

As a Regional Ecologist, he co-ordinated managerial and scientific inputs into Provincial Nature Reserves in the Boland, Overberg and West Coast regions.

For the last four years of his employment he assessed and evaluated development applications, from an environmental perspective, on behalf of CNC (now DEA&DP). Since he left DEA&DP 21 years ago, Bernard has been involved in environmental consulting in the private sector as director of EnviroAfrica.

EXECUTIVE SUMMARY OF THE BASIC ASSESSMENT REPORT:

Public cemeteries in the Stellenbosch Municipal area are nearing maximum occupation. The shortage of suitable land for the development of cemeteries has long been one of the major challenges facing many South African municipalities.

Despite the availability of various alternatives, conventional burial and funeral practises are still the most common and preferred, thus, funeral and burial services offered by local municipalities cannot be decontextualised from the cultural and religious customs that communities follow (SALGA, 2016).

The strategy employed by the Applicant, Stellenbosch Municipality, was to expand local cemeteries where possible, as an interim measure, while establishing new cemeteries in at least two of the three Municipal regions identified viz. the Northern Stellenbosch (Klapmuts) region, Eastern Stellenbosch (Franshoek Valley) region and the Southern Stellenbosch (Jamestown) region. This allows specific service to and easier access by, the various communities in these regions.

To address the increasing predicament of a lack of available regional burial space, Stellenbosch Municipality appointed CK Rumboll and Partners to facilitate the identification and various licencing processes required for the establishment of at least two regional cemeteries. EnviroAfrica formed part of the project team responsible for the initial site selection and specifically for undertaking the environmental authorisation application associated with the proposed development.

In the period from 2015 to end of 2017, utilising, as a starting point, the *Cemetery Feasibility Study, Stellenbosch Municipal Area, Consultative Draft 1 Report (2006)* as prepared by Dennis Moss Partnership and attached as Appendix N, as well as the nine potential sites approved by the Stellenbosch Municipal Council at a February 2015 Council meeting, over fifty potential proposed development sites were identified and investigated.

Applying the *Selection Criteria for the Placing of Cemetery Sites in South (Fischer, 1992)* and through a systematic assessment of these and additional criteria as detailed in Appendices L (*First Report, Final October 2016: Identification and Acquisition of Authorisations and Approvals for the Establishment of*

One or More Regional Cemeteries for Stellenbosch Municipality) and Appendix M (*Motivation to obtain Stellenbosch Council's endorsement of Region Cemetery Sites in fulfilment of tender B/SM No. 17/16: Acquisition of Authorisations and Approvals for the establishment of one or more regional cemeteries for Stellenbosch Municipality*), five potential sites for the entire Municipal area were identified as best suited for the proposed development of regional public cemeteries and memorial park (as per section 4 of Appendix M).

Besides regional suitability and the criteria mentioned in Appendices L and M, two critical factors in determining whether the identified land was viable for the proposed development, or to be used as a possible alternative development site, were

- i. ownership of the land and
- ii. whether the land had already been earmarked for some other infrastructural/development project.

Although some of the preliminary reports attached in the appendices list various sites in a comparison, the purpose of these reports was to refine the list of potential sites and possible alternatives per Municipal region, so that applications to develop a cemetery and memorial park in at least two municipal regions could be made.

Providing the amenity of a cemetery and memorial park in two regions in the Municipal area provides a more accessible service to local communities. This pre-application BAR focuses only on the **Southern** Municipal region:

The proposed Louw's Bos public cemetery and memorial park aims to promote a novel concept to that of traditional public cemeteries: The memorial park concept is well suited to Stellenbosch Municipality's desire to keep the region 'green' and promote public amenity areas. The idea is to create a public facility and landscape feature which enhances and protects biodiversity and environmentally sensitive areas within the site, as well as provides an accessible, aesthetically attractive feature through the unique design and layout of the development.

Besides allocating areas for traditional burial methods and a remembrance wall or columbarium, a garden of remembrance will be established where the ashes of a loved one may be buried at the foot of a tree or shrub indigenous to the area. The garden of remembrance will follow a landscaped plan and patrons may purchase a tree and plaque to serve as a living memory of their deceased loved one. This also serves as greener approach to the establishment of burial grounds, while promoting an alternate, less land demanding options for burial and/or remembrance. It also promotes the rehabilitation of the proposed site which is currently degraded from a natural environmental perspective, due to cultivation.

Several walkways and seating benches within the public cemetery and memorial park will be made available. Some of these seating benches may also fulfil the role of serving as 'sculptures' or 'art feature points' as currently employed at the Stellenbosch taxi rank, where (if required) solar panels may be erected for the electricity supply the facility may require. This is in keeping with the green, 'off-grid' nature of the proposed public cemetery and memorial park.

Community or social utilisation of the memorial park other than for burial/remembrance purposes is advocated through the incorporation of a peripheral pathway circumnavigating the inner edge of the public cemetery/memorial park boundary. The potential to incorporate existing cycle routes and a walking/running path into this peripheral pathway, exists.

Discreet educational information boards/pedestals along the peripheral pathway will help:

- i. highlight the unique vistas and history of the region (such as the Helderberg and Stellenbosch region mountains, or the history of Louw's Bos and surrounding farms and the heritage related old 'Outspan' road/trail network which passes through Farm RE/502 and could add positively to heritage tourism);

- ii. provide environmental education/information regarding the method of interment being used at a particular area of the cemetery and memorial park. This would also help address the social and cultural perceptions held regarding memorial/burial methods.

It is proposed that the memorial park be an area where regions of biodiversity are promoted, (rehabilitated, if required) and conserved as a part of the 'park' aspect of the cemetery/memorial park. In addition, indigenous vegetation reintroduction will be stimulated and encouraged through the landscaping and memorial park and garden of remembrance areas within the proposed development.

Potential future expansion opportunities for the proposed development, beyond its estimated predicted 30 to 49-year lifespan, includes regions further south/south-west to that of the current preferred site. Although the potential future expansion will require an environmental authorisation process of its own when the time comes, it indicates the sustainability of the current proposed development on the preferred site, as well as the intention to rehabilitate and preserve the disjunct patches of CBAs and ESAs to the south/south-west of the current proposed preferred site (Louw's Bos South), or within proposed alternate site 2 (Louw's Bos North).

Note: on Louw's Bos South site, the potential to incorporate existing cycle routes/running paths into a peripheral pathway around the proposed development perimeter and future expansion area to rehabilitate degraded areas and preserve an ecological/CBA corridor to the south-east of the existing dam, could provide an additional positive environmental enhancement of the region.

Currently, both the preferred and second alternative Louw's Bos sites are zoned for agriculture. Further, Botes on behalf of EnviroAfrica (2018) states in a comparison of biodiversity sensitivity maps that "From an environmental sensitivity view, both sites are considered degraded agricultural land suitable for the proposed development, but Louw's Bos North may potentially impact on an ESA (which should be considered for rehabilitation) and may impact on the Stellenbosch western by-pass road. However, it is important to note that both these features can potentially be incorporated into the Memorial Park layout and with good planning the ESA areas can benefit from the proposed layout by incorporating (and rehabilitating) the wetland and streams as part of the final layout."

From a surface/freshwater perspective, Gericke for EnviroSwift (2018) assessed that after mitigation, the potential impacts for both Louw's Bos South and Louw's Bos North fell in the Low Negative category or better, with many impacts representing an improvement over the current situation in the Low and Very Low Positive categories. The preferred layout represents the scenario with the lowest overall negative impact and the highest overall positive impact and represents a significant improvement on the 'no-go' scenario."

Geohydrological assessments of the proposed sites by Peek and Conrad (2018) revealed that "Groundwater occurs in intergranular and fractured aquifers at depths of >17 m. No groundwater was intersected above the clay layer on sites which provided borehole drill records.

The sites have a 'low/medium' groundwater vulnerability rating, due to the presence of a clay layer which acts as a barrier above the main aquifer and the relative depth to the groundwater level.

From a groundwater perspective, due to the relatively thick clay layer above the main aquifer the proposed sites can be considered for the development of a Memorial Park. The Louw's Bos south is more suited to the development of a memorial park due to its location away from major existing groundwater users."

Proposed Development Rationale:

Public cemeteries in the Stellenbosch Municipal area are nearing maximum occupation. The shortage of suitable land for the development of cemeteries has long been one of the major challenges facing many South African municipalities. It is estimated that most of the existing

municipal/public cemeteries in the region have less than 5% of their original capacity left to provide surrounding communities with this important service.

Despite the availability of various alternatives, conventional burial and funeral practises are still the most common and preferred, thus, funeral and burial services offered by local municipalities cannot be decontextualised from the cultural and religious customs that communities follow (SALGA, 2016).

The strategy employed by the Applicant, Stellenbosch Municipality, was to expand local cemeteries where possible, as an interim measure, while establishing new cemeteries in at least two of the three Municipal regions identified viz. Northern Stellenbosch, Eastern Stellenbosch (Franshoek Valley) and Southern Stellenbosch, as per the map in Figure 1 below. This allows easier access for the various communities in these regions.

To address the increasing predicament of a lack of available regional burial space, Stellenbosch Municipality appointed CK Rumboll and Partners to facilitate the identification and various licencing processes required for the establishment of at least two regional cemeteries.

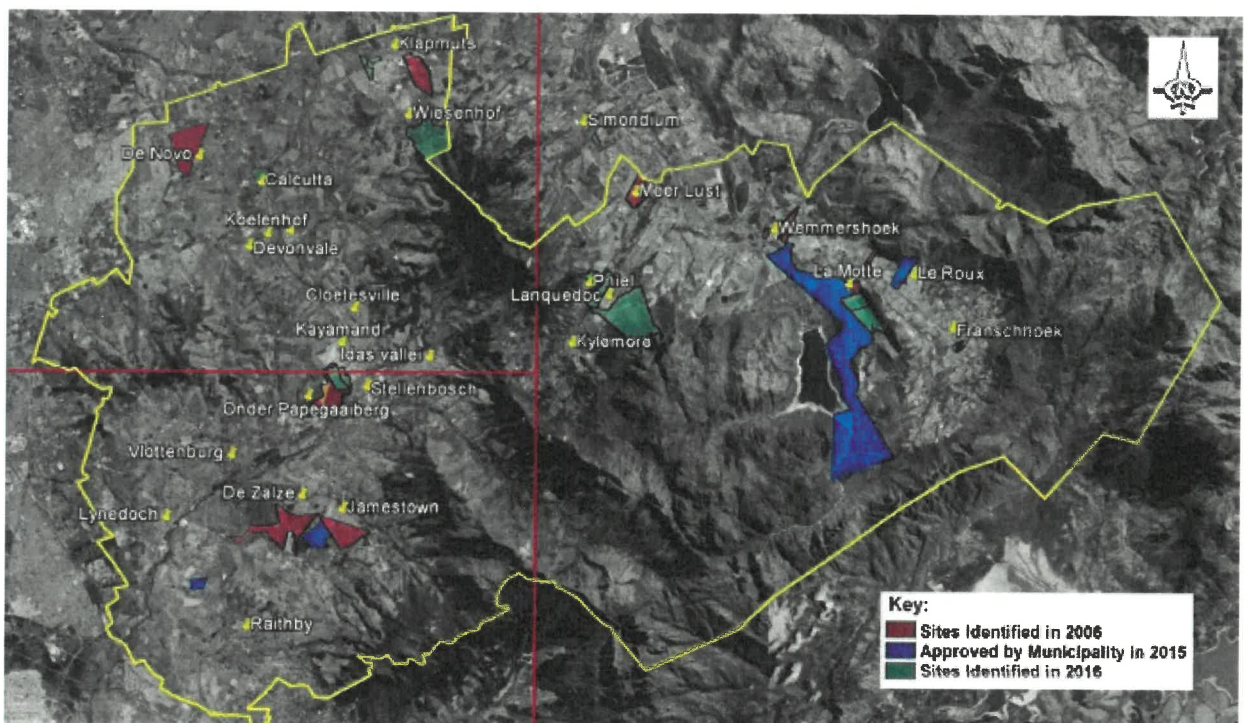


Figure 1: Stellenbosch Municipality jurisdiction outlined in yellow and divided into three regional areas viz. Northern Stellenbosch (top left corner), Eastern Stellenbosch (right half) and Southern Stellenbosch (top left corner)

In the period from 2015 to end of 2017, utilising, as a starting point, the Cemetery Feasibility Study, Stellenbosch Municipal Area, Consultative Draft 1 Report (2006) as prepared by Dennis Moss Partnership and attached as Appendix N, as well as the nine potential sites approved by the Stellenbosch Municipal Council at a February 2015 Council meeting, over fifty potential proposed development sites were identified and investigated.

By mid-2017, through a systematic assessment of various criteria as detailed in Appendices L (*First Report, Final October 2016: Identification and Acquisition of Authorisations and Approvals for the Establishment of One or More Regional Cemeteries for Stellenbosch Municipality*) and Appendix M (*Motivation to obtain Stellenbosch Council's endorsement of Region Cemetery Sites in fulfilment of tender B/SM No. 17/16: Acquisition of Authorisations and Approvals for the establishment of one or more regional cemeteries for Stellenbosch Municipality*), as well as various precluding factors detailed in these Appendices, five potential sites for the entire Municipal area were identified as best suited for

the proposed development of regional public cemeteries and memorial park (as per section 4 of Appendix M).

The five sites comprised two from the nine potential sites already approved by the Municipality in 2015, as well as three additional sites. Municipal endorsement for the three additional sites was obtained in August 2017 (partial minutes attached as Appendix K – full minutes available on Municipal website). These five potential sites were further evaluated in terms of their suitability, albeit to varying degrees, to service the three relevant Municipal regions identified in Figure 1 above.

Besides regional suitability and the criteria mentioned in Appendices L and M, two critical factors in determining whether the identified land was viable for the proposed development, or to be used as a possible alternative development site, were

- i. ownership of the land and
- ii. whether the land had already been earmarked for some other infrastructural/development project.

Although some of the preliminary reports attached in the appendices list various sites in a comparison, the purpose of these reports was to refine the list of potential sites and possible alternatives per Municipal region, so that applications to develop a cemetery and memorial park in at least two municipal regions could be made.

Providing the amenity of a cemetery and memorial park in two regions in the Municipal area provides a more accessible service to local communities. This pre-application BAR focuses only on the **Southern** Municipal region.

Note: Potential future expansion opportunities for the proposed development beyond its estimated predicted 30 (minimum) to 49-year lifespan, includes sections of Farm RE/502 further south/south-west to that of the current preferred site. Although the potential future expansion will require an environmental authorisation process of its own when the time comes, it indicates the sustainability of the current proposed development on the preferred site, as well as the intention to rehabilitate and preserve the disjunct patches of CBAs and ESAs to the south/south-west of the current preferred site.

On the proposed preferred alternative site (Louw's Bos South site) the potential to incorporate existing cycle routes/running paths into a peripheral pathway around the proposed development and future expansion area to rehabilitate degraded areas and preserve an ecological/CBA corridor to the south-east of the existing dam, would provide a positive environmental enhancement of the region.

Proposed Development Description:

The Applicant, Stellenbosch Municipality, is the owner of the land proposed for this development. The land, remainder of Louw's Bos Farm RE/502 is currently zoned for Agricultural 1. Both alternatives proposed in this application are located on Louw's Bos Farm RE/502.

Louw's Bos South, the preferred (Alternative 1) site and Louw's Bos North (the proposed alternative 2 site) are strategically positioned since it services the southern region of the Municipal area and will be relatively convenient for local communities to use.

The proposed Louw's Bos public cemetery and memorial park aims to promote a novel concept to that of traditional public cemeteries: The memorial park concept is well suited to Stellenbosch Municipality's desire to keep the region 'green' and promote public amenity areas. The idea is to create a public amenity and landscape feature which enhances and protects biodiversity and environmentally sensitive areas within the site, as well as provides an accessible, aesthetically

attractive point through the design and layout of the cemetery. It is proposed that the public park aspect of the cemetery and memorial park

Further, Botes (2018) states in a comparison of biodiversity sensitivity maps that "From an environmental sensitivity view, both sites are considered degraded agricultural land suitable for the proposed development, but Louw's Bos North may potentially impact on an ESA (which should be considered for rehabilitation) and may impact on the Stellenbosch western by-pass road. However, it is important to note that both these features can potentially be incorporated into the Memorial Park layout and with good planning the ESA areas can benefit from the proposed layout by incorporating (and rehabilitating) the wetland and streams as part of the final layout."

Besides allocating areas for traditional burial methods and a remembrance wall or columbarium, a garden of remembrance will be established where the ashes of a loved one may be buried at the foot of a tree or shrub indigenous to the area. The garden of remembrance will follow a landscaped plan and patrons may purchase a tree/plant and plaque to serve as a living memory of their deceased loved one. This also serves as greener approach to the establishment of burial grounds, while promoting an alternate, less land demanding options for burial and/or remembrance and increasing indigenous vegetation landcover.

Several walkways and seating benches within the public cemetery and memorial park will be made available. Some of these seating benches may also fulfil the role of serving as 'sculptures' or 'art feature points' as currently employed at the Stellenbosch taxi rank indicated in Figure 2 below, where (if required) solar panels may be erected for the minimal electricity supply the facility may require. This is in keeping with the green, 'off-grid' nature of the proposed public cemetery and memorial park.



Figure 2: Stellenbosch Municipality solar panel platform/stand at the local (Stellenbosch) taxi rank. Patrons have been seen using the concrete blocks as seating while waiting at the rank.

Community or social utilisation of the memorial park other than for burial/remembrance purposes is advocated through the incorporation of a peripheral pathway circumnavigating the inner edge of the public cemetery/memorial park boundary. The potential to incorporate existing cycle routes and a walking/running path into this peripheral pathway, exists.

Discreet educational information boards along the peripheral pathway will help highlight the unique vistas and history of the region (such as of the mountains in the Stellenbosch and Helderberg region, the heritage related to Louw's Bos farm itself such as the 'Outspan' roads and trails that run through the farm).

It is proposed that the memorial park be an area where regions of biodiversity are promoted, (rehabilitated, if required) and conserved as a part of the 'park' aspect of the cemetery/memorial park. In addition, indigenous vegetation reintroduction will be stimulated and encouraged through the landscaping and memorial park and garden of remembrance areas within the proposed development.

Legislated Environmental Requirements

The National Environmental Management Act No. 107 of 1998 (NEMA), as amended, makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the competent authority, based on the findings of an Environmental Impact Assessment.

The NEMA is a national act, which is enforced by the national Department of Environmental Affairs (DEA). In the Western Cape, these national powers have been delegated to the Western Cape Department of Environmental Affairs & Development Planning (DEA&DP).

According to the regulations of Section 24(5) of NEMA, authorisation is required for the following listed activities:

Government Notice R327 (Listing Notice 1)

Activity No. 23: "The **development** of **cemeteries** of 2500 square metres or more in size."

Activity No. 27: "The **clearance of an area** of 1 hectare 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;
(ii) maintenance purposes undertaken in accordance with a maintenance management plan.

Activity No. 12(xii)(c): "**Development** within a watercourse/32m from a watercourse."

(Possibly) Activity No. 24: "The **development** of;

- (i) a road for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or
- (ii) a road with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;
but excluding;
(a) roads which are identified and included in activity 27 in Listing Notice 2 of 2014; or
(b) roads where the entire road falls within an urban area."

Government Notice R324 (Listing Notice 3)

Activity No. 4: "The **development** of a **road** wider than 4 metres with a reserve less than 13.5 metres.

(Possibly) Activity No. 12: "The **clearance of an area** of 300 square metres or more of **indigenous vegetation** except where such clearance of vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan."

Site Description

The preferred site property, Louw's Bos South, is approximately 487ha in size. Approximately 74ha is required for the current application to develop a public cemetery and memorial park (buffer/setback and park areas included in the 74ha development footprint).

It should be noted that although the total development footprint will eventually occupy an area of approximately 74ha, of the 74ha proposed for the total Louw's Bos development, the actual cemetery footprint is around 34,53ha and of this only about 19.97ha are allocated for traditional graves/interment with 14.56ha being used for alternate/more modern, sustainable burial trends.

In addition, the nature of these amenities results in a progressive expansion of the development footprint over time until the entire 34,53ha is completely utilised when the facility is at maximum occupancy (as per Preferred Layout Plan 1 in Appendix B).

In addition, the nature of these amenities results in a progressive expansion of the development footprint over time until the entire 34,53ha is completely utilised when the facility is at maximum occupancy (as per Preferred Layout Plan 1 in Appendix B).

The site co-ordinates are **33° 59' 35.36"S, 18° 47' 47.58"E**.

Please refer to **Appendix A** for the locality map as well as **Appendix B** (first draft concept site plans) and **Appendix C** for photographs of the site.

Civil and Electrical Services

In general, a slope of between 2 ° and 6 ° is considered ideal for the establishment of a cemetery since it ensures adequate drainage and minimum erosion. Although a maximum slope of 9° may be utilised for cemetery development, terracing will be employed in regions with a slope outside the ideal range since this also provides for interesting landscape and aesthetic pleasing design options.

It is further proposed that the development be off-grid with the potentially small electricity requirement for possible entrance gate lighting, provided by a renewable energy means (e.g. solar panels).

Water Management

Storm water drainage will generally be towards Annandale Road and will probably follow the contours of the site. The possibility that stormwater runoff will be captured in retention dams forming landscaped water features on the Annandale Road side of the proposed site, exists. Collected stormwater may even be reused for irrigation on site particularly in the water-wise remembrance garden and memorial park areas (for watering saplings).

Water for domestic use will either be provided/trucked-in by the Local Municipality to on-site water tanks, or supplied from a borehole. The possibility of using groundwater on the proposed site exists but this option will need to be further investigated and would then trigger an additional water use under the National Water Act, No. 36 of 1998 (NWA).

Sewage

Sewage during construction will be managed via a portable toilet contract.

Sewage during operation will be managed via an on-site sewage package plant which will have a final effluent tank (and pond, if permitted by the DWS) from which final effluent will be used for irrigation purposes.

As a norm i.e. under normal operation and maintenance circumstances, no sewage will be removed off site for treatment or disposal.

However, under extenuating/emergency conditions (should the need arise) the package plant will be serviced by the local municipality as per Appendix E6 (Capacity status letter from Stellenbosch Municipality).

Waste Management

The primary solid waste anticipated from the activity during construction and operation will be domestic waste which will be removed to the nearest registered Municipal landfill site.

Garden refuse will probably be composted on site for use in memorial park establishment.

The sewage treatment package plant's screenings basket must be monitored on a routine basis (as required, due to the very low volumes of input effluent anticipated), to ensure that screenings are removed and disposed of regularly (as required) at a licenced facility suitable/appropriate to the type of hazardous waste being disposed. Similarly, on an ad-hoc basis, sludge from the sewage treatment package plant will need to be removed by the Municipality and taken to an appropriately registered site for disposal (as per Appendix E6 – Municipal Capacity Status letter).

No waste will be burned or buried on site

Access

Access for both sites will be off Annandale Road. For Louw's Bos North (Alternative site 2) no access off the dual-carriage MR27 (R44) will be allowed. Access will be obtained only from DR1050 (Annandale Rd),

There is a western by-pass planned across the northern portion of Farm 502. No access will be allowed from the by-pass.

The design speed for Annandale road is 100km/h which requires a shoulder sight distance of 200m for a passenger vehicle and a stopping sight distance of 155m.

Alternative 1: Louw's Bos South

The proposed access off Annandale Road is located on the outside of a bend and the road is flat with more than adequate shoulder and stopping sight distances in both directions.

The existing access to the site provides access to the Eskom substation as well as farm worker's houses located on Farm 557. The design of the access will have to accommodate both these roads while also providing a separate access to the memorial park with adequate stacking to avoid queuing onto Annandale Road.

If required, the existing access point may be required to be moved further west to increase the access spacing ($\pm 300\text{m}$) between the Soverby Guest House access and the proposed access.

The access will require a right turn lane for traffic coming from Baden Powell Drive and may also require either a left turn taper or left turn deceleration lane depending on the trip generation of the proposed memorial park.

Alternative 2: Louw's Bos North

The northern portion of the farm has been identified as Alternative 2 for the possible development of a memorial park.

Although the access from Annandale Road is proposed on the inside of the bend the shoulder sight distance will be adequate in both directions. To achieve the shoulder sight distance towards Baden

Powell some vegetation may have to be removed but this would be addressed during the detail design of the access

The access will require a right turn lane for traffic coming from the R44 and may also require either a left turn taper or left turn deceleration lane depending the trip generation of the proposed memorial park.

The proposed Alternative 2 access road will have to cross over private land and a stream.

Future full access to Alternative Site 1 and Alternative Site 2:

The proposed accesses for Alternative 1 and 2 off Annandale Road are located at the same point. This will create a full access in future and therefore the location and design of the access to Alternative 1 will also have to consider the possible location of the access to Alternative 2 in the future, if required. A staggered access will not be acceptable or approved.

Approval for these accesses will have to be obtained from the Western Cape Government and the design of the accesses will have to be approved by their roads geometric design department. A new access road and/or slip-road will need to be constructed from the existing public road to the development.

Access control to the proposed development will most likely be facilitated via fencing/palisade fencing and a lockable gate with a security guard on duty. This also provides a local employment opportunity.

The presence of security enhances the memorial park aspect in that it provides a safe environment for persons utilising the peripheral pathways for walking/jogging/cycling.

Conclusion

Based on the specialist reports in Appendix G, the proposed Louw's Bos Public Cemetery and Memorial Park will provide a much-needed service to the regional community whilst also facilitating the rehabilitation and promotion of indigenous biodiversity on the property. The unique design and landscaping of the public cemetery and memorial park will provide a landscape feature in the area

Each specialist assessment further highlights the environmental benefits of the proposed development, as indicated below:

- i. **Biodiversity** – Currently, both the preferred and second alternative Louw's Bos sites are zoned for agriculture. According to the Botanical Constraints Analysis attached as Appendix G2 (MacDonald, 2018), a portion of the preferred site (Alternative 1), Louw's Bos South, has been planted with vines and the remaining portion of the preferred site is fallow but has been cultivated in the past. The report also contained a general biodiversity constraints analysis. MacDonald, (2018) further states that natural indigenous vegetation is no longer present on the site and the site "is eminently suitable for the desired purpose" and that the botanical/biodiversity sensitivity of the site is "very low to negligible despite some areas having 'restored' due to the land been left fallow. The general suite of plant species consists of weedy exotics and a handful of disturbance-tolerant indigenous species.

There would be **no negative** impact on Swartland Granite Renosterveld and a **low negative** impact on ecological processes. The latter could be restored to a certain extent by appropriate landscaping."

Further, Botes (2018) states in a comparison of biodiversity sensitivity maps that "From an environmental sensitivity view, both sites are considered degraded agricultural land suitable for the proposed development, but Louw's Bos North may potentially

impact on an ESA (which should be considered for rehabilitation) and may impact on the Stellenbosch western by-pass road. However, it is important to note that both these features can potentially be incorporated into the Memorial Park layout and with good planning the ESA areas can benefit from the proposed layout by incorporating (and rehabilitating) the wetland and streams as part of the final layout."

ii. **Freshwater** – After mitigation, the potential impacts for both Louw's Bos South and Louw's Bos North fell in the Low Negative category or better, with many impacts representing an improvement over the current situation in the Low and Very Low Positive categories. The preferred layout represents the scenario with the lowest overall negative impact and the highest overall positive impact and represents a significant improvement on the 'no-go' scenario.

iii. **Geohydrology** – Groundwater occurs in intergranular and fractured aquifers at depths of >17 m. No groundwater was intersected above the clay layer on sites which provided borehole drill records.

There are a number of groundwater users in the area. Drill records indicate that the boreholes have above average yield, with groundwater quality been classified as "good" according to drinking water guidelines, (with the exception of elevated iron concentrations).

The sites have a "low/medium" groundwater vulnerability rating, due to the presence of a clay layer which acts as a barrier above the main aquifer and the relative depth to the groundwater level.

From a groundwater perspective, due to the relatively thick clay layer above the main aquifer the proposed sites can be considered for the development of a Memorial Park. The Louw's Bos south is more suited to the development of a memorial park due to its location away from major existing groundwater users.

iv. **Geotechnical** – The preferred Louw's Bos South site is underlain by a soil mantle comprising, from ground surface, loose to very loose to medium dense sands and gravel of colluvial origin overlying clays of residual origin all of which classify as Soft Excavation (SABS1200 DM).

The alternate Louw's Bos North site is underlain by a soil mantle comprising, from ground surface, dense to medium dense to very dense sands and gravel of colluvial origin overlying clays of colluvial and residual origin all of which classify as Soft Excavation (SABS1200 DM).

Provided that the burial portion of the proposed development for either site is sited in the area proposed by the geotechnical investigations (as per Appendix G5), the DWS requirements for the siting of cemeteries are met.

Leachate migration in either proposed site is unlikely as the clays in the profile are impervious. Leachate migration is linked to soil permeabilities which should not be too high since the rapid migration of leachate through the soil would pose a threat to surface and ground water quality. Research recommends that an upper soil permeability limit of 5×10^{-5} centimetres per second should be maintained to safely contain microbiological pollutants such as pathogens (Fisher, 1992) - this would include potential pathogens. It should be noted that under ideal conditions, where water resources are situated at greater distances than the recommended minimum distance for leachate attenuation, an increased limit of 5×10^{-4} centimetres per second may be acceptable.

The preferred and alternate sites were rated in terms of the attribute rankings and a score of 82 obtained by each. This indicates that in terms of the **Site Suitability Rating Index**, both proposed sites are considered **satisfactory** for development.

v. **Heritage** –

- a. Archaeology – The results of the study indicate that the proposed development of a new municipal cemetery on Remainder Farm No. 502 near Stellenbosch, will not impact of important pre-colonial archaeological heritage.
- b. Palaeontological – No fossil remains were recorded on Farm Louw's Bos RE/502 during the palaeontological site visit. It is concluded that the palaeontological sensitivity of the development study area is very low.
- c. Visual – The greatest likely heritage related impact is on the visual environment since it is rural and partially scenic along this route. The proposed development will have a high visual impact on the landscape (both sites) causing noticeable (South site) to some (North site) change to the visual environment. Using the risk rating and assessment criteria as explained in Appendix I, the proposed development has moderate (North site) to high (South site) visual exposure, moderate (both sites) visual absorption capacity, medium (both sites) compatibility, and is moderately (North site) to highly visible (South site) along Annandale Road.

- vi. **Socio-economic** – The proposed development i.e. a public cemetery and memorial park, although having the greatest level of public outcry, would have moderate costs and benefits, and would be most consistent with the landowner's responsibility to provide for amenities such as cemeteries.

In addition, besides the potential empowerment of the local community in being employed by or involved in the operational and maintenance aspects of the proposed development, the development aims towards educating and promoting more sustainable methods of interment and remembrance – something which is sorely lacking in the district.

The socio-economic specialist supports the establishment of a public cemetery and memorial park on the preferred southern site since it fulfils the societal need for burial spaces.

According to the Western Cape Biodiversity Spatial Plan (WCBSA), the entire area proposed for the preferred development site (Louw's Bos South) is not within and does not contain any CBAs. The ESA indicated in the sensitivity maps (as per Appendix D) which lies just on the northern corner of the preferred development site, would be avoided with at least a 32m setback/buffer. Layout plan 1 (Appendix B1) is the preferred layout plan for this site since it avoids the wetland ESA completely and positions the entrance to the site more towards the middle of the proposed development footprint. Layout plan 2 (Appendix B2) is an alternate layout plan on the preferred site but it positions the potential access/entrance to the site as crossing the ESA/wetland region.

The WCBSA map for Louw's Bos North indicates a few small sections of potential critical biodiversity or ecological support areas viz. CBA 2– degraded areas but with potential for rehabilitation and ESA 2 – ecological support areas (associated with watercourses or plantations). These areas would be rehabilitated and conserved as part of the memorial park aspect of the proposed development.

Refer to Appendix D for Biodiversity sensitivity maps.

Currently, both the preferred and second alternative Louw's Bos sites are zoned for agriculture. According to the Botanical Constraints Analysis attached as Appendix G2 (MacDonald, 2018), a portion of the preferred site (Alternative 1), Louw's Bos South, has been planted with vines and the remaining portion of the preferred site is fallow but has been cultivated in the past. The report also

contained as general biodiversity constraints analysis. MacDonald, (2018) further states that natural indigenous vegetation is no longer present on the site and the site "is eminently suitable for the desired purpose" and that the botanical/biodiversity sensitivity of the site is "very low to negligible despite some areas having 'restored' due to the land been left fallow. The general suite of plant species consists of weedy exotics and a handful of disturbance-tolerant indigenous species.

There would be **no negative** impact on Swartland Granite Renosterveld and a **low negative** impact on ecological processes. The latter could be restored to a certain extent by appropriate landscaping."

Further, Botes (2018) states in a comparison of biodiversity sensitivity maps that "From an environmental sensitivity view, both sites are considered degraded agricultural land suitable for the proposed development, but Louw's Bos North may potentially impact on an ESA (which should be considered for rehabilitation) and may impact on the Stellenbosch western by-pass road. However, it is important to note that both these features can potentially be incorporated into the Memorial Park layout and with good planning the ESA areas can benefit from the proposed layout by incorporating (and rehabilitating) the wetland and streams as part of the final layout."

The proposed development will positively impact and improve the ESA, CBA condition on the proposed Louw's Bos North site (Alternative 2), as well as eliminate the infestation of alien trees on part of the property.

In addition to preserving and promoting the introduction of indigenous vegetation in the area, the proposed public cemetery and memorial park will provide employment for local individuals, while meeting the need for the essential service of a contextualised public cemetery and memorial park.

The proposed development will also facilitate the provision of a safe community or social utilisation amenity in the form of the memorial park which may also be used other than for burial / remembrance purposes.

Considering all the information, it is not envisaged that this will have a significant overall negative impact on the environment.

It is therefore recommended that this application be authorised with the necessary conditions of approval as described throughout this pre-application BAR.

SECTION A: PROJECT INFORMATION

1. ACTIVITY LOCATION

Location of all proposed sites:	Louw's Bos, Farm RE/502, Stellenbosch Municipality, Western Cape
Farm / Erf name(s) and number(s) (including Portions thereof) for each proposed site:	Louw's Bos, Farm RE/502, Stellenbosch Municipality, Western Cape
Alternative 1:	Louw's Bos South
Property size(s) in m ² for each proposed site:	Approximately 4 870 000 m ² (487ha)
Development footprint size(s) in m ² :	740 000 m ² (74ha total development with 34,53ha of cemetery footprint)
Alternative 1:	Louw's Bos North
Property size(s) in m ² for each proposed site:	Approximately 2 170 000 m ² (217ha)
Development footprint size(s) in m ² :	880 000 m ² (88ha)
Surveyor General (SG) 21 digit code for each proposed site:	C06700000000050200000

2. PROJECT DESCRIPTION

(a) Is the project a new development? If "NO", explain:

YES ✓

NO

(b) Provide a detailed description of the scope of the proposed development (project).

Public cemeteries in the Stellenbosch Municipal area are nearing maximum occupation. The shortage of suitable land for the development of cemeteries has long been one of the major challenges facing many South African municipalities.

Despite the availability of various alternatives, conventional burial and funeral practises are still the most common and preferred, thus, funeral and burial services offered by local municipalities cannot be decontextualised from the cultural and religious customs that communities follow (SALGA, 2016).

The strategy employed by the Applicant, Stellenbosch Municipality, was to expand local cemeteries where possible, as an interim measure, while establishing new cemeteries in at least two of the three Municipal regions identified viz. the Northern Stellenbosch (Klapmuts) region, Eastern Stellenbosch (Franshoek Valley) region and the Southern Stellenbosch (Jamestown) region. This allows specific service to and easier access by, the various communities in these regions.

To address the increasing predicament of a lack of available regional burial space, Stellenbosch Municipality appointed CK Rumboll and Partners to facilitate the identification and various licencing processes required for the establishment of at least two regional cemeteries. EnviroAfrica formed part of the project team responsible for the initial site selection and specifically for undertaking the environmental authorisation application associated with the proposed development.

In the period from 2015 to end of 2017, utilising, as a starting point, the *Cemetery Feasibility Study, Stellenbosch Municipal Area, Consultative Draft 1 Report (2006)* as prepared by Dennis Moss Partnership and attached as Appendix N, as well as the nine potential sites approved by the Stellenbosch Municipal Council at a February 2015 Council meeting, over fifty potential proposed development sites were identified and investigated.

Applying the *Selection Criteria for the Placing of Cemetery Sites in South* (Fischer, 1992) and through a systematic assessment of these and additional criteria as detailed in Appendices L (*First Report, Final October 2016: Identification and Acquisition of Authorisations and Approvals for the Establishment of One or More Regional Cemeteries for Stellenbosch Municipality*) and Appendix M (*Motivation to obtain Stellenbosch Council's endorsement of Region Cemetery Sites in fulfilment of tender B/SM No. 17/16: Acquisition of Authorisations and Approvals for the establishment of one or more regional cemeteries for Stellenbosch Municipality*), five potential sites for the entire Municipal area were identified as best suited for the proposed development of regional public cemeteries and memorial park (as per section 4 of Appendix M).

Besides regional suitability and the criteria mentioned in Appendices L and M, two critical factors in determining whether the identified land was viable for the proposed development, or to be used as a possible alternative development site, were

- i. ownership of the land and
- ii. whether the land had already been earmarked for some other infrastructural/development project.

Although some of the preliminary reports attached in the appendices list various sites in a comparison, the purpose of these reports was to refine the list of potential sites and possible alternatives per Municipal region, so that applications to develop a cemetery and memorial park in at least two municipal regions could be made.

Providing the amenity of a cemetery and memorial park in two regions in the Municipal area provides a more accessible service to local communities. This pre-application BAR focuses only on the **Southern** Municipal region:

The proposed Louw's Bos public cemetery and memorial park aims to promote a novel concept to that of traditional public cemeteries: The memorial park concept is well suited to Stellenbosch Municipality's desire to keep the region 'green' and promote public amenity areas. The idea is to create a public facility and landscape feature which enhances and protects biodiversity and environmentally sensitive areas within the site, as well as provides an accessible, aesthetically attractive feature through the unique design and layout of the development.

Besides allocating areas for traditional burial methods and a remembrance wall or columbarium, a garden of remembrance will be established where the ashes of a loved one may be buried at the foot of a tree or shrub indigenous to the area. The garden of remembrance will follow a landscaped plan and patrons may purchase a tree and plaque to serve as a living memory of their deceased loved one. This also serves as greener approach to the establishment of burial grounds, while promoting an alternate, less land demanding options for burial and/or remembrance. It also promotes the rehabilitation of the proposed site which is currently degraded from a natural environmental perspective, due to cultivation.

Several walkways and seating benches within the public cemetery and memorial park will be made available. Some of these seating benches may also fulfil the role of serving as 'sculptures' or 'art feature points' as currently employed at the Stellenbosch taxi rank, where (if required) solar panels may be erected for the electricity supply the facility may require. This is in keeping with the green, 'off-grid' nature of the proposed public cemetery and memorial park.

Community or social utilisation of the memorial park other than for burial/remembrance purposes is advocated through the incorporation of a peripheral pathway circumnavigating the inner edge of the public cemetery/memorial park boundary. The potential to incorporate existing cycle routes and a walking/running path into this peripheral pathway, exists.

Discreet educational information boards/pedestals along the peripheral pathway will help:

- i. highlight the unique vistas and history of the region (such as the Helderberg and Stellenbosch region mountains, or the history of Louw's Bos and surrounding farms and the heritage related old 'Outspan' road/trail network which passes through Farm RE/502 and could add positively to heritage tourism);
- ii. provide environmental education/information regarding the method of interment being used at a particular area of the cemetery and memorial park. This would also help address the social and cultural perceptions held regarding memorial/burial methods.

It is proposed that the memorial park be an area where regions of biodiversity are promoted, (rehabilitated, if required) and conserved as a part of the 'park' aspect of the cemetery/memorial park. In addition, indigenous vegetation reintroduction will be stimulated and encouraged through the landscaping and memorial park and garden of remembrance areas within the proposed development.

Potential future expansion opportunities for the proposed development, beyond its estimated predicted 30 to 49-year lifespan, includes regions further south/south-west to that of the current preferred site. Although the potential future expansion will require an environmental authorisation process of its own when the time comes, it indicates the sustainability of the current proposed development on the preferred site, as well as the intention to rehabilitate and preserve the disjunct patches of CBAs and ESAs to the south/south-west of the current proposed preferred site (Louw's Bos South), or within proposed alternate site 2 (Louw's Bos North).

Note: on Louw's Bos South, the potential to incorporate existing cycle routes/running paths into a peripheral pathway around the proposed development and future expansion area to rehabilitate degraded areas and preserve an ecological/CBA corridor to the south-east of the existing dam, could provide an additional positive environmental enhancement of the region.

Currently, both the preferred and second alternative Louw's Bos sites are zoned for agriculture. Further, Botes on behalf of EnviroAfrica (2018) states in a comparison of biodiversity sensitivity maps that "From an environmental sensitivity view, both sites are considered degraded agricultural land suitable for the proposed development, but Louw's Bos North may potentially impact on an ESA (which should be considered for rehabilitation) and may impact on the Stellenbosch western bypass road. However, it is important to note that both these features can potentially be incorporated into the Memorial Park layout and with good planning the ESA areas can benefit from the proposed layout by incorporating (and rehabilitating) the wetland and streams as part of the final layout."

From a surface/freshwater perspective, Gericke for EnviroSwift (2018) assessed that after mitigation, the potential impacts for both Louw's Bos South and Louw's Bos North fell in the Low Negative category or better, with many impacts representing an improvement over the current situation in the Low and Very Low Positive categories. The preferred layout represents the scenario with the lowest overall negative impact and the highest overall positive impact and represents a significant improvement on the 'no-go' scenario."

Geohydrological assessments of the proposed sites by Peek and Conrad (2018) revealed that "Groundwater occurs in intergranular and fractured aquifers at depths of >17 m. No groundwater was intersected above the clay layer on sites which provided borehole drill records.

The sites have a 'low/medium' groundwater vulnerability rating, due to the presence of a clay layer which acts as a barrier above the main aquifer and the relative depth to the groundwater level.

From a groundwater perspective, due to the relatively thick clay layer above the main aquifer the proposed sites can be considered for the development of a Memorial Park. The Louw's Bos south is more suited to the development of a memorial park due to its location away from major existing groundwater users."

Proposed Development Rationale:

Public cemeteries in the Stellenbosch Municipal area are nearing maximum occupation. The shortage of suitable land for the development of cemeteries has long been one of the major challenges facing many South African municipalities. It is estimated that most of the existing municipal/public cemeteries in the region have less than 5% of their original capacity left to provide surrounding communities with this important service.

Despite the availability of various alternatives, conventional burial and funeral practises are still the most common and preferred, thus, funeral and burial services offered by local municipalities cannot be decontextualised from the cultural and religious customs that communities follow (SALGA, 2016).

The strategy employed by the Applicant, Stellenbosch Municipality, was to expand local cemeteries where possible, as an interim measure, while establishing new cemeteries in at least two of the three Municipal regions identified viz. Northern Stellenbosch, Eastern Stellenbosch (Franshoek Valley) and Southern Stellenbosch, as per the map in Figure 1 below. This allows easier access for the various communities in these regions.

To address the increasing predicament of a lack of available regional burial space, Stellenbosch Municipality appointed CK Rumboll and Partners to facilitate the identification and various licencing processes required for the establishment of at least two regional cemeteries.

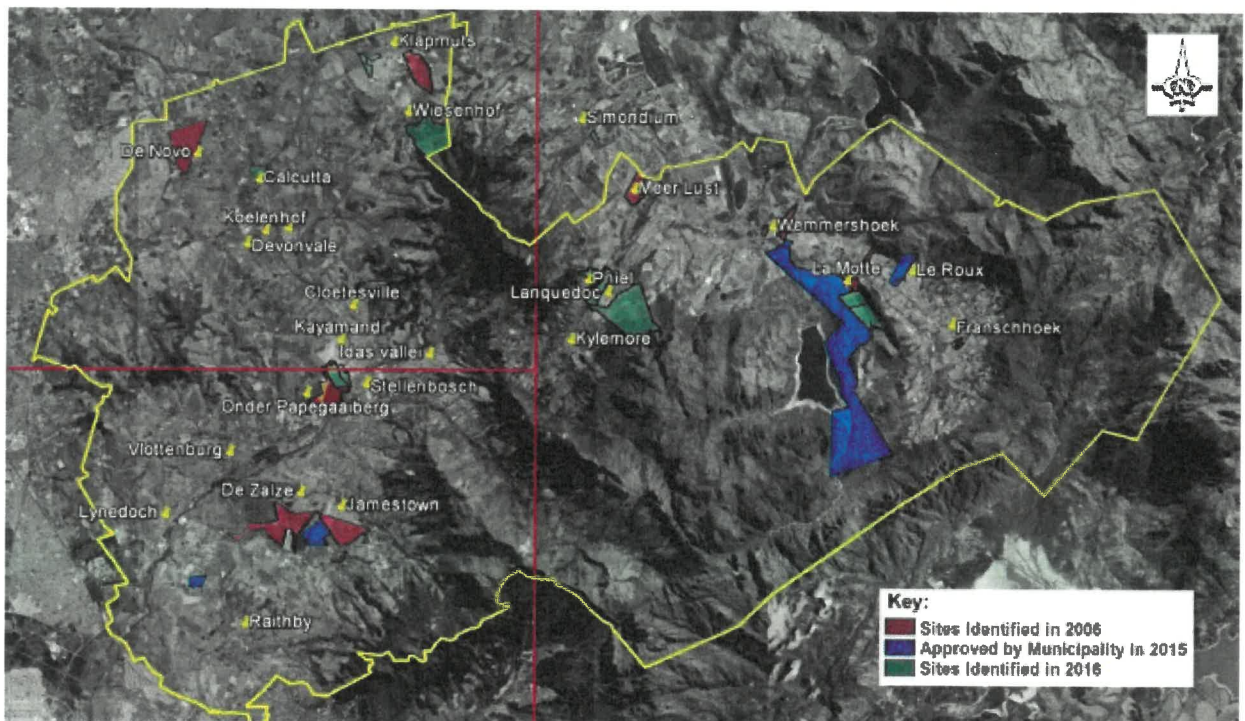


Figure 1: Stellenbosch Municipality jurisdiction outlined in yellow and divided into three regional areas viz. Northern Stellenbosch (top left corner), Eastern Stellenbosch (right half) and Southern Stellenbosch (top left corner)

In the period from 2015 to end of 2017, utilising, as a starting point, the Cemetery Feasibility Study, Stellenbosch Municipal Area, Consultative Draft 1 Report (2006) as prepared by Dennis Moss Partnership and attached as Appendix N, as well as the nine potential sites approved by the Stellenbosch Municipal Council at a February 2015 Council meeting, over fifty potential proposed development sites were identified and investigated.

By mid-2017, through a systematic assessment of various criteria as detailed in Appendices L (*First Report, Final October 2016: Identification and Acquisition of Authorisations and Approvals for the Establishment of One or More Regional Cemeteries for Stellenbosch Municipality*) and Appendix M (*Motivation to obtain Stellenbosch Council's endorsement of Region Cemetery Sites in fulfilment of tender B/SM No. 17/16: Acquisition of Authorisations and Approvals for the establishment of one or more regional cemeteries for Stellenbosch Municipality*), as well as various precluding factors detailed in these Appendices, five potential sites for the entire Municipal area were identified as best suited for the proposed development of regional public cemeteries and memorial park (as per section 4 of Appendix M).

The five sites comprised two from the nine potential sites already approved by the Municipality in 2015, as well as three additional sites. Municipal endorsement for the three additional sites was obtained in August 2017 (partial minutes attached as Appendix K – full minutes available on Municipal website). These five potential sites were further evaluated in terms of their suitability, albeit to varying degrees, to service the three relevant Municipal regions identified in Figure 1 above.

Besides regional suitability and the criteria mentioned in Appendices L and M, two critical factors in determining whether the identified land was viable for the proposed development, or to be used as a possible alternative development site, were

- i. ownership of the land and
- ii. whether the land had already been earmarked for some other infrastructural/development project.

Although some of the preliminary reports attached in the appendices list various sites in a comparison, the purpose of these reports was to refine the list of potential sites and possible alternatives per Municipal region, so that applications to develop a cemetery and memorial park in at least two municipal regions could be made.

Providing the amenity of a cemetery and memorial park in two regions in the Municipal area provides a more accessible service to local communities. This pre-application BAR focuses only on the **Southern** Municipal region.

Note: Potential future expansion opportunities for the proposed development beyond its estimated predicted 49-year lifespan, includes sections of Farm RE/502 further south/south-west to that of the current preferred site. Although the potential future expansion will require an environmental authorisation process of its own when the time comes, it indicates the sustainability of the current proposed development on the preferred site, as well as the intention to rehabilitate and preserve the disjunct patches of CBAs and ESAs to the south/south-west of the current preferred site.

On the proposed preferred alternative site (Louw's Bos South site) the potential to incorporate existing cycle routes/running paths into a peripheral pathway around the proposed development and future expansion area to rehabilitate degraded areas and preserve an ecological/CBA corridor to the south-east of the existing dam, would provide a positive environmental enhancement of the region.

Proposed Development Description:

The Applicant, Stellenbosch Municipality, is the owner of the land proposed for this development. The land, remainder of Louw's Bos Farm RE/502 is currently zoned for Agricultural 1. Both alternatives proposed in this application are located on Louw's Bos Farm RE/502.

Louw's Bos South, the preferred (Alternative 1) site and Louw's Bos North (the proposed alternative 2 site) are strategically positioned since it services the southern region of the Municipal area and will be relatively convenient for local communities to use.

The proposed Louw's Bos public cemetery and memorial park aims to promote a novel concept to that of traditional public cemeteries: The memorial park concept is well suited to Stellenbosch Municipality's desire to keep the region 'green' and promote public amenity areas. The idea is to create a public amenity and landscape feature which enhances and protects biodiversity and environmentally sensitive areas within the site, as well as provides an accessible, aesthetically attractive point through the design and layout of the cemetery. It is proposed that the public park aspect of the cemetery and memorial park

Further, Botes (2018) states in a comparison of biodiversity sensitivity maps that "From an environmental sensitivity view, both sites are considered degraded agricultural land suitable for the proposed development, but Louw's Bos North may potentially impact on an ESA (which should be considered for rehabilitation) and may impact on the Stellenbosch western by-pass road. However, it is important to note that both these features can potentially be incorporated into the Memorial Park layout and with good planning the ESA areas can benefit from the proposed layout by incorporating (and rehabilitating) the wetland and streams as part of the final layout."

Besides allocating areas for traditional burial methods and a remembrance wall or columbarium, a garden of remembrance will be established where the ashes of a loved one may be buried at the foot of a tree or shrub indigenous to the area. The garden of remembrance will follow a landscaped plan and patrons may purchase a tree/plant and plaque to serve as a living memory of their deceased loved one. This also serves as greener approach to the establishment of burial grounds, while promoting an alternate, less land demanding options for burial and/or remembrance and increasing indigenous vegetation landcover.

Several walkways and seating benches within the public cemetery and memorial park will be made available. Some of these seating benches may also fulfil the role of serving as 'sculptures' or 'art feature points' as currently employed at the Stellenbosch taxi rank indicated in Figure 2 below, where (if required) solar panels may be erected for the minimal electricity supply the facility may require. This is in keeping with the green, 'off-grid' nature of the proposed public cemetery and memorial park.

Community or social utilisation of the memorial park other than for burial/remembrance purposes is advocated through the incorporation of a peripheral pathway circumnavigating the inner edge of the public cemetery/memorial park boundary. The potential to incorporate existing cycle routes and a walking/running path into this peripheral pathway, exists.

Discreet educational information boards along the peripheral pathway will help highlight the unique vistas and history of the region (such as of the mountains in the Stellenbosch and Helderberg region, the heritage related to Louw's Bos farm itself such as the 'Outspan' roads/trails network that runs through the farm).

It is proposed that the memorial park be an area where regions of biodiversity are promoted, (rehabilitated, if required) and conserved as a part of the 'park' aspect of the cemetery/memorial park. In additional, indigenous vegetation reintroduction will be stimulated and encouraged through the landscaping and memorial park and garden of remembrance areas within the proposed development.

Legislated Environmental Requirements

The National Environmental Management Act No. 107 of 1998 (NEMA), as amended, makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the competent authority, based on the findings of an Environmental Impact Assessment.

The NEMA is a national act, which is enforced by the national Department of Environmental Affairs (DEA). In the Western Cape, these national powers have been delegated to the Western Cape Department of Environmental Affairs & Development Planning (DEA&DP).

According to the regulations of Section 24(5) of NEMA, authorisation is required for the following listed activities:

Government Notice R327 (Listing Notice 1)

Activity No. 23: "The **development of cemeteries** of 2500 square metres or more in size."

Activity No. 27: "The **clearance of an area** of 1 hectare 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;
- (ii) maintenance purposes undertaken in accordance with a maintenance management plan.

(Possibly) Activity No. 12(xii)(c): "**Development** within a watercourse/32m from a watercourse."

(Possibly) Activity No. 24: "The **development** of;

- (i) a road for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or
 - (ii) a road with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;
- but excluding;
- (a) roads which are identified and included in activity 27 in Listing Notice 2 of 2014; or
 - (b) roads where the entire road falls within an urban area."

Government Notice R324 (Listing Notice 3)

(Possibly) Activity No. 4: "The **development** of a **road** wider than 4 metres with a reserve less than 13.5 metres."

(Possibly) Activity No. 12: "The **clearance of an area** of 300 square metres or more of **indigenous vegetation** except where such clearance of vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan."

Site Description

The preferred site property, Louw's Bos South, is approximately 487ha in size. Approximately 74ha is required for the current application to develop a public cemetery and memorial park (buffer/setback and park areas included in the 74ha development footprint).

It should be noted that although the total development footprint will eventually occupy an area of approximately 74ha, of the 74ha proposed for the total Louw's Bos development, the actual cemetery footprint is around 34,53ha and of this only about 19.97ha are allocated for traditional graves/interment with 14.56ha being used for alternate/more modern, sustainable burial trends.

In addition, the nature of these amenities results in a progressive expansion of the development footprint over time until the entire 34,53ha is completely utilised when the facility is at maximum occupancy (as per Preferred Layout Plan 1 in Appendix B).

The site co-ordinates are **33°59'35.36"S, 18°47'47.58"E**.

Please refer to **Appendix A** for the locality map as well as **Appendix B** (first draft concept site plans) and **Appendix C** for photographs of the site.

Civil and Electrical Services

In general, a slope of between 2 ° and 6 ° is considered ideal for the establishment of a cemetery since it ensures adequate drainage and minimum erosion. Although a maximum slope of 9° may be utilised for cemetery development, terracing will be employed in regions with a slope outside the ideal range since this also provides for interesting landscape and aesthetic pleasing design options.

It is further proposed that the development be off-grid with the potentially small electricity requirement for possible entrance gate lighting, provided by a renewable energy means (e.g. solar panels).

Water Management

Storm water drainage will generally be towards Annandale Road and will probably follow the contours of the site. The possibility that stormwater runoff will be captured in retention dams forming landscaped water features on the Annandale Road side of the proposed site, exists. Collected stormwater may even be reused for irrigation on site particularly in the water-wise remembrance garden and memorial park areas (for watering saplings).

Water for domestic use will either be provided/trucked-in by the Local Municipality to on-site water tanks, or supplied from a borehole. The possibility of using groundwater on the proposed site exists but this option will need to be further investigated and would then trigger an additional water use under the National Water Act, No. 36 of 1998 (NWA).

Sewage

Sewage during construction will be managed via a portable toilet contract.

Sewage during operation will be managed via an on-site sewage package plant which will have a final effluent tank (and pond, if permitted by the DWS) from which final effluent will be used for irrigation purposes.

As a norm i.e. under normal operation and maintenance circumstances, no sewage will be removed off site for treatment or disposal.

However, under emergency conditions (should the need arise) the package plant will be serviced by the local municipality as per Appendix E6 (Capacity status letter from Stellenbosch Municipality).

Waste Management

The only definite solid waste anticipated from the activity during construction and operation will be domestic waste which will be removed to the nearest registered Municipal landfill site.

Garden refuse will probably be composted on site for use in memorial park establishment.

There is a small possibility that solid waste (screenings) from the sewage package plant screening basket will need to be disposed of (as hazardous waste) not more than once a month but more likely, every second month (if even). The operational part of the EMPr (attached as Appendix O) captures this potential waste management issue and specifies that the screenings basket must be

checked every second week to ensure that if and when required, it is serviced. As per the Appendix E6 (Capacity status letter from Stellenbosch Municipality), all solid waste will be handled as per the Municipality's normal waste removal operations, to an appropriately registered waste disposal facility.

Access

Access for both sites will be off Annandale Road. For Louw's Bos North (Alternative site 2) no access off the dual-carriage MR27 (R44) will be allowed. Access will be obtained only from DR1050 (Annandale Rd),

There is a western by-pass planned across the northern portion of Farm 502. No access will be allowed from the by-pass.

The design speed for Annandale road is 100km/h which requires a shoulder sight distance of 200m for a passenger vehicle and a stopping sight distance of 155m.

Alternative 1: Louw's Bos South

The proposed access off Annandale Road is located on the outside of a bend and the road is flat with more than adequate shoulder and stopping sight distances in both directions.

The existing access to the site provides access to the Eskom substation as well as farm worker's houses located on Farm 557. The design of the access will have to accommodate both these roads while also providing a separate access to the memorial park with adequate stacking to avoid queuing onto Annandale Road.

If required, the existing access point could be moved further west to increase the access spacing ($\pm 300\text{m}$) between the Soverby Guest House access and the proposed access.

The access will require a right turn lane for traffic coming from Baden Powell Drive and may also require either a left turn taper or left turn deceleration lane depending on the trip generation of the proposed memorial park.

Alternative 2: Louw's Bos North

The northern portion of the farm has been identified as Alternative 2 for the possible development of a memorial park.

Although the access from Annandale Road is proposed on the inside of the bend the shoulder sight distance will be adequate in both directions. To achieve the shoulder sight distance towards Baden Powell some vegetation may have to be removed but this would be addressed during the detail design of the access

The access will require a right turn lane for traffic coming from the R44 and may also require either a left turn taper or left turn deceleration lane depending the trip generation of the proposed memorial park.

The proposed Alternative 2 access road will have to cross over private land and a stream.

Future full access to Alternative Site 1 and Alternative Site 2:

The proposed accesses for Alternative 1 and 2 off Annandale Road are located at the same point. This will create a full access in future and therefore the location and design of the access to Alternative 1 will also have to consider the possible location of the access to Alternative 2 in the future, if required. A staggered access will not be acceptable or approved.

Approval for these accesses will have to be obtained from the Western Cape Government and the design of the accesses will have to be approved by their roads geometric design department. A

new access road and/or slip-road will need to be constructed from the existing public road to the development.

Access control to the proposed development will most likely be facilitated via fencing/palisade fencing and a lockable gate with a security guard on duty. This also provides a local employment opportunity.

The presence of security enhances the memorial park aspect in that it provides a safe environment for persons utilising the peripheral pathways for walking/jogging/cycling.

Conclusion

Based on the specialist reports in Appendix G, the proposed Louw's Bos Public Cemetery and Memorial Park will provide a much-needed service to the regional community whilst also facilitating the rehabilitation and promotion of indigenous biodiversity on the property. The unique design and landscaping of the public cemetery and memorial park will provide a landscape feature in the area

Each specialist assessment further highlights the environmental benefits of the proposed development, as indicated below:

i. **Biodiversity** – Currently, both the preferred and second alternative Louw's Bos sites are zoned for agriculture. According to the Botanical Constraints Analysis attached as Appendix G2 (MacDonald, 2018), a portion of the preferred site (Alternative 1), Louw's Bos South, has been planted with vines and the remaining portion of the preferred site is fallow but has been cultivated in the past. The report also contained a general biodiversity constraints analysis. MacDonald, (2018) further states that natural indigenous vegetation is no longer present on the site and the site "is eminently suitable for the desired purpose" and that the botanical/biodiversity sensitivity of the site is "very low to negligible despite some areas having 'restored' due to the land been left fallow. The general suite of plant species consists of weedy exotics and a handful of disturbance-tolerant indigenous species.

There would be **no negative** impact on Swartland Granite Renosterveld and a **low negative** impact on ecological processes. The latter could be restored to a certain extent by appropriate landscaping."

Further, Botes (2018) states in a comparison of biodiversity sensitivity maps that "From an environmental sensitivity view, both sites are considered degraded agricultural land suitable for the proposed development, but Louw's Bos North may potentially impact on an ESA (which should be considered for rehabilitation) and may impact on the Stellenbosch western by-pass road. However, it is important to note that both these features can potentially be incorporated into the Memorial Park layout and with good planning the ESA areas can benefit from the proposed layout by incorporating (and rehabilitating) the wetland and streams as part of the final layout."

According to the Western Cape Biodiversity Spatial Plan (WCBSP), the entire area proposed for the preferred development site (Louw's Bos South) is not within and does not contain any CBAs. The ESA indicated in the sensitivity maps (as per Appendix D) which lies just on the northern corner of the preferred development site, would be avoided with at least a 32m setback/buffer. Layout plan 1 (Appendix B1) is the preferred layout plan for this site since it avoids the wetland ESA completely and positions the entrance to the site more towards the middle of the proposed development footprint. Layout plan 2 (Appendix B2) is an alternate layout plan on the preferred site but it positions the potential access/entrance to the site as crossing the ESA/wetland region.

The WCBSP map for Louw's Bos North indicates a few small sections of potential critical biodiversity or ecological support areas viz. CBA 2– degraded areas but with potential for rehabilitation and ESA 2 – ecological support areas (associated

with watercourses or plantations). These areas would be rehabilitated and conserved as part of the memorial park aspect of the proposed development. Refer to Appendix D for Biodiversity sensitivity maps.

ii. **Freshwater** – After mitigation, the potential impacts for both Louw's Bos South and Louw's Bos North fell in the Low Negative category or better, with many impacts representing an improvement over the current situation in the Low and Very Low Positive categories. The preferred layout represents the scenario with the lowest overall negative impact and the highest overall positive impact and represents a significant improvement on the 'no-go' scenario.

iii. **Geohydrology** – Groundwater occurs in intergranular and fractured aquifers at depths of >17 m. No groundwater was intersected above the clay layer on sites which provided borehole drill records.

There are a number of groundwater users in the area. Drill records indicate that the boreholes have above average yield, with groundwater quality been classified as "good" according to drinking water guidelines, (with the exception of elevated iron concentrations).

The sites have a "low/medium" groundwater vulnerability rating, due to the presence of a clay layer which acts as a barrier above the main aquifer and the relative depth to the groundwater level.

From a groundwater perspective, due to the relatively thick clay layer above the main aquifer the proposed sites can be considered for the development of a Memorial Park. The Louw's Bos south is more suited to the development of a memorial park due to its location away from major existing groundwater users.

iv. **Geotechnical** – The preferred Louw's Bos South site is underlain by a soil mantle comprising, from ground surface, loose to very loose to medium dense sands and gravel of colluvial origin overlying clays of residual origin all of which classify as Soft Excavation (SABS1200 DM).

The alternate Louw's Bos North site is underlain by a soil mantle comprising, from ground surface, dense to medium dense to very dense sands and gravel of colluvial origin overlying clays of colluvial and residual origin all of which classify as Soft Excavation (SABS1200 DM).

Provided that the burial portion of the proposed development for either site is sited in the area proposed by the geotechnical investigations (as per Appendix G5), the DWS requirements for the siting of cemeteries are met. Leachate migration in either proposed site is unlikely as the clays in the profile are impervious. Leachate migration is linked to soil permeabilities which should not be too high since the rapid migration of leachate through the soil would pose a threat to surface and ground water quality. Research recommends that an upper soil permeability limit of 5×10^{-5} centimetres per second should be maintained to safely contain microbiological pollutants such as pathogens (Fisher, 1992) - this would include potential pathogens. It should be noted that under ideal conditions, where water resources are situated at greater distances than the recommended minimum distance for leachate attenuation, an increased limit of 5×10^{-4} centimetres per second may be acceptable.

The preferred and alternate sites were rated in terms of the attribute rankings and a score of 82 obtained by each. This indicates that in terms of the **Site Suitability Rating Index**, both proposed sites are considered **satisfactory** for development.

v. **Heritage** –

- a. Archaeology – Archaeological visibility is extremely low due to dense vegetation cover, but indications are that the receiving environment is not a sensitive archaeological landscape.
 - b. Palaeontological – No fossil remains were recorded on Farm Louw's Bos RE/502 during the palaeontological site visit. It is concluded that the palaeontological sensitivity of the Memorial Park study area is very low.
 - c. Visual – The proposed development will have a moderate impact on the landscape causing some change to the visual environment. The development's visual impact has site-related to local extent, long term duration, medium intensity, definite probability, and medium significance on the landscape.
- vi. **Socio-economic** – Using criteria (as detailed in the socio-economic assessment appended to the BAR) five probable land use options for the proposed preferred development site were subjected to a ranking system in which the lower the score the lower the cost to the receiving community and the greater the benefits viz. the 'no-go' option, establish a vineyard, establish a strawberry farm, establish a public cemetery and memorial park, or develop suburban housing on the proposed development site.

The possibility of establishing a vineyard or strawberry farm scored the lowest in the ranking system which means that it has the least costs for the receiving community and most benefits.

The 'no-go' alternative scored the same as the establishment of a public cemetery and memorial park which placed approximately mid-way in the ranking system.

The possibility of the land being used for residential/suburban use scored the highest ranking and thus has the highest cost and least benefits for the receiving community.

The proposed development i.e. a public cemetery and memorial park, although having the greatest level of public outcry, would have moderate costs and benefits, and would be most consistent with the landowner's responsibility to provide for amenities such as cemeteries.

The establishment of a MP on the preferred southern site will fulfil the societal need for burial spaces and is supported.

In addition to preserving and promoting the introduction of indigenous vegetation in the area, the proposed public cemetery and memorial park will provide employment for local individuals, while meeting the need for the essential service of a contextualised public cemetery and memorial park.

The proposed development will also facilitate the provision of a safe community or social utilisation amenity in the form of the memorial park which may also be used other than for burial / remembrance purposes.

Please note: This description must relate to the listed and specified activities in paragraph (d) below.

(c) Please indicate the following periods that are recommended for inclusion in the environmental authorisation:

(i) the period within which commencement must occur,	Uncertain - it is hoped during 2020/2021 due to the rapid depletion of current burial space together with the need to obtain a water use licence. Should an environmental authorisation (EA) be granted, seven calendar days' notice, in writing, will be given to the Competent Authority before commencement of construction activities.
(ii) the period for which the environmental authorisation should be granted and the date by which the activity must have been concluded, where the environmental authorisation does not include operational aspects;	The EA for construction must be valid for five years from the date of issue which ideally will be 2019/2020 and the development/construction must be concluded within five years from the date of commencement of the first listed activity.
(iii) the period that should be granted for the non-operational aspects of the environmental authorisation; and	A period of 10 years should be granted for the development of the non-operational aspects of the EA.
(iv) the period that should be granted for the operational aspects of the environmental authorisation.	At least 30 years

Please note: The Department must specify the abovementioned periods, where applicable, in an environmental authorisation. In terms of the period within which commencement must occur, the period must not exceed 10 years and must not be extended beyond such 10 year period, unless the process to amend the environmental authorisation contemplated in regulation 32 is followed.

(d) List all the listed activities triggered and being applied for.

Please note: The onus is on the applicant to ensure that all the applicable listed activities are applied for and assessed as part of the EIA process. Please refer to paragraph (b) above.

EIA Regulations Listing Notices 1 and 3 of 2014 (as amended):

Listed Activity No(s):	Describe the relevant Basic Assessment Activity(ies) in writing as per Listing Notice 1 (GN No. R. 327)	Describe the portion of the development that relates to the applicable listed activity as per the project description.	Identify if the activity is development / development and operational / decommissioning / expansion / expansion and operational.
12	<i>"Development within a watercourse/32m from a watercourse."</i>	An ephemeral stream runs almost parallel through most of the western boundary portion of the site. The stream is very degraded and will be rehabilitated and restored as part of the development. Associated setbacks and wetland	Development and operational

		areas will be accommodated as part of the 'park' aspect of the development. It is proposed that one or two walkways/bridges will cross the stream.	
23	"The development of cemeteries of 2500 square metres or more in size."	The total property is approximately 39.64ha and a maximum of 30ha is proposed for the development of the public cemetery and memorial park (which includes any buffer/setback areas).	Development and operational
24 (possibly)	"The development of ; (i) a road for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or (ii) a road with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres; but excluding; (a) roads which are identified and included in activity 27 in Listing Notice 2 of 2014; or (b) roads where the entire road falls within an urban area."	A new access road and/or slip-road will need to be constructed from the existing public road to the development. Access to the proposed development site will be from a dedicated intersection as per the information provided in the Final Traffic Study, attached as Appendix G11	Development
27 (possibly)	"The clearance of an area of 1 hectare 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; (ii) maintenance purposes undertaken in accordance with a maintenance management plan."	Clearance of proposed development site after verifying (as per CapeNature's comment captured in Appendix G1 (Draft Biodiversity Sensitivity Maps)	Development and operational
Listed Activity No(s):	Describe the relevant Basic Assessment Activity(ies) in writing as per Listing Notice 3 (GN No. R. 324)	Describe the portion of the development that relates to the applicable listed activity as per the project description.	Identify if the activity is development / development and operational / decommissioning / expansion / expansion and operational.

4 (possibly)	"The development of a road wider than 4 metres with a reserve less than 13.5 metres."	A new access road and/or slip-road will need to be constructed from the existing public road to the development.	Development
12 (possibly)	"The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan."	Clearance of proposed development site after verifying (as per CapeNature's comment captured in Appendix G1 (Draft Biodiversity Sensitivity Maps)	Development and operational

Waste management activities in terms of the NEM: WA (GN No. 921):

Category A Listed Activity No(s):	Describe the relevant <u>Category A</u> waste management activity in writing as per GN No. 921	Describe the portion of the development that relates to the applicable listed activity as per the project description
N/A		

Note: If any waste management activities are applicable, the **Listed Waste Management Activities Additional Information Annexure** must be completed and attached to this Basic Assessment Report as **Appendix I**.

Atmospheric emission activities in terms of the NEM: AQA (GN No. 893):

Listed Activity No(s):	Describe the relevant atmospheric emission activity in writing as per GN No. 893	Describe the portion of the development that relates to the applicable listed activity as per the project description.
N/A		

(e) Provide details of all components (including associated structures and infrastructure) of the proposed development and attach diagrams (e.g., architectural drawings or perspectives, engineering drawings, process flowcharts, etc.).

Buildings Provide brief description below:	YES ✓	NO
Proposed associated infrastructure includes a road to access the site, structured pathways around and within the site, an entrance wall and perimeter fencing, parking, a memorial wall, possible columbarium, offices, maintenance/storage rooms/workshops, ablutions (sewage package plant with 25m ³ capacity), borehole and solar panels.		
Infrastructure (e.g., roads, power and water supply/ storage) Provide brief description below:	YES ✓	NO
Proposed associated infrastructure includes access roads leading to and within the site, and possible intersection and/or slip way to facilitate access to and from Annandale Road. It is proposed that a renewable, 'off-grid' solution to electricity be utilised. The small amount of electricity required for lighting could be supplied from solar panels. Water will be sourced from site (i.e. borehole groundwater extraction).		
Processing activities (e.g., manufacturing, storage, distribution) Provide brief description below:	YES	NO ✓
Storage facilities for raw materials and products (e.g., volume and substances to be stored) Provide brief description below:	YES	NO ✓
Storage and treatment facilities for effluent, wastewater or sewage: Provide brief description below:	YES ✓	NO
A sewage package plant will be utilised for the ablutions – the sewage reticulation network feeds all site ablution facilities to the package plant which will treat the sewage/effluent water to		

acceptable quality to enable irrigation from the final effluent plant tank. Under emergency conditions (if required) the plant may need to be serviced by the Municipality.		
Storage and treatment of solid waste Provide brief description below:	YES	NO ✓
Solid water will be removed off site by the Municipality		
Facilities associated with the release of emissions or pollution. Provide brief description below:	YES	NO ✓
Other activities (e.g., water abstraction activities, crop planting activities) – Provide brief description below:		
	YES ✓	NO
Groundwater extraction from a borehole for water supply to the site for amenities and maintenance of the park areas.		

3. PHYSICAL SIZE OF THE PROPOSED DEVELOPMENT

(a) Property size(s): Indicate the size of all the properties (cadastral units) on which the development proposal is to be undertaken	487 000	m ²
(b) Size of the facility: Indicate the size of the facility where the development proposal is to be undertaken	740 000	m ²
(c) Development footprint: Indicate the area that will be physically altered as a result of undertaking any development proposal (i.e., the physical size of the development together with all its associated structures and infrastructure)	740 000	m ²
(d) Size of the activity: Indicate the physical size (footprint) of the development proposal	345 300	m ²
(e) For linear development proposals: Indicate the length (L) and width (W) of the development proposal	(L) N/A	m
	(W) N/A	m
(f) For storage facilities: Indicate the volume of the storage facility	N/A	m ³
(g) For sewage/effluent treatment facilities: Indicate the volume of the facility (Note: the maximum design capacity must be indicated)	25	m ³

4. SITE ACCESS

(a) Is there an existing access road?	YES ✓	NO
(b) If no, what is the distance in (m) over which a new access road will be built?	N/A	m

(c) Describe the type of access road planned:

Access

Access for both sites will be off Annandale Road. For Louw's Bos North (Alternative site 2) no access off the dual-carriage MR27 (R44) will be allowed. Access will be obtained only from DR1050 (Annandale Rd),

There is a western by-pass planned across the northern portion of Farm 502. No access will be allowed from the by-pass.

The design speed for Annandale road is 100km/h which requires a shoulder sight distance of 200m for a passenger vehicle and a stopping sight distance of 155m.

Alternative 1: Louw's Bos South

Layout 1 (preferred):

Proposed Access: The design speed for Annandale Road (DR1050) is 100km/h which requires a shoulder sight distance of 200m for a passenger vehicle and a stopping sight distance of 155m.

The proposed access to the memorial park will be located approximately 445m east of OP5202 on Annandale Road (DR1050) providing a full access with a right turn lane for traffic coming from Baden Powell Drive and a left turn deceleration lane.

According to the Final Traffic Study appended to the BAR, overall, the proposed intersection will operate at good levels of service (LOS A) and delay with the traffic volume to traffic ratio showing that the intersection will be under capacity during both the weekday Midday and Saturday peak hours.

A right turn lane from Baden Powell Drive will be required to minimise the delay for through traffic on Annandale Road (DR1050) and to improve safety at the intersection. It is also proposed that a left turn deceleration lane be constructed for traffic coming from the east to the cemetery. The design of the intersection should meet the Provincial road design standards.

The proposed access meets all the required road shoulder sight distances for the various types of vehicles utilising the road. The detail design of the access will have to be agreed with the Western Cape Government by their roads geometric design department.

As mentioned, the access will require a right turn lane for traffic coming from Baden Powell Drive as well as a left turn deceleration lane (shown below). It should be noted that the length of the turning lanes will depend on the detail design standards of the Provincial roads design department.

The Roadside Development Environment (RDE) is Semi-Rural and Annadale Road (DR1050) is a Class 3 road which requires unsignalized full intersections (UFI-UFI) to be spaced at no less than 305m. The proposed access is located approximately 445m from OP5202 and approximately 520m from the ESKOM access.

Access control to the proposed development will most likely be facilitated via fencing/palisade fencing and a lockable gate with a security guard on duty. This also provides a local employment opportunity.

Layout 2 (not preferred):

The proposed access off Annandale Road is located on the outside of a bend and the road is flat with more than adequate shoulder and stopping sight distances in both directions.

The existing access to the site provides access to the Eskom substation as well as farm worker's houses located on Farm 557. The design of the access will have to accommodate both these roads while also providing a separate access to the memorial park with adequate stacking to avoid queuing onto Annandale Road.

If may be required, for the existing access point to be moved further west to increase the access spacing ($\pm 300\text{m}$) between the Soverby Guest House access and the proposed access.

This access will also require a right turn lane for traffic coming from Baden Powell Drive and may also require either a left turn taper or left turn deceleration lane depending on the trip generation of the proposed memorial park.

Alternative 2: Louw's Bos North

The northern portion of the farm has been identified as Alternative 2 for the possible development of a memorial park.

Although the access from Annandale Road is proposed on the inside of the bend the shoulder sight distance will be adequate in both directions. To achieve the shoulder sight distance towards Baden Powell some vegetation may have to be removed but this would be addressed during the detailed design of the access.

The access will require a right turn lane for traffic coming from the R44 and may also require either a left turn taper or left turn deceleration lane depending the trip generation of the proposed memorial park.

The proposed Alternative 2 access road will have to cross over private land and a stream.

Future full access to Alternative Site 1 and Alternative Site 2:

The proposed accesses for Alternative 1 and 2 off Annandale Road are located at the same point. This will create a full access in future and therefore the location and design of the access to Alternative 1 will also have to consider the possible location of the access to Alternative 2 in the future, if required. A staggered access will not be acceptable or approved.

Approval for these accesses will have to be obtained from the Western Cape Government and the design of the accesses will have to be approved by their roads geometric design department. A new access road and/or slip-road will need to be constructed from the existing public road to the development.

Access from the Annandale Road to the actual preferred site does exist in the form of dirt roads.

Please note: The position of the proposed access road must be indicated on the site plan.

5. DESCRIPTION OF THE PROPERTY(IES) ON WHICH THE LISTED ACTIVITY(IES) ARE TO BE UNDERTAKEN AND THE LOCATION OF THE LISTED ACTIVITY(IES) ON THE PROPERTY

5.1 Provide a description of the property on which the listed activity(ies) is/are to be undertaken and the location of the listed activity(ies) on the property, as well as of all alternative properties and locations (duplicate section below as required).

Two sites on Farm Louw's Bos RE/502 have been provided by the applicant/owner of the land as having potential for the proposed development: Louw's Bos South, the preferred site which lies south of Annandale Road and Louw's Bos North, which is not the preferred site and lies north of Annandale Road.

Both sites are zoned Agricultural 1. The Summer and Winter 2017/2018 Crop Census, as included in Appendix D indicate that Louw's Bos North, the alternative site which is not preferred for the proposed development, is used more for cultivation in Summer and Winter than Louw's Bos South.

Both proposed sites have the potential to service this region of the Municipality although Alternative Site 2 (Louw's Bos North) presents with significantly more challenges due to:

- the need for a watercourse crossing i.e. the Bonte River (refer to Rivers and Wetlands Map in Appendix D),
- the presence of CBAs and ESAs on the actual property and adjacent property to the north (refer to WCBSP Map, as well as the CBA and ESA Map in Appendix D),
- the impact the proposed development on other potential developments such as the western by-pass road which cuts through Louw's Bos North,
- The fact that Louw's Bos North is used more for cultivation in Summer and Winter than Louw's Bos South.

According to the Western Cape Biodiversity Spatial Plan (WCBSP), the entire area proposed for the preferred development site (Louw's Bos South) is not within and does not contain any CBAs. The ESA indicated in the sensitivity maps (as per Appendix D) which lies just on the northern corner of the preferred development site, would be avoided with at least a 15m setback/buffer (as recommended by the freshwater specialist assessment).

Layout plan 1 (Appendix B1) is the preferred layout plan for this site since it avoids the wetland ESA completely (more than the 15m buffer recommended by the freshwater specialist assessment) and positions the entrance to the site more towards the middle of the proposed development footprint.

Layout plan 2 (Appendix B2) is an alternate layout plan on the preferred site but it positions the potential access/entrance to the site as crossing the ESA/wetland region.

The Site Stormwater and Sewage Network Layout Plan (Appendix B3), is the same for both site layout alternatives (Layout Plan 1 and 2) since, except for the entrance/exit point, the internal infrastructural layout of both layout alternatives is the same.

Alternate 1 (Preferred Site) – Louw's Bos South:

Coordinates of all the proposed activities on the property or properties (sites):	Latitude (S): (deg.; min.; sec)			Longitude (E): (deg.; min.; sec.)		
		33°	59'	35.36"	18°	47'
	o	'	"	o	'	"
	o	'	"	o	'	"
	o	'	"	o	'	"

Alternate 2 – Louw's Bos North:

Coordinates of all the proposed activities on the property or properties (sites):	Latitude (S): (deg.; min.; sec)			Longitude (E): (deg.; min.; sec.)		
		33°	59'	6.72"	18°	49'
	o	'	"	o	'	"
	o	'	"	o	'	"
	o	'	"	o	'	"

Note: For land where the property has not been defined, the coordinates of the area within which the development is proposed must be provided in an addendum to this report.

5.2 Provide a description of the area where the aquatic or ocean-based activity(ies) is/are to be undertaken and the location of the activity(ies) and alternative sites (if applicable).

N/A

Coordinates of the boundary /perimeter of all proposed aquatic or ocean-based activities (sites) (if applicable):	Latitude (S): (deg.; min.; sec)			Longitude (E): (deg.; min.; sec)		
	°	'	"	°	'	"
	°	'	"	°	'	"
	°	'	"	°	'	"
	°	'	"	°	'	"

5.3 For a linear development proposal, please provide a description and coordinates of the corridor in which the proposed development will be undertaken (if applicable).

N/A

For linear activities:	Latitude (S): (deg.; min.; sec)			Longitude (E): (deg.; min.; sec)		
• Starting point of the activity	°	'	"	°	'	"
• Middle point of the activity	°	'	"	°	'	"
• End point of the activity	°	'	"	°	'	"

Note: For linear development proposals longer than 1000m, please provide an addendum with co-ordinates taken every 250m along the route. All important waypoints must be indicated and the GIS shape file provided digitally.

5.4 Provide a location map (see below) as **Appendix A** to this report that shows the location of the proposed development and associated structures and infrastructure on the property; as well as a detailed site development plan / site map (see below) as **Appendix B** to this report; and if applicable, all alternative properties and locations. The GIS shape files (.shp) for maps / site development plans must be included in the electronic copy of the report submitted to the competent authority.

Locality Map:	<p>The scale of the locality map must be at least 1:50 000. For linear development proposals of more than 25 kilometres, a smaller scale e.g., 1:250 000 can be used. The scale must be indicated on the map. The map must indicate the following:</p> <ul style="list-style-type: none"> • an accurate indication of the project site position as well as the positions of the alternative sites, if any; • road names or numbers of all the major roads as well as the roads that provide access to the site(s) • a north arrow; • a legend; • a linear scale; • the prevailing wind direction (during November to April and during May to October); and • GPS co-ordinates (to indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection). <p>For an ocean-based or aquatic activity, the coordinates must be provided within which the activity is to be undertaken and a map at an appropriate scale clearly indicating the area within which the activity is to be undertaken.</p> <p>Coordinates must be provided in degrees, minutes and seconds using the Hartebeesthoek94; WGS84 co-ordinate system.</p>
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Site Plan:	<p>Detailed site development plan(s) must be prepared for each alternative site or alternative activity. The site plans must contain or conform to the following:</p> <ul style="list-style-type: none"> • The detailed site plan must preferably be at a scale of 1:500 or at an appropriate scale. The scale must be indicated on the plan, preferably together with a linear scale. • The property boundaries and numbers of all the properties within 50m of the site must be indicated on the site plan. • The current land use (not zoning) as well as the land use zoning of each of the adjoining properties must be indicated on the site plan. • The position of each element of the application as well as any other structures on the site must be indicated on the site plan.
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	<ul style="list-style-type: none"> • Services, including electricity supply cables (indicate aboveground or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure and access roads that will form part of the development <u>must</u> be indicated on the site plan. • Servitudes and an indication of the purpose of each servitude must be indicated on the site plan. • Sensitive environmental elements within 100m of the site must be included on the site plan, including (but not limited to): <ul style="list-style-type: none"> ○ Watercourses / Rivers / Wetlands - including the 32 meter set back line from the edge of the bank of a river/stream/wetland; ○ Flood lines (i.e., 1:100 year, 1:50 year and 1:10 year where applicable); ○ Ridges; ○ Cultural and historical features; ○ Areas with indigenous vegetation (even if degraded or infested with alien species). • Whenever the slope of the site exceeds 1:10, a contour map of the site must be submitted. • North arrow <p>A map/site plan must also be provided at an appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred and alternative sites indicating any areas that should be avoided, including buffer areas.</p> <p>The GIS shape file for the site development plan(s) must be submitted digitally.</p>
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Please refer to Appendix B attached.

6. SITE PHOTOGRAPHS

Colour photographs of the site and its surroundings (taken on the site and taken from outside the site) with a description of each photograph. The vantage points from which the photographs were taken must be indicated on the site plan, or locality plan as applicable. If available, please also provide a recent aerial photograph. Photographs must be attached as **Appendix C** to this report. The aerial photograph(s) should be supplemented with additional photographs of relevant features on the site. Date of photographs must be included. Please note that the above requirements must be duplicated for all alternative sites.

SECTION B: DESCRIPTION OF THE RECEIVING ENVIRONMENT

Site/Area Description

For linear development proposals (pipelines, etc.) as well as development proposals that cover very large sites, it may be necessary to complete copies of this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area that is covered by each copy on the Site Plan.

1. GRADIENT OF THE SITE

Indicate the general gradient of the sites (highlight the appropriate box).

Flat	Flatter than 1:10	1:10 – 1:4	Steeper than 1:4
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2. LOCATION IN LANDSCAPE

(a) Indicate the landform(s) that best describes the site (highlight the appropriate box(es)).

Ridgeline	Plateau	Side slope of hill / mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea-front
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(b) Provide a description of the location in the landscape.

Both proposed sites are visible within the larger open landscape since they lie on the slopes of hills to the south and north of Annandale Road.

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

(a) Is the site(s) located on or near any of the following (highlight the appropriate boxes)?

Shallow water table (less than 1.5m deep)	YES	NO ✓	UNSURE
Seasonally wet soils (often close to water bodies)	YES	NO	UNSURE ✓
Unstable rocky slopes or steep slopes with loose soil	YES	NO ✓	UNSURE
Dispersive soils (soils that dissolve in water)	YES	NO ✓	UNSURE
Soils with high clay content	YES ✓ (deeper)	NO	UNSURE ✓
Any other unstable soil or geological feature	YES	NO ✓	UNSURE
An area sensitive to erosion	YES	NO ✓	UNSURE
An area adjacent to or above an aquifer.	YES ✓	NO	UNSURE
An area within 100m of a source of surface water	YES ✓	NO	UNSURE
An area within 500m of a wetland	YES ✓	NO	UNSURE
An area within the 1:50 year flood zone	YES	NO ✓	UNSURE
A water source subject to tidal influence	YES	NO ✓	UNSURE

(b) If any of the answers to the above is "YES" or "UNSURE", specialist input may be requested by the Department. (Information in respect of the above will often be available at the planning sections of local authorities. The 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

(c) Indicate the type of geological formation underlying the site.

Granite	Shale	Sandstone	Quartzite	Dolomite	Dolorite	Other (describe)
Provide a description.						

Louw's Bos South (preferred alternative) and Louw's Bos North are located on the Kuils River – Helderberg pluton of the Cape Granite Suite. The regions surficial cover is comprised of in-situ weathered parent rock. The surficial cover comprises of loam and sandy loam material. Weathered granite underlies these residual soils with a gradual transition into competent granite bedrock. The granite bedrock in the region has a porphyritic texture with large distinct crystal in coarse grained matrix. Crystals include large feldspars which generally weather into clays. Drill reports collected indicate that the surficial cover can range from 1 – 10 m thick and the underlying clay layer thickness can range from 10 – 60 m

Louw's Bos South site is underlain by a mantle of colluvial and residual soils overlying the granite of the Cape Granite Suite.

The site is underlain by a soil mantle comprising, from ground surface, grey brown medium dense, medium to coarse grained sand with small ferricrete pebbles and cobbles. Colluvium overlying

- Cream brown dense intact silty medium grained SAND with ferricrete pebbles and cobbles: Colluvium overlying
- Olive brown medium dense intact silty GRAVEL: Colluvium or
- Cream to cream brown to red brown firm to stiff to soft intact silty CLAY Residual Granite overlying
- Light cream grey completely to highly weathered widely jointed medium hard rock GRANITE.

The site is underlain by a mantle of colluvial and residual soils overlying the granite of the Cape Granite Suite.

The site is underlain by a soil mantle comprising, from ground surface, light brown medium dense to dense to very dense, gravelly silty sand with abundant pebbles and cobbles. Colluvium overlying

- Yellow brown dense intact sandy silty Gravel: Colluvium overlying
- Yellow brown stiff to firm slightly shattered silty CLAY; Colluvium or
- Light grey firm to soft intact sandy CLAY; Colluvium overlying
- Cream grey stiff to firm intact gravelly CLAY: Residual Granite

4. SURFACE WATER

(a) Indicate the surface water present on and or adjacent to the site and alternative sites (highlight the appropriate boxes)?

Perennial River	YES ✓	NO	UNSURE
Non-Perennial River	YES	NO ✓	UNSURE
Permanent Wetland	YES ✓	NO	UNSURE
Seasonal Wetland	YES ✓	NO	UNSURE
Artificial Wetland	YES	NO	UNSURE ✓
Estuarine / Lagoon	YES	NO ✓	UNSURE

(b) Provide a description.

According to the initial findings study undertaken as preliminary to the freshwater assessment, as well as the site based freshwater assessment and wetland delineation, watercourses were identified within the Louw's Bos Farm RE/502 North and South. These natural watercourses were delineated.

A single wetland (the Bonterivier) was identified as potentially being impacted by the proposed development given the preferred layout within Farm RE/502 South, and two wetlands were identified that would potentially be impacted by the proposed development given the alternative layout on Farm RE/502 North, in addition to potential impacts on the Bonterivier system.

The proposed preferred layout for Louw's Bos South site, avoids the wetland and ESA regions

5. THE SEAFRONT / SEA

- (a) Is the site(s) located within any of the following areas? (highlight the appropriate boxes).
If the site or alternative site is closer than 100m to such an area, please provide the approximate distance in (m).

AREA	YES	NO	UNSURE	If "YES": Distance to nearest area (m)
An area within 100m of the high water mark of the sea	YES	NO ✓	UNSURE	
An area within 100m of the high water mark of an estuary/lagoon	YES	NO ✓	UNSURE	
An area within the littoral active zone	YES	NO ✓	UNSURE	
An area in the coastal public property	YES	NO ✓	UNSURE	
Major anthropogenic structures	YES	NO ✓	UNSURE	
An area within a Coastal Protection Zone	YES	NO ✓	UNSURE	
An area seaward of the coastal management line	YES	NO ✓	UNSURE	
An area within the high risk zone (20 years)	YES	NO ✓	UNSURE	
An area within the medium risk zone (50 years)	YES	NO ✓	UNSURE	
An area within the low risk zone (100 years)	YES	NO ✓	UNSURE	
An area below the 5m contour	YES	NO ✓	UNSURE	
An area within 1km from the high water mark of the sea	YES	NO ✓	UNSURE	
A rocky beach	YES	NO ✓	UNSURE	
A sandy beach	YES	NO ✓	UNSURE	

- (b) If any of the answers to the above is "YES" or "UNSURE", specialist input may be requested by the Department. (The 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

6. BIODIVERSITY

Note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed development. To assist with the identification of the biodiversity occurring on site and the ecosystem status, consult <http://bgis.sanbi.org> or BGIShelp@sanbi.org. Information is also available on compact disc ("cd") from the Biodiversity-GIS Unit, Tel.: (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) must be provided as an overlay map on the property/site plan as **Appendix D** to this report.

- (a) Highlight the applicable biodiversity planning categories of all areas on preferred and alternative sites and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category. Also describe the prevailing level of protection of the Critical Biodiversity Area ("CBA") and Ecological Support Area ("ESA") (how many hectares / what percentages are formally protected).

Alternative 1 (Louw's Bos South - Preferred Site):

Systematic Biodiversity Planning Category	CBA	ESA	Other Natural Area ("ONA")	No Natural Area Remaining ("NNR")
If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan and the conservation management objectives	According to the Western Cape Biodiversity Spatial Plan (WCBSPP), the entire area proposed for the preferred development site (Louw's Bos South) is not within and does not contain any CBAs. The ESA indicated in the sensitivity maps (as per Appendix D) which lies just on the northern corner of the preferred development site, would be avoided with at least a 32m setback/buffer, especially since the potential access/entrance to the site would be position towards that region. The avoidance of the ESA is indicated in the concept layout plans/drawings as per Appendix B.			
Describe the site's CBA/ESA quantitative values (hectares/percentage) in relation to the prevailing level of protection of CBA and ESA (how many hectares / what	The BGIS and Cape Farm Mapper Vegetation Maps indicate vegetation cover as Swartland Granite Renosterbos.			

percentages are formally protected locally and in the province)	<p>Refer to Appendix D for Biodiversity sensitivity maps.</p> <p>Botanical and biodiversity specialist assessments states that natural indigenous vegetation is no longer present on the site and the site "is eminently suitable for the desired purpose" and that the botanical/biodiversity sensitivity of the site is "very low to negligible despite some areas having 'restored' due to the land been left fallow. The general suite of plant species consists of weedy exotics and a handful of disturbance-tolerant indigenous species.</p> <p>There would be no negative impact on Swartland Granite Renosterveld and a low negative impact on ecological processes. The latter could be restored to a certain extent by appropriate landscaping."</p> <p>Further, Botes (2018) states in a comparison of biodiversity sensitivity maps that "From an environmental sensitivity view, both sites are considered degraded agricultural land suitable for the proposed development,"</p>
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(b) Highlight and describe the habitat condition on site.

Habitat Condition	Percentage of habitat condition class (adding up to 100%) and area of each in square metre (m ²)		Description and additional comments and observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing/harvesting regimes, etc.)
	%	m ²	
Natural	%	m ²	
Near Natural (includes areas with low to moderate level of alien invasive plants)	%	m ²	
Degraded (includes areas heavily invaded by alien plants)	0%	m ²	
Transformed (includes cultivation, dams, urban, plantation, roads, etc.)	100%	740 000 m ²	Evidence of current and historic cultivation. Hardened vehicle tracks were evident throughout the site. An Eskom substation is located to the immediate east of the proposed development site and a high voltage power line servitude to the immediate west. Annandale Road forms the immediate northern border. There is an irrigation dam just south of the southern boundary of the proposed development site.

(c) Complete the table to indicate.

- (i) the type of vegetation present on the site, including its ecosystem status; and
- (ii) whether an aquatic ecosystem is present on/or adjacent to the site.

Terrestrial Ecosystems		Description of Ecosystem, Vegetation Type, Original Extent, Threshold (ha, %), Ecosystem Status
Ecosystem threat status as per the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	Critically	
	Endangered	
	Vulnerable	
	Least Threatened	Site completely transformed. Refer to Appendix D for Biodiversity sensitivity maps

Aquatic Ecosystems

Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
YES ✓	NO	UNSURE	YES	NO ✓	YES	NO ✓

(d) Provide a description of the vegetation type and/or aquatic ecosystem present on the site, including any important biodiversity features/information identified on the site (e.g. threatened species and special habitats). Clearly describe the biodiversity targets and management objectives in this regard.

Refer to Appendix D for Biodiversity sensitivity maps

Alternative 2 (Louw's Bos North):

Systematic Biodiversity Planning Category	CBA	ESA	Other Natural Area ("ONA")	No Natural Area Remaining ("NNR")
If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan and the conservation management objectives	<p>According to the Western Cape Biodiversity Spatial Plan, areas proposed for the development contain sections of potential critical biodiversity or ecological support areas viz. CBA 2– degraded areas but with potential for rehabilitation and ESA 2 – ecological support areas (associated with watercourses or plantations). These areas would be rehabilitated and conserved as part of the memorial park aspect of the proposed development.</p> <p>Refer to Appendix D for Biodiversity sensitivity maps</p>			
Describe the site's CBA/ESA quantitative values (hectares/percentage) in relation to the prevailing level of protection of CBA and ESA (how many hectares / what percentages are formally protected locally and in the province)	<p>The BGIS and Cape Farm Mapper Vegetation Maps indicate vegetation cover as Swartland Granite Renosterbos.</p> <p>Refer to Appendix D for Biodiversity sensitivity maps.</p> <p>Botanical and biodiversity specialist assessments states that natural indigenous vegetation is no longer present on the site and the site "is eminently suitable for the desired purpose" and that the botanical/biodiversity sensitivity of the site is "very low to negligible despite some areas having 'restored' due to the land been left fallow. The general suite of plant species consists of weedy exotics and a handful of disturbance-tolerant indigenous species.</p> <p>There would be no negative impact on Swartland Granite Renosterveld and a low negative impact on ecological processes. The latter could be restored to a certain extent by appropriate landscaping."</p> <p>Further, Botes (2018) states in a comparison of biodiversity sensitivity maps that "From an environmental sensitivity view, both sites are considered degraded agricultural land suitable for the proposed development, but Louw's Bos North may potentially impact on an ESA (which should be considered for rehabilitation) and may impact on the Stellenbosch western by-pass road. However, it is important to note that both these features can potentially be incorporated into the Memorial Park layout and with good planning the ESA areas can benefit from the proposed layout by incorporating (and rehabilitating) the wetland and streams as part of the final layout."</p>			

(c) Highlight and describe the habitat condition on site.

Habitat Condition	Percentage of habitat condition class (adding up to 100%) and area of each in square metre (m ²)		Description and additional comments and observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing/harvesting regimes, etc.)
Natural	%	m ²	
Near Natural (includes areas with low to moderate level of alien invasive plants)	%	m ²	
Degraded (includes areas heavily invaded by alien plants)	0%	m ²	
Transformed (includes cultivation, dams, urban, plantation, roads, etc.)	100%	740 000 m ²	The BGIS and Cape Farm Mapper Vegetation Maps indicate vegetation cover as Swartland Granite Renosterbos but there is blatant evidence of current and historic cultivation. Both the preferred and second alternative Louw's Bos sites are zoned for agriculture. A portion of the preferred site (Alternative 1), Louw's Bos South, has been planted with vines and the remaining portion of the preferred site is fallow but has been cultivated in the past. Hardened vehicle tracks were evident throughout the site.

(c) Complete the table to indicate:

- (i) the type of vegetation present on the site, including its ecosystem status; and
- (ii) whether an aquatic ecosystem is present on/or adjacent to the site.

Terrestrial Ecosystems		Description of Ecosystem, Vegetation Type, Original Extent, Threshold (ha, %), Ecosystem Status
Ecosystem threat status as per the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	Critically	
	Endangered	
	Vulnerable	
	Least Threatened	CBA 2- degraded areas but with potential for rehabilitation. Refer to Appendix D for Biodiversity sensitivity maps.

Aquatic Ecosystems						
Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	

(e) Provide a description of the vegetation type and/or aquatic ecosystem present on the site, including any important biodiversity features/information identified on the site (e.g. threatened species and special habitats). Clearly describe the biodiversity targets and management objectives in this regard.

Botanical and biodiversity specialist assessments states that natural indigenous vegetation is no longer present on the site and the site "is eminently suitable for the desired purpose" and that the botanical/biodiversity sensitivity of the site is "very low to negligible despite some areas having 'restored' due to the land been left fallow. The general suite of plant species consists of weedy exotics and a handful of disturbance-tolerant indigenous species.

There would be no negative impact on Swartland Granite Renosterveld and a low negative impact on ecological processes. The latter could be restored to a certain extent by appropriate landscaping."

Refer to Appendix D for Biodiversity sensitivity maps

7. LAND USE OF THE SITE

Note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed development.

Untransformed area	Low density residential	Medium density residential	High density residential	Informal residential
Retail	Commercial & warehousing	Light industrial	Medium industrial	Heavy industrial
Power station	Office/consulting room	Military or police base/station/compound	Casino/entertainment complex	Tourism and Hospitality facility
Open cast mine	Underground mine	Spoil heap or slimes dam	Quarry, sand or borrow pit	Dam or reservoir
Hospital/medical centre	School	Tertiary education facility	Church	Old age home
Sewage treatment plant	Train station or shunting yard	Railway line	Major road (4 lanes and more)	Airport
Harbour	Sport facilities	Golf course	Polo fields	Filling station
Landfill or waste treatment site	Plantation	Agriculture	River, stream or wetland	Nature conservation area
Mountain, koppie or ridge	Museum	Historical building	Graveyard	Archaeological site
Other land uses (describe):				

(a) Provide a description.

Botanical and biodiversity specialist assessments states that natural indigenous vegetation is no longer present on the site and the site "is eminently suitable for the desired purpose" and that the botanical/biodiversity sensitivity of the site is "very low to negligible" despite some areas having 'restored' due to the land been left fallow. The general suite of plant species consists of weedy exotics and a handful of disturbance-tolerant indigenous species.

There would be no negative impact on Swartland Granite Renosterveld and a low negative impact on ecological processes. "

Refer to Appendix D for Biodiversity sensitivity maps which include vegetation cover, summer crop census, winter crop census and grazing potential maps.

8. LAND USE CHARACTER OF THE SURROUNDING AREA

(a) Highlight the current land uses and/or prominent features that occur within +/- 500m radius of the site and neighbouring properties if these are located beyond 500m of the site.

Note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed development.

Untransformed area	Low density residential	Medium density residential	High density residential	Informal residential
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Retail	Commercial & warehousing	Light industrial	Medium industrial	Heavy industrial
Power station	Office/consulting room	Military or police base/station/compound	Casino/entertainment complex	Tourism and Hospitality facility
Open cast mine	Underground mine	Spoil heap or slimes dam	Quarry, sand or borrow pit	Dam or reservoir
Hospital/medical centre	School	Tertiary education facility	Church	Old age home
Sewage treatment plant	Train station or shunting yard	Railway line	Major road (4 lanes and more)	Airport/airfield
Harbour	Sport facilities	Golf course	Polo fields	Filling station
Landfill or waste treatment site	Plantation	Agriculture	River, stream or wetland	Nature conservation area
Mountain, koppie or ridge	Museum	Historical building	Graveyard	Archaeological site
Other land uses (describe):	Eskom substation and high voltage power line servitudes run on the east and west of the proposed preferred alternative site.			

- (b) Provide a description, including the distance and direction to the nearest residential area, industrial area, agri-industrial area.

Both proposed sites are surrounded by agricultural and agri-industrial areas, with scattered residential dwellings. Immediately north of the preferred proposed site lies Annandale Road, with the Bonte River and agricultural land immediately adjacent. An Eskom substation and high voltage power line servitudes lie immediately adjacent to the east and west of Louw's Bos South site, respectively. Approximately 500m to the north, lies a small dam used for irrigation purposes. Immediately north of the Louw's Bos North site lies a CBA area within the Spier Wine Estate. To the north east lies the Stellenbosch Airfield. To the far east lies the dual-carriage R44 route. Agricultural and agri-industrial areas lie to the south of the proposed alternative 2 site, with the Bonte River and Annandale Road located beyond that to the south. A few dams lie to the south east and south west of Louw's Bos North site with Spier Wine Farm and the Waldorf School to the West.

9. SOCIO-ECONOMIC ASPECTS

- a) Describe the existing social and economic characteristics of the community in the vicinity of the proposed site, in order to provide baseline information (for example, population characteristics/demographics, level of education, the level of employment and unemployment in the area, available work force, seasonal migration patterns, major economic activities in the local municipality, gender aspects that might be of relevance to this project, etc.).

The socio-economic cost and benefits are outlined in the specialist socio-economic assessment (as per Appendix G10) and listed as a general cost or benefit, followed by specifics for the proposed memorial site and concluded with management directives. Burial alternatives, although provided, are not assessed. Refer to section 4 of socio-economic assessment.

10. HISTORICAL AND CULTURAL ASPECTS

- (a) Please be advised that if section 38 of the NHRA is applicable to your proposed development, you are requested to furnish this Department with written comment from Heritage Western Cape as part of your public participation process. Heritage Western Cape must be given an opportunity, together with the rest of the I&APs, to comment on any Pre-application BAR, a Draft BAR, and Revised BAR.

Section 38 of the NHRA states the following:

"38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

- (a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50m in length;
- (c) any development or other activity which will change the character of a site-
 - (i) exceeding 5 000m² in extent; or
 - (ii) involving three or more existing erven or subdivisions thereof; or

- (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
 - (d) the re-zoning of a site exceeding 10 000m² in extent; or
 - (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,
- must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development".

- (b) The impact on any national estate referred to in section 3(2), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii), of the NHRA, must also be investigated, assessed and evaluated. Section 3(2) states the following: "3(2) Without limiting the generality of subsection (1), the national estate may include—
- (a) places, buildings, structures and equipment of cultural significance;
 - (b) places to which oral traditions are attached or which are associated with living heritage;
 - (c) historical settlements and townscapes;
 - (d) landscapes and natural features of cultural significance;
 - (e) geological sites of scientific or cultural importance;
 - (f) archaeological and palaeontological sites;
 - (g) graves and burial grounds, including—
 - (i) ancestral graves;
 - (ii) royal graves and graves of traditional leaders;
 - (iii) graves of victims of conflict;
 - (iv) graves of individuals designated by the Minister by notice in the Gazette;
 - (v) historical graves and cemeteries; and
 - (vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
 - (h) sites of significance relating to the history of slavery in South Africa;
 - (i) movable objects, including—
 - (i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens;
 - (ii) objects to which oral traditions are attached or which are associated with living heritage;
 - (iii) ethnographic art and objects;
 - (iv) military objects;
 - (v) objects of decorative or fine art;
 - (vi) objects of scientific or technological interest; and
 - (vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996)".

Is Section 38 of the NHRA applicable to the proposed development?		YES ✓	NO	UNCERTAIN
If YES or UNCERTAIN, explain:	<p>Section 38 of the National Heritage Resources Act, 1999, is applicable since the proposed public cemetery and memorial park is more than 5000m² and will change the character of the site; The site will be rezoned and exceeds 10 000 m².</p> <p>At the time of this report, no submissions were made to HWC. Although, a Heritage Screener as prepared by CTS Heritage (Appendix G8) for the Louw's Bos North site (but including the Louw's Bos South site as part of the general surrounds) was submitted to HWC prior to this application process.</p> <p>A NID is in the process of being prepared for submission to HWC.</p>			
Will the development impact on any national estate referred to in Section 3(2) of the NHRA?		YES	NO ✓	UNCERTAIN
If YES or UNCERTAIN, explain:	Both the archaeological and paleontological assessments indicated that the proposed site is not a sensitive landscape.			
Will any building or structure older than 60 years be affected in any way?		YES	NO ✓	UNCERTAIN
If YES or UNCERTAIN, explain:				
Are there any signs of culturally or historically significant elements, as defined in section 2 of the NHRA, including Archaeological or paleontological sites, on or close (within 20m) to the site?		YES	NO ✓	UNCERTAIN

If YES or UNCERTAIN, explain:	
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Note: If uncertain, the Department may request that specialist input be provided **and** Heritage Western Cape must provide comment on this aspect of the proposal. (Please note that a copy of the comments obtained from the Heritage Resources Authority must be appended to this report as Appendix E1).

11. APPLICABLE LEGISLATION, POLICIES, CIRCULARS AND/OR GUIDELINES

- (a) Identify all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to the development proposal and associated listed activity(ies) being applied for and that have been considered in the preparation of the BAR.

LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	ADMINISTERING AUTHORITY and how it is relevant to this application	TYPE Permit/license/authorisation/comment / relevant consideration (e.g. rezoning or consent use, building plan approval, Water Use License and/or General Authorisation, License in terms of the SAHRA and CARA, coastal discharge permit, etc.)	DATE (if already obtained):
National Environmental Management Act, No. 107 of 1998 and associate EIA Regulations 2014	Department of Environmental Affairs and Development Planning (DEA&DP)	Environmental Authorisation	Basic Assessment process currently underway.
National Water Act, No. 36 of 1998	Department of Water Affairs	Water Use Licence (WUL) or General Authorisation (Possibly applicable)	WUL Application to be submitted. Pre-application meeting held
Stellenbosch Land Use Planning By-law, 2015	Stellenbosch Municipality	Rezoning	Application lodged
National Heritage Resources Act, No 25 of 1999	Heritage Western Cape (HWC)	Authorisation	NID submitted. Final comment/authorisation received (02 May 2019)
National Veld and Forest Fire Act 101 of 1998	Department of Agriculture, Forestry and Fisheries	Operational adherence	Appropriate firebreaks (as required by DAFF) must be maintained

- (b) Describe how the proposed development **complies with and responds** to the legislation and policy context, plans, guidelines, spatial tools, municipal development planning frameworks and instruments.

LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	Describe how the proposed development complies with and responds:
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DEA&DP Guidelines on: Public Participation; EIA Regulations; Need and Desirability; Alternatives	A voluntary pre-application round of public participation to register I&APs was undertaken. Guideline documents were consulted.
National Environmental Management Act, No. 107 of 1998	This application is being undertaken according to the NEMA.
National Heritage Resources Act, No. 25 of 1999	A heritage screener was submitted to HWC (as per Appendix G8). A full heritage impact assessment (as per Appendix G7) was conducted. Submission of a Notice of Intent to Develop (NID) was undertaken with final comment received from HWC in May 2019 (as per Appendix E4).
National Water Act, No. 36 of 1998 (NWA)	Process to authorise Section 21 activities under the NWA to be undertaken will possibly be undertaken.

Note: Copies of any comments, permit(s) or licences received from any other Organ of State must be attached to this report as **Appendix E**.

Section C: PUBLIC PARTICIPATION

The PPP must fulfil the requirements outlined in the NEMA, the EIA Regulations, 2014 (as amended) and if applicable, the NEM: WA and/or the NEM: AQA. This Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, any subsequent Circulars, and guidelines must also be taken into account.

- Please highlight the appropriate box to indicate whether the specific requirement was undertaken or whether there was an exemption applied for.

In terms of Regulation 41 of the EIA Regulations, 2014 (as amended) -			
(a) fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of -			
(i) the site where the activity to which the application relates, is or is to be undertaken; and	YES	EXEMPTION	
(ii) any alternative site	YES	EXEMPTION	N/A
(b) giving written notice, in any manner provided for in Section 47D of the NEMA, to -			
(i) the occupiers of the site and, if the applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	YES	EXEMPTION	N/A
(ii) owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	YES	EXEMPTION	
(iii) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;	YES	EXEMPTION	
(iv) the municipality (Local and District Municipality) which has jurisdiction in the area;	YES	EXEMPTION	
(v) any organ of state having jurisdiction in respect of any aspect of the activity; and	YES	EXEMPTION	
(vi) any other party as required by the Department;	YES	EXEMPTION	N/A
(c) placing an advertisement in -			
(i) one local newspaper; or	YES	EXEMPTION	
(ii) any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;	YES	EXEMPTION	N/A
(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken	YES	EXEMPTION	N/A

(e) using reasonable alternative methods, as agreed to by the Department, in those instances where a person is desirous of but unable to participate in the process due to— (i) illiteracy; (ii) disability; or (iii) any other disadvantage.	YES	EXEMPTION	N/A
If you have indicated that "EXEMPTION" is applicable to any of the above, proof of the exemption decision must be appended to this report.			
Please note that for the NEM: WA and NEM: AQA, a notice must be placed in at least two newspapers circulating in the area where the activity applied for is proposed.			
If applicable, has/will an advertisement be placed in at least two newspapers? N/A	YES	NO	
If "NO", then proof of the exemption decision must be appended to this report.			

2. Provide a list of all the State Departments and Organs of State that were consulted:

Refer to I&AP Lists attached as Appendix H

State Department / Organ of State	Date request was sent:	Date comment received:	Support / not in support

3. Provide a summary of the issues raised by I&APs and an indication of the manner in which the issues were incorporated, or the reasons for not including them.
(The detailed outcomes of this process, including copies of the supporting documents and inputs must be included in a Comments and Response Report to be attached to the BAR as **Appendix F**).

Please see Comment and Response Trail Reports available from the pre-application and post-application public participation processes (PPPs). Supporting documents and PPP proof attached as appendices F-1 and F-2.

4. Provide a summary of any conditional aspects identified / highlighted by any Organs of State, which have jurisdiction in respect of any aspect of the relevant activity.

No conditional aspects identified by Organs of State at this stage.

Note:

Even if pre-application public participation is undertaken as allowed for by Regulation 40(3), it must be undertaken in accordance with the requirements set out in Regulations 3(3), 3(4), 3(8), 7(2), 7(5), 19, 40, 41, 42, 43 and 44.

If the "exemption" option is selected above and no proof of the exemption decision is attached to this BAR, the application will be refused.

A list of all the potential I&APs, including the Organs of State, notified and a list of all the registered I&APs must be submitted with the BAR. The list of registered I&APs must be opened, maintained and made available to any person requesting access to the register in writing.

The BAR must be submitted to the Department when being made available to I&APs, including the relevant Organs of State and State Departments which have jurisdiction with regard to any aspect of the activity, for a commenting period of at least 30 days. Unless agreement to the contrary has been reached between the Competent Authority and the EAP, the EAP will be responsible for the consultation with the relevant State Departments in terms of Section 24O and Regulation 7(2) – which consultation must happen simultaneously with the consultation with the I&APs and other Organs of State.

All the comments received from I&APs on the BAR must be recorded, responded to and included in the Comments and Responses Report included as **Appendix F** of the BAR. If necessary, any amendments made in response to comments received must be effected in the BAR itself. The Comments and Responses Report must also include a description of the PPP followed.

The minutes of any meetings held by the EAP with I&APs and other role players wherein the views of the participants are recorded, must also be submitted as part of the public participation information to be attached to the final BAR as **Appendix F**.

Proof of all the notices given as indicated, as well as notice to I&APs of the availability of the Pre-Application BAR (if applicable), Draft BAR, and Revised BAR (if applicable) must be submitted as part of the public participation information to be attached to the BAR as **Appendix F**. In terms of the required "proof" the following must be submitted to the Department:

- a site map showing where the site notice was displayed, a dated photographs showing the notice displayed on site and a copy of the text displayed on the notice;
- in terms of the written notices given, a copy of the written notice sent, as well as:
 - if registered mail was sent, a list of the registered mail sent (showing the registered mail number, the name of the person the mail was sent to, the address of the person and the date the registered mail was sent);
 - if normal mail was sent, a list of the mail sent (showing the name of the person the mail was sent to, the address of the person, the date the mail was sent, and the signature of the post office worker or the post office stamp indicating that the letter was sent);
 - if a facsimile was sent, a copy of the facsimile report;
 - if an electronic mail was sent, a copy of the electronic mail sent; and
 - if a "mail drop" was done, a signed register of "mail drops" received (showing the name of the person the notice was handed to, the address of the person, the date, and the signature of the person); and
- a copy of the newspaper advertisement ("newspaper clipping") that was placed, indicating the name of the newspaper and date of publication (of such quality that the wording in the advertisement is legible).

SECTION D: NEED AND DESIRABILITY

Note: Before completing this section, first consult this Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, 2014 (as amended), any subsequent Circulars, and guidelines available on the Department's website: <http://www.westerncape.gov.za/eadp>. In this regard, it must be noted that the *Guideline on Need and Desirability in terms of the Environmental Impact Assessment (EIA) Regulations, 2010* published by the national Department of Environmental Affairs on 20 October 2014 (GN No. 891 on Government Gazette No. 38108 refers) (available at: http://www.gov.za/sites/www.gov.za/files/38108_891.pdf) also applied to EIAs in terms of the EIA Regulations, 2014 (as amended).

1. Is the development permitted in terms of the property's existing land use rights?	YES	NO ✓	Please explain
The land, remainder of Louw's Bos Farm Farm RE/502 is currently zoned for Agricultural 1. A rezoning application to the Stellenbosch Municipality has been lodged with the Stellenbosch Municipality Town Planning Department, as per Appendix J (Rezoning information).			
2. Will the development be in line with the following?			
(a) Provincial Spatial Development Framework ("PSDF").	YES	NO ✓	Please explain
The development is proposed to be on agricultural land, which according to the PSDF must be conserved, since loss of agricultural land implies the opportunity to cultivate food will be lost. However, the proposed development site property has medium agricultural potential and the bulk of the property has not been developed for agriculture for almost 10 years. Part of the objectives of the PSDF is to meet the socio-economic needs of the province and the provision of a public cemetery and memorial park is in line with this important need.			
(b) Urban edge / edge of built environment for the area.	YES ✓	NO	Please explain
The proposed development site is in a rural setting which is well suited for the development of a cemetery and memorial park. It lies outside the urban edge/edge of the built environment but provides an ideal transition land use between the urban and agricultural/rural.			
(c) Integrated Development Plan and Spatial Development Framework of the Local Municipality (e.g., would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF ?).	YES	NO ✓	Please explain
According to the socio-economic specialist report (Appendix G10), the Stellenbosch SDF does not specifically mention cemeteries or memorial parks. However, the proposed public cemetery and memorial park will not be in the way of, or impact on, any of SDF proposals. The need for such an amenity was acknowledged by Stellenbosch Council. The mandate to investigate and pursue the development of a regional cemetery and memorial park was given by Stellenbosch Municipality at several Council meetings since 2015. Municipal endorsement for the proposed development site was obtained in August 2017 (partial minutes attached as Appendix K).			

(d) An Environmental Management Framework ("EMF") adopted by this Department. (e.g., Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES	NO ✓	Please explain
<p>Approval of this application would promote the conservation of ESA and CBA areas on Alternative site 2. It also meets the very real need for burial space within the Municipal region – providing the public with a much-needed socio-economic amenity. Therefore, it promotes and is justified in terms of sustainability considerations.</p> <p>Although the preferred alternative site will be utilising land currently zoned for agriculture, the bulk of the area of the preferred proposed site, is not and has not been cultivated for almost ten years. In fact, according to satellite images, the last time the bulk of the site was used for agriculture or was irrigated was just over nine and a half years ago, at the time of this environmental authorisation application in June 2019.</p> <p>Although the proposed site is zoned for Agriculture, it does not seem likely that this will, in fact be the land use implemented on the property by the Municipality since, as per I&AP communication received during the pre-application phase of this proposed development, a previous offer to the Municipality to lease the land for cultivation, was not accepted by the Municipality.</p>			
(e) Any other Plans (e.g., Integrated Waste Management Plan (for waste management activities), etc.)).	YES	NO	Please explain
<p>Unknown</p>			
3. Is the land use (associated with the project being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (in other words, is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES ✓	NO	Please explain
<p>According to the socio-economic specialist report (Appendix G10), the Stellenbosch SDF does not specifically mention cemeteries or memorial parks. However, the proposed public cemetery and memorial park will not be in the way of, or impact on, any of SDF proposals. The need for such an amenity was acknowledged by Stellenbosch Council. The mandate to investigate and pursue the development of a regional cemetery and memorial park was given by Stellenbosch Municipality at several Council meetings since 2015. Municipal endorsement for the proposed development site was obtained in August 2017 (partial minutes attached as Appendix K).</p>			
4. Should development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occur on the proposed site at this point in time?	YES	NO ✓	Please explain
<p>The proposed development of a cemetery is well suited for this rural setting. It is proposed that the development be 'stand-alone' and 'off-grid' in terms of utility supply i.e. electricity and water</p>			
5. Does the community/area need the project and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g., development is a National Priority, but within a specific local context it could be inappropriate.)	YES ✓	NO	Please explain
<p>There is a need for public cemeteries and memorial parks since most of the cemeteries in the Municipal area are at, or near, capacity. This amenity is needed by the community in terms of accessibility to the facility, as well as providing a better environmental option for the siting of such an amenity (when considering all the criteria assessed in Appendices L and M attached).</p> <p>The proposed development also has the potential to provide some year-round job opportunities for local community members.</p>			
6. Are the necessary services available together with adequate unallocated municipal capacity (at the time of application), or must additional capacity be created to cater for the project? (Confirmation by the relevant municipality in this regard must be attached to the BAR as Appendix E.)	YES ✓	NO	Please explain

The Applicant is the Municipality. Please refer to the Stellenbosch Municipality's capacity status letter attached as Appendix E6.

7. Is this project provided for in the infrastructure planning of the municipality and if not, what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant municipality in this regard must be attached to the BAR as Appendix E.)	YES ✓	NO	Please explain
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The only identified infrastructural planning aspect is the eventual improvement in road access/traffic control at the intersection entering and exiting the proposed development when use of the amenity increases with time. As per The Final Traffic Survey Report attached as Appendix G11, infrastructural upgrades to Annandale Road will need to be made as use of the road increases in the future.

Please refer to Appendix E6 (Comment from Stellenbosch Municipality) regarding service availability for the proposed development.

8. Is this project part of a national programme to address an issue of national concern or importance?	YES	NO	Please explain
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Unknown

9. Do location factors favour this land use (associated with the development proposal and associated listed activity(ies) applied for) at this place? (This relates to the contextualisation of the proposed land use on the proposed site within its broader context.)	YES ✓	NO	Please explain
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Due to the current neglected and degraded state of the proposed development site, as well as the high potential for positive impact in terms of environmental resources, it appears that location factors favour this land use on this property.

10. Will the development proposal or the land use associated with the development proposal applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	YES ✓	NO	Please explain
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Yes. The land use is currently zoned Agricultural 1 and the proposed development will result in the loss of this agricultural resource. This is a sensitive issue (as indicated in the comments received from I&APs attached in Appendices F and F1) since the Municipality's SDF does not specifically mention cemeteries or memorial parks. However, the proposed public cemetery and memorial park will not be in the way of, or impact on, any SDF proposals.

The need for such an amenity was acknowledged by Stellenbosch Council. The mandate to investigate and pursue the development of a regional cemetery and memorial park was given by Stellenbosch Municipality at several Council meetings since 2015. Municipal endorsement for the proposed development site was obtained in August 2017 (partial minutes attached as Appendix K).

11. Will the development impact on people's health and well-being (e.g., in terms of noise, odours, visual character and 'sense of place', etc.)?	YES	NO ✓	Please explain
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There will probably be minimal traffic noise associated with the occasional motorcade expected along Annandale Road due to the slow-moving nature of the funeral procession. The impact is expected to be low.

The activity will not create any emissions or odours that are not typical of a cemetery. The on-site sewage treatment package plant is not anticipated to produce nuisance odours and is, additionally, located in the park area of the development away from areas to be frequented by the general public.

Please note that no crematorium is proposed on the site.

In terms of visual impact and potential sense of place impact, the HIA indicated that the proposed development will have a high visual impact on the landscape (both sites) causing noticeable (South site) to some (North site) change to the visual environment. The proposed development has moderate (North site) to high (South site) visual exposure, moderate (both sites) visual absorption capacity, medium (both sites) compatibility, and is moderately (North site) to highly visible (South site) along Annandale Road. However, holistically, the heritage impact (which includes visual/sense of place, archaeological and paleontological assessments, was indicated by the heritage specialist to be medium. This was further confirmed by the final decision/comment provided by HWC (to whom comprehensive visual/sense of place, archaeological and paleontological impact assessment information was provided) - no objection was given to the proposed development.

12. Will the proposed development or the land use associated with the proposed development applied for, result in unacceptable opportunity costs?	YES	NO ✓	Please explain
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Although the development will result in the loss of vacant land, the site has been earmarked for cemetery expansion by the municipality. According to Google Earth historical images, the bulk of the land on the preferred site has not been used for agricultural purposes for several (but not more than 10) years.

13. What will the cumulative impacts (positive and negative) of the proposed land use associated with the development proposal and associated listed activity(ies) applied for, be?
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Cumulative negative impacts include the potential risk of leachate from the cemetery polluting the subsurface water (note: this is not the deeper/aquifer groundwater but subsurface lateral flow). However, geohydrological, geotechnical and freshwater assessments indicate that the probability of this occurring is low and the subsurface drainage system, together with natural attenuation of possible leachate, further minimise this potential impact.

In terms of a sense of place, although the proposed development has already been authorised by HWC, it does insert a non-rural land use into a rural/semi-rural environment, even though park aspect of the development does allow for a transition feature between the urban and rural areas. The proposed development will result in the promotion, rehabilitation and restoration of indigenous vegetation and (on Alternate site 2) ESA and CBA areas. It will also provide socio-economic upliftment through job provision and meeting the need for a contextualised public cemetery and memorial park.

14. Is the development the best practicable environmental option for this land/site?	YES ✓	NO	Please explain
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The proposed development will result in the promotion, rehabilitation and restoration of indigenous vegetation and (on Alternate site 2) ESA and CBA areas. It will also provide socio-economic upliftment through job provision and meeting the need for a contextualised public cemetery and memorial park.

15. What will the benefits be to society in general and to the local communities?	Please explain
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The proposed development will result in the promotion, rehabilitation and restoration of indigenous vegetation and (on Alternate site 2) ESA and CBA areas. It will also provide socio-economic upliftment through job provision and meeting the need for a contextualised public cemetery and memorial park. The facility will be easily accessible to communities in the Southern Stellenbosch region.

16. Any other need and desirability considerations related to the proposed development?	Please explain
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The need to change the mindset of the public to choose less land hungry burial options will be gently introduced through the use of the memorial garden, columbarium and memorial walls in an aesthetically pleasing 'park' setting. In addition, educational opportunities exist as part of the development, related to informing the public of various methods of interment.

17. Describe how the **general objectives of Integrated Environmental Management** as set out in Section 23 of the NEMA have been taken into account:

The general objectives of Integrated Environmental Management have been taken into account through the following:

- The actual and potential impacts of the activity on the environment, socio-economic conditions and cultural heritage have been identified, predicted and evaluated, as well as the risks and consequences and alternatives and options for mitigation of activities, with a view to minimizing negative impact, maximizing benefits and promoting compliance with the principles of environmental management – *please refer to Section F below.*
- The effects of the activity on the environment have been considered before actions taken in connection with them – *alternatives have been considered but there are no feasible or viable alternatives due to the nature of the activity and the location of the activity.*
- Adequate and appropriate opportunity for public participation was ensured through the public participation process – *please refer to Appendix F for the public participation information, including the list of identified Interested and Affected parties, as well as the methods for identifying and informing I&APs of the application and proposed activity.*

The environmental attributes have been considered in the management and decision-making of the activity – *an EMPr has been included (Appendix O) with the proposed activity and must adhere to the requirements of all applicable state authorities.*

18 Describe how the **principles of environmental management** as set out in Section 2 of the NEMA have been taken into account:

The principles of environmental management as set out in section 2 of NEMA have been taken into account. The principles pertinent to this activity include:

- People and their needs have been placed at the forefront while serving their physical, psychological, developmental, cultural and social interests – *the proposed activity will have a beneficial impact on people, as it will provide much needed additional burial space opportunities.*
- Development must be socially, environmentally and economically sustainable. Where disturbance of ecosystems, loss of biodiversity, pollution and degradation, and landscapes and sites that constitute the nation's cultural heritage cannot be avoided, are minimised and remedied. - *Although the activity is expected to have a medium to low botanical impact, these impacts have been considered, and mitigation measures have been put in place. This is dealt with in the EMPr (Appendix O).*
- Where waste cannot be avoided, it is minimised and remedied through the implementation and adherence of EMPr.
- The use of non-renewable natural resources is responsible and equitable – *no exploitation of non-renewable natural resources occurs with the proposed activity.*
- The negative impacts on the environment and on people's environmental rights have been anticipated and prevented, and where they cannot be prevented, are minimised and remedied - *refer to Section F below.*
- The interests, needs and values of all interested and affected parties have been taken into account in any decisions through the Public Participation Process – *please refer to Appendix F for the public participation information.*
- The social, economic and environmental impacts of the activity have been considered, assessed and evaluated, including the disadvantages and benefits as per Appendix G10.
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The effects of decisions on all aspects of the environment and all people in the environment have been taken into account, by pursuing what is considered the best practicable environmental option – *the proposed activity is expected to have minimal/negligible environmental impacts,*

especially after mitigation measures as described under Section G (and Appendix I) and in the EMPr are implemented.

SECTION E: DETAILS OF ALL THE ALTERNATIVES CONSIDERED

Note: Before completing this section, first consult this Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, 2014 (as amended), any subsequent Circulars, and guidelines available on the Department's website <http://www.westerncape.gov.za/eadp>.

The EIA Regulations, 2014 (as amended) defines "alternatives" as "in relation to a proposed activity, means different means of fulfilling the general purpose and requirements of the activity, which may include alternatives to the—

- (a) property on which or location where the activity is proposed to be undertaken;
- (b) type of activity to be undertaken;
- (c) design or layout of the activity;
- (d) technology to be used in the activity; or
- (e) operational aspects of the activity;
- (f) and includes the option of not implementing the activity;"

The NEMA (section 24(4)(a) and (b) of the NEMA, refers) prescribes that the procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment must, *inter alia*, with respect to every application for environmental authorisation –

- ensure that the general objectives of integrated environmental management laid down in the NEMA and the National Environmental Management Principles set out in the NEMA are taken into account; and
- include an investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity.

The general objective of integrated environmental management (section 23 of NEMA, refers) is, *inter alia*, to "identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management" set out in the NEMA.

The identification, evaluation, consideration and comparative assessment of alternatives directly relate to the management of impacts. Related to every identified impact, alternatives, modifications or changes to the activity must be identified, evaluated, considered and comparatively considered to:

- in terms of negative impacts, firstly avoid a negative impact altogether, or if avoidance is not possible alternatives to better mitigate, manage and remediate a negative impact and to compensate for/offset any impacts that remain after mitigation and remediation; and
- in terms of positive impacts, maximise impacts.

1. DETAILS OF THE IDENTIFIED AND CONSIDERED ALTERNATIVES AND INDICATE THOSE ALTERNATIVES THAT WERE FOUND TO BE FEASIBLE AND REASONABLE

Note: A full description of the investigation of alternatives must be provided and motivation if no reasonable or feasible alternatives exists.

- (a) Property and **location/site** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

Please see Appendices L and M for a description of all alternatives investigated before the current proposed preferred site and alternative site were decided upon.

The preferred alternative site viz. Louw's Bos South, lies to the South of Annandale Road. Besides the option of not proceeding with the proposed development at all (the No-Go alternative), only one other alternative to the preferred development site, exists. This alternative site lies to the north-east of the preferred site, on the opposite side of Annandale Road across the Bonte River but still on Louw's Bos Farm RE/502 i.e. Louw's Bos North.

Both sites are zoned Agricultural 1. The Summer and Winter 2017/2018 Crop Census, as included in Appendix D indicate that Louw's Bos North, the alternative site which is not preferred for the proposed development, is used more for cultivation in Summer and Winter than Louw's Bos South.

Both proposed sites have the potential to service the southern region of the Municipality, although Alternative Site 2 (Louw's Bos North) presents with significantly more challenges due to:

- the need for access via a watercourse and possible private land crossing i.e. the Bonte River (refer to Rivers and Wetlands Map in Appendix D) and erven adjacent to Site 2,
- the presence of CBAs and ESAs on the actual property and adjacent property to the north (refer to WCBSP Map, as well as the CBA and ESA Map in Appendix D),
- the impact the proposed development on other potential developments such as the western by-pass road which cuts through Louw's Bos North,
- The fact that Louw's Bos North is used more for cultivation in Summer and Winter than Louw's Bos South.

According to the Western Cape Biodiversity Spatial Plan (WCBSP), the entire area proposed for the preferred development site (Louw's Bos South) is not within and does not contain any CBAs. The ESA indicated in the sensitivity maps (as per Appendix D) which lies just on the northern corner of the preferred development site, would be avoided with at least a 15m setback/buffer (as recommended by the freshwater specialist assessment).

The above aspects as detailed in this BAR, indicate why Louw's Bos South presents as the alternative which avoids most of the negative impacts identified, as well as allows mitigation of unavoidable negative impacts.

- (b) **Activity** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

None that are known.

It should be noted that various, more sustainable methods of interment i.e. alternative methods of burial/remembrance will be promoted at the proposed development (besides the traditional burial method) and this contributes, in the long term, towards maximising the positive impact of the proposed development in educating communities about more sustainable burial methods.

- (c) **Design or layout** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

The design of both layout alternatives on the preferred site, Louw's Bos South, avoids potential negative visual impacts since it aims to create a green, park-like feature of the development in the area. Layout plan 1 (the preferred layout) has the entrance road exiting Annandale Road towards the middle of the proposed development footprint. This avoids the ESA/wetland area that could have been impacted upon and ensures that no infrastructure encroaches on the wetland and 15m buffer zone area.

Layout plan 2 on the preferred site, involves an entrance road which utilizes the existing dirt road as an entrance point to the development. Thus, the entrance road crosses through part of the delineated wetland on the site. According to the freshwater specialist report, this would result in loss of wetland habitat and severe disruption of hydrology. It may also result in increased sediment load due to erosion of infill used in constructing the road and would most likely result in wetland fauna (particularly amphibian and invertebrate) mortalities, resulting in High and Medium (negative) significance ratings for these impacts.

The preferred layout, by contrast, received a similar or significantly lower impact rating for every impact, with or without mitigation. The freshwater impact significance ratings for the construction phase were never higher than Very Low (negative) for layout plan 1, with mitigation. The current (pre-construction) land-use has impacted the wetland on Louw's Bos South site significantly and the preferred layout would, in the operational phase with mitigation, result in an improvement over the current state in every impact category evaluated and the impact ratings were Very Low or Low (positive) for all four impacts.

No cumulative or indirect impacts were identified. A slow decline was found to be most likely in the case of the 'no-go' scenario, and layout plan 1/the preferred layout is the lowest impact option of all.

Please see Appendices L and M for a description of all alternatives investigated before the current proposed preferred site and alternative site were decided upon.

Besides the option of not proceeding with the proposed development at all (the No-Go alternative), only one other alternative to the preferred development site, exists. This alternative site lies to the north-east of the preferred site, on the opposite side of Annandale Road across the Bonte River but still on Louw's Bos Farm RE/502 i.e. Louw's Bos North.

- (d) **Technology** alternatives (e.g., to reduce resource demand and increase resource use efficiency) to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

The use of renewable energy e.g. solar panels, for the provision of electricity, as well as an on-site sewage treatment package plant from which final effluent will be reused for irrigation purposes.

- (e) **Operational** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

There are no actual operational alternatives for physical burial, although education in terms of the type of embalming chemicals used could be attempted i.e. promotion of the use of chemicals which are less harmful to the environment upon decomposition of the body. The proposed development also aims to promote more sustainable methods of interment such as the use of a garden of remembrance where people begin to green the proposed site with indigenous trees which they purchase to bury the ashes of a loved ones even facilitating a 'family tree' where multiple ashes may be buried on a smaller footprint than that required for a grave.

(f) The option of **not implementing** the activity (the 'No-Go' Option):

Using criteria (as detailed in the socio-economic assessment appended to the BAR) five probable land use options for the proposed preferred development site were subjected to a ranking system in which the lower the score the lower the cost to the receiving community and the greater the benefits viz. the 'no-go' option, establish a vineyard, establish a strawberry farm, establish a public cemetery and memorial park, or develop suburban housing on the proposed development site.

The possibility of establishing a vineyard or strawberry farm scored the lowest in the ranking system which means that it has the least costs for the receiving community and most benefits.

The 'no-go' alternative scored the same as the establishment of a public cemetery and memorial park which placed approximately mid-way in the ranking system.

The possibility of the land being used for residential/suburban use scored the highest ranking and thus has the highest cost and least benefits for the receiving community.

The proposed development i.e. a public cemetery and memorial park, although having the greatest level of public outcry, would have moderate costs and benefits, and would be most consistent with the landowner's responsibility to provide for amenities such as cemeteries.

The result of implementing the no-go alternative would be that local communities would not have burial amenities readily available and will face a crisis situation in terms of burial ground availability since the interim relief measure of expanding certain cemeteries such as the nearby Jamestown cemetery off the R44, will also rapidly be diminished since the expansion only provided for about three years of burial capacity.

Eventually land will need to be availed to serve local communities with this important amenity and the current site poses the least environmental risks than other Municipal land in the south region of the Municipal District.

(g) **Other** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

All alternatives to avoid actual and potential negative impacts associated with the proposed development, as well as to mitigate unavoidable negative impacts and maximise positive impacts have been discussed in detail throughout the Bar and in Appendix I (Impact Assessment with mitigation measures) and Appendix O (EMPr).
The various alternatives have also been details in Section E of this BAR.

(h) Provide a **summary** of all alternatives investigated and the outcome of each investigation:

- i. **Biodiversity** – On Alternative 1 (preferred alternative – Louw's Bos South), there would be no negative impact on Swartland Granite Renosterveld and a low negative impact on ecological processes. Ecological process, could be restored to a certain extent by appropriate landscaping."

Further, Botes (2018) states in a comparison of biodiversity sensitivity maps that "From an environmental sensitivity view, both sites are considered degraded agricultural land suitable for the proposed development, but Louw's Bos North may potentially impact on an ESA (which should be considered for rehabilitation) and may impact on the Stellenbosch western by-pass road. However, it is important to note that both these features can potentially be incorporated into the Memorial Park layout and with good planning the ESA areas can benefit from the proposed layout by incorporating (and rehabilitating) the wetland and streams as part of the final layout."

- ii. **Freshwater:** The main difference between the preferred layout alternative 1 and layout alternative 2 is that the main access/entrance road in layout alternative 2 crosses through part of the delineated wetland, while in preferred layout alternative 1, no infrastructure encroaches on the wetland and the layout accommodates the required 15m wetland buffer zone.

Development of layout alternative 2 would result in loss of wetland habitat and severe disruption of hydrology. It may also result in increased sediment load due to erosion of infill used in constructing the road and would most likely result in wetland fauna (particularly amphibian and invertebrate) mortalities, resulting in High and Medium (negative) significance ratings for these impacts.

Development of preferred layout alternative 1 has similar or significantly lower impact ratings for every impact, with or without mitigation, when compared to layout alternative 2.

It should be noted that current (pre-construction) land-use has already impacted the wetland in Louw's Bos South significantly and the preferred layout alternative 1 would, in the operational phase with mitigation, result in an improvement over the current state of the wetland in every impact category evaluated.

No cumulative or indirect impacts were identified.

A slow decline in the Louw's Bos South wetland health was found to be most likely in the case of the 'no-go' scenario, and therefore, preferred layout alternative 1 is the lowest impact option of all.

It is therefore recommended that the proposed development be implemented in accordance with the Preferred Layout with implementation of all essential mitigation measures and that the necessary environmental and water use authorisations be granted. After mitigation, the potential impacts for both Louw's Bos South and Louw's Bos North fell in the Low Negative category or better, with many impacts representing an improvement over the current situation in the Low and Very Low Positive categories. The preferred layout represents the scenario with the lowest overall negative impact and the highest overall positive impact and represents a significant improvement on the 'no-go' scenario.

- iii. **Geohydrology** – There are a number of groundwater users in the area. Drill records indicate that the boreholes have above average yield, with groundwater quality been classified as "good" according to drinking water guidelines, (with the exception of elevated iron concentrations).

The sites have a "low/medium" groundwater vulnerability rating, due to the presence of a clay layer which acts as a barrier above the main aquifer and the relative depth to the groundwater level.

From a groundwater perspective, due to the relatively thick clay layer above the main aquifer, and the significant distance between the bottom of a grave and the top of the clay layer, the proposed sites can be considered for the development of a Memorial Park.

Louw's Bos South is more suited to the development of a memorial park than Alternative 2 (Louw's Bos North), due to its location away from major existing groundwater users.

- iv. **Geotechnical:** Provided that the burial portion of the proposed development for either site is sited in the area proposed by the geotechnical investigations (as per Appendix G5), the DWS requirements for the siting of cemeteries are met.

Leachate migration in either proposed site is unlikely as the clays in the profile are impervious.

v. **Heritage:**

- a. Archaeological – The results of the archaeological impact assessment indicate that the proposed development of a new municipal cemetery on Remainder Farm No. 502 near Stellenbosch, will not impact any important pre-colonial archaeological heritage.
No archaeological mitigation is required for either sites prior to construction activities commencing. Both proposed sites are suitable for development.
- b. Palaeontological – No fossil remains were recorded on Farm Louw's Bos RE/502 during the palaeontological site visit. It is concluded that the palaeontological sensitivity of the development study area is very low.
It is recommended that, pending the exposure of significant new fossils (e.g. mammalian bones and teeth) during construction, exemption from further specialist palaeontological studies and mitigation be granted for this development.
- c. Visual – This is the greatest likely heritage related impact is on the visual environment since it is rural and partially scenic along this route. The proposed development will have a high visual impact on the landscape (both sites) causing noticeable (South site) to some (North site) change to the visual environment. The proposed development has moderate (North site) to high (South site) visual exposure, moderate (both sites) visual absorption capacity, medium (both sites) compatibility, and is moderately (North site) to highly visible (South site) along Annandale Road.

- vi. **Socio-economic:** Using criteria (as detailed in the socio-economic assessment appended to the BAR) five probable land use options for the proposed preferred development site were subjected to a ranking system in which the lower the score the lower the cost to the receiving community and the greater the benefits viz. the 'no-go' option, establish a vineyard, establish a strawberry farm, establish a public cemetery and memorial park, or develop suburban housing on the proposed development site.

The 'no-go' alternative scored the same as the establishment of a public cemetery and memorial park which placed approximately mid-way in the socio-economic ranking system.

The proposed development i.e. a public cemetery and memorial park, although having the greatest level of public outcry, would have moderate costs and benefits, and would be most consistent with the landowner's responsibility to provide for amenities such as cemeteries.

The establishment of a public cemetery and memorial park on the preferred southern site will fulfil the societal need for burial spaces and is supported.

- (i) Provide a detailed **motivation for not further considering** the alternatives that were found not feasible and reasonable, including a description and proof of the investigation of those alternatives

The two alternative options presented in this application, besides the preferred alternative were Alternative Site 2 (Louw's Bos North) and the 'no-go' alternative.

Alternative Site 2 presents with significantly more challenges due to:

- the need for access via a watercourse and possible private land crossing i.e. the Bonte River (refer to Rivers and Wetlands Map in Appendix D) and erven adjacent to Site 2,
- the presence of CBAs and ESAs on the actual property and adjacent property to the north (refer to WCBS Map, as well as the CBA and ESA Map in Appendix D),
- the impact the proposed development on other potential developments such as the western by-pass road which cuts through Louw's Bos North,
- The fact that Louw's Bos North is used more for cultivation in Summer and Winter than Louw's Bos South.

Besides the fact that the result of opting for the 'no-go' alternative would be that local communities would not have burial amenities readily available and will face a crisis situation in terms of burial ground availability, eventually land will need to be availed to serve local communities with this important amenity and the current site poses the least environmental risks than other Municipal land in the south region of the Municipal District.

According to the socio-economic assessment (Appendix G10) which rated five potential land uses for the proposed site (one of which was the 'no-go' alternative), the 'no-go' option scored the same as the establishment of a public cemetery and memorial park. Both these land uses were placed approximately mid-way in the socio-economic ranking system. Against this background, since the need for a public cemetery and memorial park in the southern region of the Municipal district is nearing critical status, the long-term benefits and legal service provision obligations of the Municipality, outweighed the consideration of the 'no-go' alternative.

Furthermore, in the period from 2015 to end of 2017, utilising, as a starting point, the *Cemetery Feasibility Study, Stellenbosch Municipal Area, Consultative Draft 1 Report (2006)* as prepared by Dennis Moss Partnership and attached as Appendix N, as well as the nine potential sites approved by the Stellenbosch Municipal Council at a February 2015 Council meeting, over fifty potential proposed development sites were identified and investigated.

Applying the *Selection Criteria for the Placing of Cemetery Sites in South* (Fischer, 1992) and through a systematic assessment of these and additional criteria as detailed in Appendices L (*First Report, Final October 2016: Identification and Acquisition of Authorisations and Approvals for the Establishment of One or More Regional Cemeteries for Stellenbosch Municipality*) and Appendix M (*Motivation to obtain Stellenbosch Council's endorsement of Region Cemetery Sites in fulfilment of tender B/SM No. 17/16: Acquisition of Authorisations and Approvals for the establishment of one or more regional cemeteries for Stellenbosch Municipality*), five potential sites for the entire Municipal area were identified as best suited for the proposed development of regional public cemeteries and memorial park (as per section 4 of Appendix M).

Besides regional suitability and the criteria mentioned in Appendices L and M, two critical factors in determining whether the identified land was viable for the proposed development, or to be used as a possible alternative development site, were

- i. ownership of the land and
- ii. whether the land had already been earmarked for some other infrastructural/development project.

Although some of the preliminary reports attached in the appendices list various sites in a comparison, the purpose of these reports was to refine the list of potential sites and possible alternatives per Municipal region, so that applications to develop a cemetery and memorial park in at least two municipal regions could be made.

Providing the amenity of a cemetery and memorial park in two regions in the Municipal area provides a more accessible service to local communities.

Please refer to Appendices L and M for proof of the investigation into various alternatives before the two southern region site alternatives were decided upon.

2. PREFERRED ALTERNATIVE

- (a) Provide a **concluding statement** indicating the preferred alternative(s), including preferred location, site, activity and technology for the development.

The preferred alternative for the proposed Louw's Bos Public Cemetery and Memorial Park development on Louw's Bos, Farm RE/502, is Alternative 1 (Louw's Bos South), Site Layout Plan 1.

SECTION F: ENVIRONMENTAL ASPECTS ASSOCIATED WITH THE ALTERNATIVES

Note: The information in this section must be DUPLICATED for all the feasible and reasonable ALTERNATIVES.

1. DESCRIBE THE ENVIRONMENTAL ASPECTS ASSOCIATED WITH THE PROPOSED DEVELOPMENT AND ITS ALTERNATIVES, FOCUSING ON THE FOLLOWING:

- (a) Geographical, geological and physical aspects:

Please refer to Appendix G (specifically Appendices G-4 and G5) attached.

- (b) Ecological aspects:

<p>Will the proposed development and its alternatives have an impact on CBAs or ESAs? If yes, please explain: Also include a description of how the proposed development will influence the quantitative values (hectares/percentage) of the categories on the CBA/ESA map.</p>	<p>YES ✓</p>	<p>NO</p>
<p>According to the Western Cape Biodiversity Spatial Plan (WCBSP), the entire area proposed for the preferred development site (Louw's Bos South) is not within and does not contain any CBAs. The ESA indicated in the sensitivity maps (as per Appendix D) which lies just on the northern corner of the preferred development site, would be avoided with at least a 32m setback/buffer, especially since the potential access/entrance to the site would be position towards that region. The avoidance of the ESA is indicated in the concept layout plans/drawings as per Appendix B.</p> <p>The WCBSP map for Louw's Bos North indicates a few small sections of potential critical biodiversity or ecological support areas viz. CBA 2– degraded areas but with potential for rehabilitation and ESA 2 – ecological support areas (associated with watercourses or plantations). These areas would be rehabilitated and conserved as part of the memorial park aspect of the proposed development.</p>		

<p>Will the proposed development and its alternatives have an impact on terrestrial vegetation, or aquatic ecosystems (wetlands, estuaries or the coastline)? If yes, please explain:</p>	<p>YES ✓</p>	<p>NO</p>
<p>Refer to Appendix D for Biodiversity sensitivity maps.</p> <p>The BGIS and Cape Farm Mapper Vegetation Maps indicate vegetation cover as Swartland Granite Renosterbos but there is blatant evidence of current and historic cultivation. Both the preferred and second alternative Louw's Bos sites are zoned for agriculture. A portion of the preferred site (Alternative 1), Louw's Bos South, has been planted with vines and the remaining portion of the preferred site is fallow but has been cultivated in the past.</p> <p>Botanical and biodiversity specialist assessments states that natural indigenous vegetation is no longer present on the site and the site "is eminently suitable for the desired purpose" and that the botanical/biodiversity sensitivity of the site is "very low to negligible despite some areas having 'restored' due to the land been left fallow. The general suite of plant species consists of weedy exotics and a handful of disturbance-tolerant indigenous species.</p> <p>There would be no negative impact on Swartland Granite Renosterveld and a low negative impact on ecological processes. The latter could be restored to a certain extent by appropriate landscaping."</p>		
<p>Will the proposed development and its alternatives have an impact on any populations of threatened plant or animal species, and/or on any habitat that may contain a unique signature of plant or animal species? If yes, please explain:</p>	<p>YES</p>	<p>NO ✓</p>
<p>N/A</p>		
<p>Describe the manner in which any other biological aspects will be impacted:</p>		
<p>Alien flora/weed species will be removed and replaced with indigenous, water-wise plant species.</p>		
<p>Will the proposed development also trigger section 63 of the NEM: ICMA?</p>	<p>YES</p>	<p>NO ✓</p>
<p>If yes, describe the following:</p> <ul style="list-style-type: none"> (i) the extent to which the applicant has in the past complied with similar authorisations; (ii) whether coastal public property, the coastal protection zone or coastal access land will be affected, and if so, the extent to which the proposed development proposal or listed activity is consistent with the purpose for establishing and protecting those areas; (iii) the estuarine management plans, coastal management programmes, coastal management lines and coastal management objectives applicable in the area; (iv) the likely socio-economic impact if the listed activity is authorised or is not authorised; (v) the likely impact of coastal environmental processes on the proposed development; (vi) whether the development proposal or listed activity— <ul style="list-style-type: none"> (a) is situated within coastal public property and is inconsistent with the objective of conserving and enhancing coastal public property for the benefit of current and future generations; (b) is situated within the coastal protection zone and is inconsistent with the purpose for which a coastal protection zone is established as set out in section 17 of NEM: ICMA; (c) is situated within coastal access land and is inconsistent with the purpose for which coastal access land is designated as set out in section 18 of NEM: ICMA; (d) is likely to cause irreversible or long-lasting adverse effects to any aspect of the coastal environment that cannot satisfactorily be mitigated; (e) is likely to be significantly damaged or prejudiced by dynamic coastal processes; (f) would substantially prejudice the achievement of any coastal management objective; or (g) would be contrary to the interests of the whole community; (vii) whether the very nature of the proposed activity or development requires it to be located within coastal public property, the coastal protection zone or coastal access land; (viii) whether the proposed development will provide important services to the public when using coastal public property, the coastal protection zone, coastal access land or a coastal protected area; and (ix) the objects of NEM: ICMA, where applicable. 		

N/A

(c) Social and Economic aspects:

What is the expected capital value of the project on completion?	R25 000 000
What is the expected yearly income or contribution to the economy that will be generated by or as a result of the project?	R8 700 000
Will the project contribute to service infrastructure?	YES <input checked="" type="checkbox"/> NO
Is the project a public amenity?	YES <input checked="" type="checkbox"/> NO
How many new employment opportunities will be created during the development phase?	Approx. 25 for 6-8 months
What is the expected value of the employment opportunities during the development phase?	R4 750 000
What percentage of this will accrue to previously disadvantaged individuals?	80%
How will this be ensured and monitored (please explain):	
<i>Stellenbosch Municipality's Preferential Procurement Policy shall be applied to source and appoint contractor.</i>	
How many permanent new employment opportunities will be created during the operational phase of the project?	Approx. 10
What is the expected current value of the employment opportunities during the first 10 years?	R 9 500 000
What percentage of this will accrue to previously disadvantaged individuals?	95%
How will this be ensured and monitored (please explain):	
Stellenbosch Municipality's is an equal opportunity employer and selection of staff will be done accordingly. Stellenbosch Municipality will be required to secure some 60% of the job opportunities for youth and females and to make skills development/ educational qualifications accessible.	
Any other information related to the manner in which the socio-economic aspects will be impacted:	

Using criteria (as detailed in the socio-economic assessment appended to the BAR) five probable land use options for the proposed preferred development site were subjected to a ranking system in which the lower the score the lower the cost to the receiving community and the greater the benefits viz. the 'no-go' option, establish a vineyard, establish a strawberry farm, establish a public cemetery and memorial park, or develop suburban housing on the proposed development site.

The possibility of establishing a vineyard or strawberry farm scored the lowest in the ranking system which means that it has the least costs for the receiving community and most benefits.

The 'no-go' alternative scored the same as the establishment of a public cemetery and memorial park which placed approximately mid-way in the ranking system.

The possibility of the land being used for residential/suburban use scored the highest ranking and thus has the highest cost and least benefits for the receiving community.

The proposed development i.e. a public cemetery and memorial park, although having the greatest level of public outcry, would have moderate costs and benefits, and would be most consistent with the landowner's responsibility to provide for amenities such as cemeteries.

The establishment of a public cemetery and memorial park on the preferred southern site will fulfil the societal need for burial spaces and is supported.

Please refer to Socio-economic Assessment as per Appendix G10

(d) Heritage and Cultural aspects:

Heritage –

a. Archaeology – Archaeological visibility is extremely low due to dense vegetation cover, but indications are that the receiving environment is not a sensitive archaeological landscape.

b. Palaeontological – No fossil remains were recorded on Farm Re/502 Louw's Bos during the short palaeontological site visit. It is concluded that the palaeontological sensitivity of the Memorial Park study area is very low.

c. Visual – The greatest likely heritage related impact is on the visual environment since it is rural and partially scenic along this route. The proposed development will have a high visual impact on the landscape (both sites) causing noticeable (South site) to some (North site) change to the visual environment.

Using the risk rating and assessment criteria as explained in Appendix I, the proposed development has moderate (North site) to high (South site) visual exposure, moderate (both sites) visual absorption capacity, medium (both sites) compatibility, and is moderately (North site) to highly visible (South site) along Annandale Road.

Please refer to the Heritage Impact Assessments and Screener as per Appendices G7 and G8, respectively.

2. WASTE AND EMISSIONS

(a) Waste (including effluent) management

Will the development proposal produce waste (including rubble) during the development phase?	YES <input checked="" type="checkbox"/>	NO
If yes, indicate the types of waste (actual type of waste, e.g. oil, and whether hazardous or not) and estimated quantity per type?	Unknown m ³	
<p>The primary solid waste anticipated from the activity during construction and operation will be domestic waste which will be removed to the nearest registered Municipal landfill site.</p> <p>The sewage treatment package plant's screenings basket must be monitored on a routine basis (as required, due to the very low volumes of input effluent anticipated), to ensure that screenings are removed and disposed of regularly (as required) at a licenced facility suitable/appropriate to the type of hazardous waste being disposed. Similarly, on an ad-hoc basis, sludge from the sewage treatment package plant will need to be removed by the Municipality and taken to an appropriately registered site for disposal (as per Appendix E6 – Municipal Capacity Status letter).</p> <p>No waste will be burned or buried on site.</p>		
Will the development proposal produce waste during its operational phase?	YES <input checked="" type="checkbox"/>	NO
If yes, indicate the types of waste (actual type of waste, e.g. oil, and whether hazardous or not) and estimated quantity per type?	Unknown m ³	
<p>The exact quantity of domestic waste (paper, plastic, organic/garden refuse) to be generated during construction and operation is unknown but is expected to be minimal (e.g. not more than 6m³ per month during operation) due to the nature of the facility.</p>		
Will the development proposal require waste to be treated / disposed of on site?	YES	NO <input checked="" type="checkbox"/>
If yes, indicate the types of waste (actual type of waste, e.g. oil, and whether hazardous or not) and estimated quantity per type per phase of the proposed development to be treated/disposed of?	Unknown m ³	
<p>The possibility of composting garden refuse exists but needs further investigation.</p>		
If no, where and how will the waste be treated / disposed of? Please explain. Indicate the types of waste (actual type of waste, e.g. oil, and whether hazardous or not) and estimated quantity per type per phase of the proposed development to be treated/disposed of?	m ³	
<p>The primary solid waste anticipated from the activity during construction and operation will be domestic waste which will be removed to the nearest registered Municipal landfill site.</p> <p>The sewage treatment package plant's screenings basket must be monitored on a routine basis (as required, due to the very low volumes of input effluent anticipated), to ensure that screenings are removed and disposed of regularly (as required) at a licenced facility suitable/appropriate to the type of hazardous waste being disposed. Similarly, on an ad-hoc basis, sludge from the sewage treatment package plant will need to be removed by the Municipality and taken to an appropriately registered site for disposal (as per Appendix E6 – Municipal Capacity Status letter).</p>		
Has the municipality or relevant authority confirmed that sufficient capacity exists for treating / disposing of the waste to be generated by the development proposal? If yes, provide written confirmation from the municipality or relevant authority.	YES	NO <input checked="" type="checkbox"/>

Will the development proposal produce waste that will be treated and/or disposed of at another facility other than into a municipal waste stream?	YES	NO ✓
If yes, has this facility confirmed that sufficient capacity exists for treating / disposing of the waste to be generated by the development proposal? Provide written confirmation from the facility. N/A	YES	NO
Does the facility have an operating license? (If yes, please attach a copy of the licence.) N/A	YES	NO
Facility name:		
Contact person:		
Cell:	Postal address:	
Telephone:	Postal code:	
Fax:	E-mail:	

Describe the measures that will be taken to reduce, reuse or recycle waste:

Recycling bins will be provided to separate waste produced at source.

(b) Emissions into the atmosphere

Will the development proposal produce emissions that will be released into the atmosphere?	YES ✓	NO
If yes, does this require approval in terms of relevant legislation?	YES	NO ✓
If yes, what is the approximate volume(s) of emissions released into the atmosphere?		m ³
Describe the emissions in terms of type and concentration and how these will be avoided/managed/treated/mitigated:		
Fugitive particulate emissions/dust during initial site preparation/grading. Smaller amounts of fugitive particulate emissions when graves are excavated. Vehicle emissions from during construction and normal operation of facility.		

3. WATER USE

(a) Indicate the source(s) of water for the development proposal by highlighting the appropriate box(es).

Municipal	Water board	Groundwater	River, Stream, Dam or Lake	Other	The project will not use water
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Note: Provide proof of assurance of water supply (e.g. Letter of confirmation from the municipality / water user associations, yield of borehole)

Water will be provided/trucked-in by the Local Municipality probably to on-site water tanks.

(b) If water is to be extracted from a groundwater source, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:	Unknown	m ³
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(c) Does the development proposal require a water use permit / license from DWS?	YES ✓	NO
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If yes, please submit the necessary application to the DWS and attach proof thereof to this application as an Appendix.

Water will be supplied via a borehole i.e. groundwater will be used. This triggers an additional water use under the NWA and has already been discussed in the water use authorisation pre-application meeting held with the DWS in August 2019 (as per information in Appendices E3 and F1, attached). Any water use permit / license application will be undertaken by an appropriate freshwater specialist as part of the water use authorisation process.

(d) Describe the measures that will be taken to reduce water demand, and measures to reuse or recycle water:
Non-potable water will be used for ablutions and watering saplings and water-wise garden areas. Double flush toilet will be installed and effluent water will be treated on site for reuse as part of the park irrigation system.

4. POWER SUPPLY

(a) Describe the source of power e.g. municipality / Eskom / renewable energy source.

It is proposed that the development be off-grid with the potentially small electricity requirement for possible entrance gate lighting, provided by a renewable energy means (e.g. solar panels).

(b) If power supply is not available, where will power be sourced?

It is proposed that the development be off-grid with the potentially small electricity requirement for possible entrance gate lighting, provided by a renewable energy means (e.g. solar panels).

5. ENERGY EFFICIENCY

(a) Describe the design measures, if any, that have been taken to ensure that the development proposal will be energy efficient:

It is proposed that the development be off-grid with the potentially small electricity requirement for possible entrance gate lighting, provided by a renewable energy means (e.g. solar panels).

(b) Describe how alternative energy sources have been taken into account or been built into the design of the project, if any:

It is proposed that the development be off-grid with the potentially small electricity requirement for possible entrance gate lighting, provided by a renewable energy means (e.g. solar panels).

6. TRANSPORT, TRAFFIC AND ACCESS

Describe the impacts in terms of transport, traffic and access.

Access

Access for both sites will be off Annandale Road. For Louw's Bos North (Alternative site 2) no access off the dual-carriage MR27 (R44) will be allowed. Access will be obtained only from DR1050 (Annandale Rd),

There is a western by-pass planned across the northern portion of Farm 502. No access will be allowed from the by-pass.

The design speed for Annandale road is 100km/h which requires a shoulder sight distance of 200m for a passenger vehicle and a stopping sight distance of 155m.

Alternative 1: Louw's Bos South

The proposed access off Annandale Road is located on the outside of a bend and the road is flat with more than adequate shoulder and stopping sight distances in both directions.

The existing access to the site provides access to the Eskom substation as well as farm worker's houses located on Farm 557. The design of the access will have to accommodate both these roads while also providing a separate access to the memorial park with adequate stacking to avoid queuing onto Annandale Road.

If required, the existing access point could be moved further west to increase the access spacing ($\pm 300m$) between the Soverby Guest House access and the proposed access.

The access will require a right turn lane for traffic coming from Baden Powell Drive and may also require either a left turn taper or left turn deceleration lane depending on the trip generation of the proposed memorial park.

Alternative 2: Louw's Bos North

The northern portion of the farm has been identified as Alternative 2 for the possible development of a memorial park.

Although the access from Annandale Road is proposed on the inside of the bend the shoulder sight distance will be adequate in both directions. To achieve the shoulder sight distance towards Baden Powell some vegetation may have to be removed but this would be addressed during the detail design of the access

The access will require a right turn lane for traffic coming from the R44 and may also require either a left turn taper or left turn deceleration lane depending the trip generation of the proposed memorial park.

The proposed Alternative 2 access road will have to cross over private land and a stream.

Future full access to Alternative Site 1 and Alternative Site 2:

The proposed accesses for Alternative 1 and 2 off Annandale Road are located at the same point. This will create a full access in future and therefore the location and design of the access to Alternative 1 will also have to consider the possible location of the access to Alternative 2 in the future, if required. A staggered access will not be acceptable or approved.

Approval for these accesses will have to be obtained from the Western Cape Government and the design of the accesses will have to be approved by their roads geometric design department. A new access road and/or slip-road will need to be constructed from the existing public road to the development.

A detailed plan indicating the position of the access road and internal road/s has not been developed for the site as yet but should be available in the next revision/issuing of the BAR. Access from the Annandale Road to the actual preferred site does exist in the form of dirt roads.

Access control to the proposed development will most likely be facilitated via fencing/palisade fencing and a lockable gate with a security guard on duty. This also provides a local employment opportunity.

7. NUISANCE FACTOR (NOISE, ODOUR, etc.)

Describe the potential nuisance factor or impacts in terms of noise and odours.

Due to the rural locality of the proposed development site, nuisance factors will probably be negligible since no immediately adjacent residential/small business neighbours exist.

Note: Include impacts that the surrounding environment will have on the proposed development.

8. OTHER

Sewage during construction will be managed via a portable toilet contract.

Sewage during operation will be managed via an on-site sewage package plant which will have a final effluent tank (and pond, if permitted by the DWS) from which final effluent will be used for irrigation purposes.

As a norm i.e. under normal operation and maintenance circumstances, no sewage will be removed off site for treatment or disposal.

The sewage treatment package plant's screenings basket must be monitored on a routine basis (as required, due to the very low volumes of input effluent anticipated), to ensure that screenings are removed and disposed of regularly (as required) at a licenced facility suitable/appropriate to the type of hazardous waste being disposed. Similarly, on an ad-hoc basis, sludge from the sewage treatment package plant will need to be removed by the Municipality and taken to an appropriately registered site for disposal (as per Appendix E6 – Municipal Capacity

Under emergency conditions (should the need arise) the package plant will also be serviced by the local municipality as per Appendix E6 (Capacity status letter from Stellenbosch Municipality). The Municipality itself has contingency procedures should its waste management section undergo extenuating emergency conditions in that a skeleton staff will be operating the waste removal function (there are several vehicles at the Municipality's disposal for waste/sewage removal).

SECTION G: IMPACT ASSESSMENT, IMPACT AVOIDANCE, MANAGEMENT, MITIGATION AND MONITORING MEASURES

1. METHODOLOGY USED IN DETERMINING AND RANKING ENVIRONMENTAL IMPACTS AND RISKS ASSOCIATED WITH THE ALTERNATIVES

- (a) Describe the **methodology** used in determining and ranking the nature, significance consequences, extent, duration and probability of potential environmental impacts and risks associated with the proposed development and alternatives.

Refer to Project Impact Assessment, Significance and Mitigation Measures Summary attached as Appendix I.

- (b) Please describe any gaps in knowledge.

Refer to Project Impact Assessment, Significance and Mitigation Measures Summary attached as Appendix I.

- (c) Please describe the underlying assumptions.

Refer to Project Impact Assessment, Significance and Mitigation Measures Summary attached as Appendix I.

- (d) Please describe the uncertainties.

Refer to Project Impact Assessment, Significance and Mitigation Measures Summary attached as Appendix I.

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(e) Describe adequacy of the assessment methods used.

<p>Refer to Project Impact Assessment, Significance and Mitigation Measures Summary attached as Appendix I.</p>

2. IDENTIFICATION, ASSESSMENT AND RANKING OF IMPACTS TO REACH THE PROPOSED ALTERNATIVES INCLUDING THE PREFERRED ALTERNATIVE WITHIN THE SITE

Note: In this section the focus is on the identified issues, impacts and risks that influenced the identification of the alternatives. This includes how aspects of the receiving environment have influenced the selection.

Refer to Appendix I for Impact and Risk Assessment. However, for completeness an attempt was also made to use the rating system guide as provided:

(a) List the identified impacts and risks for each alternative.

Alternative 1:	for example, choose from: geology / geohydrological / ecological / socio-economic / heritage and cultural-historical / noise / visual / etc.
Alternative 2:	for example, choose from: geology / geohydrological / ecological / socio-economic / heritage and cultural-historical / noise / visual / etc.
Alternative x:	for example, choose from: geology / geohydrological / ecological / socio-economic / heritage and cultural-historical / noise / visual / etc.
No-go Alternative:	

(b) Describe the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed; may cause irreplaceable loss of resources; and can be avoided, managed or mitigated.

The following table serves as a guide for summarising each alternative. The table should be repeated for each alternative to ensure a comparative assessment. (The EAP has to select the relevant impacts identified in blue in the table below for each alternative and repeat the table for each impact and risk).

Refer to Appendix I for Impact and Risk Assessment. However, for completeness an attempt was also made to use the rating system guide as provided:

Impacts that may result from the planning, design and construction phase (briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the planning, design and construction phase.

Potential impacts on geographical and physical aspects:	
Nature of impact:	Change in landscape/slope of property/site.
Extent and duration of impact:	Entire site, during construction
Probability of occurrence:	Unlikely – topography is utilised as part of the landscaping of the proposed development site i.e. contributes towards the development feature
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	Negligible
Cumulative impact prior to mitigation:	Negligible
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Negligible
Degree to which the impact can be mitigated:	Negligible
Proposed mitigation:	Landscaping to be done

Cumulative impact post mitigation:	Negligible
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Negligible

Potential impact on biological aspects:	
Nature of impact:	Loss of indigenous vegetation due to construction and operational activities
Extent and duration of impact:	Entire site, during construction
Probability of occurrence:	Unlikely – not much indigenous vegetation on site
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	Negligible
Cumulative impact prior to mitigation:	Negligible
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Negligible
Degree to which the impact can be mitigated:	Negligible
Proposed mitigation:	Landscaping to be done with locally indigenous “water-wise” vegetation
Cumulative impact post mitigation:	Negligible
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Negligible

Potential impacts on socio-economic aspects:	
Nature of impact:	A number of job opportunities are expected to be created during the construction phase.
Extent and duration of impact:	Local. During the construction phase of the activity
Probability of occurrence:	Definite
Degree to which the impact can be reversed:	NA
Degree to which the impact may cause irreplaceable loss of resources:	NA
Cumulative impact prior to mitigation:	Low - positive
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - positive
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	No mitigation measures required. Temporary jobs will be created during the construction phase.
Cumulative impact post mitigation:	Low - positive
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - positive

Potential impacts on cultural-historical aspects:	
Nature of impact:	The loss of cultural or historic aspects during construction
Extent and duration of impact:	Local, during construction phase
Probability of occurrence:	Unlikely, no cultural or historic aspects of significance were identified on site.
Degree to which the impact can be reversed:	High
Degree to which the impact may cause irreplaceable loss of resources:	Very Low - negative
Cumulative impact prior to mitigation:	Very Low – negative
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - Negative
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	<ul style="list-style-type: none"> If any archaeological remains (including but not limited to fossil bones and fossil shells, coins, indigenous and/or colonial ceramics, any articles of value or antiquity, stone artefacts and bone remains, structures and other built features, rock art and

	<p>rock engravings) are discovered during construction they must immediately be reported to HWC and must not be disturbed further until the necessary approval has been obtained from HWC.</p> <ul style="list-style-type: none"> Should any human remains/burial or archaeological material be disturbed, exposed or uncovered during construction, these should immediately be reported to the South African Heritage Resources Agency and Heritage Western Cape. The ECO and ER are also to be informed. An archaeologist will be required to remove the remains at the expense of the developer
Cumulative impact post mitigation:	Negligible
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Negligible

Potential noise impacts:	
Nature of impact:	Noise impact from machinery and plant during construction.
Extent and duration of impact:	Local. Duration of construction phase
Probability of occurrence:	High
Degree to which the impact can be reversed:	Probable
Degree to which the impact may cause irreplaceable loss of resources:	Negligible
Cumulative impact prior to mitigation:	Low - Negative
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - Negative
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	<p>Noise mitigation measures will be dealt with in the EMP. The following measures will be implemented amongst others:</p> <ul style="list-style-type: none"> Working hours will be restricted to daily normal working hours. All noise and sounds generated by plant or machinery must adhere to SABS 0103 specifications for the maximum permissible noise levels for residential areas. Construction activities are only to occur within the permitted construction hours. The Contractor shall ensure that noise levels are kept to a minimum and that they do not to exceed the permissible noise level of 85dB All plant and machinery are to be fitted with adequate silencers. No sound amplification equipment such as sirens, loud hailers or hooters may be used on site, after normal working hours, except in emergencies.
Cumulative impact post mitigation:	Very low - negative
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Very low - negative

Potential visual impacts:	
Nature of impact:	Unightly views due to construction site.
Extent and duration of impact:	Local, during duration of construction
Probability of occurrence:	Definite
Degree to which the impact can be reversed:	Probable
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Cumulative impact prior to mitigation:	Medium - negative
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium - negative
Degree to which the impact can be mitigated:	Probable
Proposed mitigation:	<p>Visual impact mitigation measures will be dealt with in the EMP The EMP must be enforced and monitored by the ECO. The site must be clean and tidy at all times. No stockpiles may exceed 2m in height.</p>

	Appropriate hoarding to be erected between the site and the surrounding residential properties.
Cumulative impact post mitigation:	Low - negative
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - negative

Impacts that may result from the operational phase (briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the operational phase.

Potential impacts on the geographical and physical aspects:	The activity is expected to have a potential impact on the groundwater quality
Nature of impact:	Leachate from the cemetery polluting the groundwater
Extent and duration of impact:	Local, during the operational phase of the cemetery
Probability of occurrence:	Potentially likely
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low - negative
Cumulative impact prior to mitigation:	Low - negative
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	Two or more boreholes situated along each boundary of the envisaged development for ground water monitoring. It is recommended that this one bore hole be monitored at least twice a year, once in summer and once in winter, for the parameters as indicated in Table 1, page 13 of Appendix G3. The results are to be submitted to the DWA as soon as they become available, as well as to interested and affected parties.
Cumulative impact post mitigation:	Low - negative
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - negative

Potential impact biological aspects:	No impact on biological aspects are expected
Nature of impact:	
Extent and duration of impact:	
Probability of occurrence:	
Degree to which the impact can be reversed:	
Degree to which the impact may cause irreplaceable loss of resources:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	

Potential impacts on the socio-economic aspects:	
Nature of impact:	Additional burial opportunities will be provided.
Extent and duration of impact:	Local. During entire operational phase of the development
Probability of occurrence:	Definite
Degree to which the impact can be reversed:	NA

Degree to which the impact may cause irreplaceable loss of resources:	NA
Cumulative impact prior to mitigation:	Low - positive
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - positive
Degree to which the impact can be mitigated:	NA
Proposed mitigation:	No mitigation measures required. This is a positive impact
Cumulative impact post mitigation:	Low - positive
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - positive

Potential impacts on the cultural-historical aspects:	
Nature of impact:	The loss of cultural or historic aspects during operational phase
Extent and duration of impact:	Local, during construction phase
Probability of occurrence:	Unlikely, no cultural or historic aspects of significance were identified on site.
Degree to which the impact can be reversed:	High
Degree to which the impact may cause irreplaceable loss of resources:	Very Low - negative
Cumulative impact prior to mitigation:	Very Low – negative
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - Negative
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	<ul style="list-style-type: none"> If any archaeological remains (including but not limited to fossil bones and fossil shells, coins, indigenous and/or colonial ceramics, any articles of value or antiquity, stone artefacts and bone remains, structures and other built features, rock art and rock engravings) are discovered during construction they must immediately be reported to HWC and must not be disturbed further until the necessary approval has been obtained from HWC. Should any human remains/burial or archaeological material be disturbed, exposed or uncovered during construction, these should immediately be reported to the South African Heritage Resources Agency and Heritage Western Cape. The ECO and ER are also to be informed. An archaeologist will be required to remove the remains at the expense of the developer
Cumulative impact post mitigation:	Negligible
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Negligible

Potential noise impacts:	
Nature of impact:	<ul style="list-style-type: none"> Normal traffic noise associated with motorcades to the cemetery will result. Minimal noise during burial ceremonies is expected
Extent and duration of impact:	Local, duration of operational phase
Probability of occurrence:	Probable
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	NA
Cumulative impact prior to mitigation:	Medium-low - negative
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium-low - negative
Degree to which the impact can be mitigated:	Very limited
Proposed mitigation:	- Landscaped buffer along the perimeter of the cemetery
Cumulative impact post mitigation:	Low – negative

Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low – negative
Potential visual impacts:	
Nature of impact:	<ul style="list-style-type: none"> • Visual impact associated with a cemetery will result. • No other detrimental visual impacts are envisaged with a development of this nature and size.
Extent and duration of impact:	Local, permanent
Probability of occurrence:	Possible
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low - negative
Cumulative impact prior to mitigation:	Low - negative
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium - negative
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	<ul style="list-style-type: none"> • Landscaping and features of interest with increased indigenous plants/trees. • Park areas to be maintained and designed to provide visual screening where possible e.g. from immediate road-side. Cemetery landscape/design to be strictly adhered to maintain aesthetic in term of • The proposed site layout and landscaping improves the development's visual impact on the surrounds
Cumulative impact post mitigation:	Low - negative
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low - negative

Impacts that may result from the decommissioning and closure phase (briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase.

The project as proposed does not require 'decommissioning' or 'closure', as such the potential impacts thereof have not been rated.

Note: The EAP may decide to include this section as Appendix I to the BAR.

(c) Provide a summary of the site selection matrix.

Refer to Appendices L & M attached

(d) Outcome of the site selection matrix.

Refer to Appendices L & M attached

3. SPECIALIST INPUTS/STUDIES, FINDINGS AND RECOMMENDATIONS

Note: Specialist inputs/studies must be attached to this report as **Appendix G** and must comply with the content requirements set out in Appendix 6 of the EIA Regulations, 2014 (as amended). Also take into account the Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, 2014, any subsequent Circulars, and guidelines available on the Department's website (<http://www.westerncape.gov.za/eadp>).

Provide a summary of the findings and impact management measures identified in any specialist report and an indication of how these findings and recommendations have been included in the BAR.

The specialist reports attached under Appendix G, indicate that the proposed Louw's Bos Public Cemetery and Memorial Park will provide a much-needed service to the regional community whilst also facilitating the rehabilitation and protection of the property in terms of biodiversity and the small existing water course in the north-eastern corner of the proposed development site.

In addition, despite the generally high visual impact, there is potential for the cultural/heritage aspects of the property, albeit of low significance in the area, to be made known through the proposed development i.e. information pedestals along walkways in the memorial park areas regarding the heritage 'Outspan' trail routes.

Each specialist assessment further highlights the environmental benefits of the proposed development, as indicated below:

i. **Biodiversity** – Currently, both the preferred and second alternative Louw's Bos sites are zoned for agriculture. According to the Botanical Constraints Analysis attached as Appendix G2 (MacDonald, 2018), a portion of the preferred site (Alternative 1), Louw's Bos South, has been planted with vines and the remaining portion of the preferred site is fallow but has been cultivated in the past. The report also contained a general biodiversity constraints analysis.

MacDonald, (2018) further states that natural indigenous vegetation is no longer present on the site and the site "is eminently suitable for the desired purpose" and that the botanical/biodiversity sensitivity of the site is "very low to negligible despite some areas having 'restored' due to the land been left fallow. The general suite of plant species consists of weedy exotics and a handful of disturbance-tolerant indigenous species.

There would be **no negative** impact on Swartland Granite Renosterveld and a **low negative** impact on ecological processes. The latter could be restored to a certain extent by appropriate landscaping."

Further, Botes (2018) states in a comparison of biodiversity sensitivity maps that "From an environmental sensitivity view, both sites are considered degraded agricultural land suitable for the proposed development, but Louw's Bos North may potentially impact on an ESA (which should be considered for rehabilitation) and may impact on the Stellenbosch western by-pass road. However, it is important to note that both these features can potentially be incorporated into the Memorial Park layout and with good planning the ESA areas can benefit from the proposed layout by incorporating (and rehabilitating) the wetland and streams as part of the final layout."

According to the Western Cape Biodiversity Spatial Plan (WCBSBP), the entire area proposed for the preferred development site (Louw's Bos South) is not within and does not contain any CBAs.

The ESA indicated in the sensitivity maps (as per Appendix D) which lies just on the northern corner of the preferred development site, would be avoided with at least a 32m setback/buffer, especially since the potential access/entrance to the site would be positioned towards that region. The avoidance of the ESA is indicated in the concept layout plans/drawings as per Appendix B.

The WCBSBP map for Louw's Bos North indicates a few small sections of potential critical biodiversity or ecological support areas viz. CBA 2– degraded areas but with potential for rehabilitation and ESA 2 – ecological support areas (associated with watercourses or plantations). These areas

would be rehabilitated and conserved as part of the memorial park aspect of the proposed development.

Refer to Appendix D for Biodiversity sensitivity maps.

ii. **Freshwater** – After mitigation, the potential impacts for both Louw's Bos South and Louw's Bos North fell in the Low Negative category or better, with many impacts representing an improvement over the current situation in the Low and Very Low Positive categories. The preferred layout represents the scenario with the lowest overall negative impact and the highest overall positive impact and represents a significant improvement on the 'no-go' scenario.

iii. **Geohydrology** – Groundwater occurs in intergranular and fractured aquifers at depths of >17 m. No groundwater was intersected above the clay layer on sites which provided borehole drill records.

There are a number of groundwater users in the area. Drill records indicate that the boreholes have above average yield, with groundwater quality been classified as "good" according to drinking water guidelines, (with the exception of elevated iron concentrations).

The sites have a "low/medium" groundwater vulnerability rating, due to the presence of a clay layer which acts as a barrier above the main aquifer and the relative depth to the groundwater level.

From a groundwater perspective, due to the relatively thick clay layer above the main aquifer the proposed sites can be considered for the development of a Memorial Park. The Louw's Bos south is more suited to the development of a memorial park due to its location away from major existing groundwater users.

iv. **Geotechnical** – The preferred Louw's Bos South site is underlain by a soil mantle comprising, from ground surface, loose to very loose to medium dense sands and gravel of colluvial origin overlying clays of residual origin all of which classify as Soft Excavation (SABS1200 DM).

The alternate Louw's Bos North site is underlain by a soil mantle comprising, from ground surface, dense to medium dense to very dense sands and gravel of colluvial origin overlying clays of colluvial and residual origin all of which classify as Soft Excavation (SABS1200 DM).

Provided that the burial portion of the proposed development for either site is sited in the area proposed by the geotechnical investigations (as per Appendix G5), the DWS requirements for the siting of cemeteries are met.

Leachate migration in either proposed site is unlikely as the clays in the profile are impervious. Leachate migration is linked to soil permeabilities which should not be too high since the rapid migration of leachate through the soil would pose a threat to surface and ground water quality. Research recommends that an upper soil permeability limit of 5×10^{-5} centimetres per second should be maintained to safely contain microbiological pollutants such as pathogens (Fisher, 1992) - this would include potential pathogens. It should be noted that under ideal conditions, where water resources are situated at greater distances than the recommended minimum distance for leachate attenuation, an increased limit of 5×10^{-4} centimetres per second may be acceptable.

The preferred and alternate sites were rated in terms of the attribute rankings and a score of 82 obtained by each. This indicates that in terms of the **Site Suitability Rating Index**, both proposed sites are considered **satisfactory** for development.

v. **Heritage** –

a. Archaeology – Archaeological visibility is extremely low due to dense vegetation cover, but indications are that the receiving environment is not a sensitive archaeological landscape.

b. Palaeontological – No fossil remains were recorded on Farm Re/502 Louw's Bos during the short palaeontological site visit. It is concluded that the palaeontological sensitivity of the Memorial Park study area is very low.

c. Visual – The greatest likely heritage related impact is on the visual environment since it is rural and partially scenic along this route.

Using the risk rating and assessment criteria as explained in Appendix I, the proposed development will have a high visual impact on the landscape (both sites) causing noticeable (South site) to some (North site) change to the visual environment. The proposed development has moderate (North site) to high (South site) visual exposure, moderate (both sites) visual absorption capacity, medium (both sites) compatibility, and is moderately (North site) to highly visible (South site) along Annandale Road.

vi. **Socio-economic** – Using criteria (as detailed in the socio-economic assessment appended to the BAR) five probable land use options for the proposed preferred development site were subjected to a ranking system in which the lower the score the lower the cost to the receiving community and the greater the benefits viz. the 'no-go' option, establish a vineyard, establish a strawberry farm, establish a public cemetery and memorial park, or develop suburban housing on the proposed development site.

The possibility of establishing a vineyard or strawberry farm scored the lowest in the ranking system which means that it has the least costs for the receiving community and most benefits.

The 'no-go' alternative scored the same as the establishment of a public cemetery and memorial park which placed approximately mid-way in the ranking system.

The possibility of the land being used for residential/suburban use scored the highest ranking and thus has the highest cost and least benefits for the receiving community.

The proposed development i.e. a public cemetery and memorial park, although having the greatest level of public outcry, would have moderate costs and benefits, and would be most consistent with the landowner's responsibility to provide for amenities such as cemeteries.

The establishment of a public cemetery and memorial park on the preferred southern site will fulfil the societal need for burial spaces and is supported.

Please refer to Socio-economic Assessment as per Appendix G10

In addition to preserving and promoting the introduction of indigenous vegetation in the area, the proposed public cemetery and memorial park will provide employment for local individuals, while meeting the need for the essential service of a contextualised public cemetery and memorial park.

The proposed development will also facilitate the provision of a safe community or social utilisation amenity in the form of the memorial park which may also be used other than for burial / remembrance purposes.

In addition to meeting the need for the essential service of a contextualised public cemetery and memorial park, the proposed development will preserve the cultural heritage of the region, provide employment for local individuals and serve as a community/social amenity while also being an educational/potentially tourism facility, promoting and conserving the introduction of indigenous vegetation in the area.

Considering all the information, it is not envisaged that this will have a significant overall negative impact on the environment.

It is therefore recommended that this application be authorised with the necessary conditions of approval as described throughout this BAR.

4. ENVIRONMENTAL IMPACT STATEMENT

Provide an environmental impact statement of the following:

(i) A summary of the key findings of the EIA.

Based on the specialist reports in Appendix G, the proposed Louw's Bos Public Cemetery and Memorial Park will provide a much-needed service to the regional community whilst also facilitating the rehabilitation and protection of the property in terms of biodiversity and the small existing water course in the north-eastern corner of the proposed development site.

In addition, the cultural/heritage aspects of the property, although not highly significant in the area, will be preserved through the proposed development i.e. information regarding 'Outspan' trail routes.

Each specialist assessment further highlights the environmental benefits of the proposed development, as indicated below:

i. **Biodiversity** – Currently, both the preferred and second alternative Louw's Bos sites are zoned for agriculture. According to the Botanical Constraints Analysis attached as Appendix G2 (MacDonald, 2018), a portion of the preferred site (Alternative 1), Louw's Bos South, has been planted with vines and the remaining portion of the preferred site is fallow but has been cultivated in the past. The report also contained a general biodiversity constraints analysis.

MacDonald, (2018) further states that natural indigenous vegetation is no longer present on the site and the site "is eminently suitable for the desired purpose" and that the botanical/biodiversity sensitivity of the site is "very low to negligible despite some areas having 'restored' due to the land been left fallow. The general suite of plant species consists of weedy exotics and a handful of disturbance-tolerant indigenous species.

There would be **no negative** impact on Swartland Granite Renosterveld and a **low negative** impact on ecological processes. The latter could be restored to a certain extent by appropriate landscaping."

Further, Botes (2018) states in a comparison of biodiversity sensitivity maps that "From an environmental sensitivity view, both sites are considered degraded agricultural land suitable for the proposed development, but Louw's Bos North may potentially impact on an ESA (which should be considered for rehabilitation) and may impact on the Stellenbosch western by-pass road. However, it is important to note that both these features can potentially be incorporated into the Memorial Park layout and with good planning the ESA areas can benefit from the proposed layout by incorporating (and rehabilitating) the wetland and streams as part of the final layout."

According to the Western Cape Biodiversity Spatial Plan (WCBSP), the entire area proposed for the preferred development site (Louw's Bos South) is not within and does not contain any CBAs. The ESA indicated in the sensitivity maps (as per Appendix D) which lies just on the northern corner of the preferred development site, would be avoided with at least a 32m setback/buffer, especially since the potential access/entrance to the site would be positioned towards that region. The avoidance of the ESA is indicated in the concept layout plans/drawings as per Appendix B.

The WCBSP map for Louw's Bos North indicates a few small sections of potential critical biodiversity or ecological support areas viz. CBA 2– degraded areas but with potential for rehabilitation and ESA 2 – ecological support areas (associated with watercourses or plantations). These areas would be rehabilitated and conserved as part of the memorial park aspect of the proposed development.

Refer to Appendix D for Biodiversity sensitivity maps.

ii. **Freshwater** – After mitigation, the potential impacts for both Louw's Bos South and Louw's Bos North fell in the Low Negative category or better, with many impacts representing an improvement over the current situation in the Low and Very Low Positive categories. The preferred layout represents the scenario with the lowest overall negative impact and the highest overall positive impact and represents a significant improvement on the 'no-go' scenario.

iii. **Geohydrology** – Groundwater occurs in intergranular and fractured aquifers at depths of >17 m. No groundwater was intersected above the clay layer on sites which provided borehole drill records.

There are a number of groundwater users in the area. Drill records indicate that the boreholes have above average yield, with groundwater quality been classified as "good" according to drinking water guidelines, (with the exception of elevated iron concentrations).

The sites have a "low/medium" groundwater vulnerability rating, due to the presence of a clay layer which acts as a barrier above the main aquifer and the relative depth to the groundwater level.

From a groundwater perspective, due to the relatively thick clay layer above the main aquifer the proposed sites can be considered for the development of a Memorial Park. The Louw's Bos south is more suited to the development of a memorial park due to its location away from major existing groundwater users.

iv. **Geotechnical** – The preferred Louw's Bos South site is underlain by a soil mantle comprising, from ground surface, loose to very loose to medium dense sands and gravel of colluvial origin overlying clays of residual origin all of which classify as Soft Excavation (SABS1200 DM).

The alternate Louw's Bos North site is underlain by a soil mantle comprising, from ground surface, dense to medium dense to very dense sands and gravel of colluvial origin overlying clays of colluvial and residual origin all of which classify as Soft Excavation (SABS1200 DM).

Provided that the burial portion of the proposed development for either site is sited in the area proposed by the geotechnical investigations (as per Appendix G5), the DWS geotechnical requirements for the siting of cemeteries are met.

Leachate migration in either proposed site is unlikely as the clays in the profile are impervious.

The preferred and alternate sites were rated in terms of the attribute rankings and a score of 82 obtained by each. This indicates that in terms of the **Site Suitability Rating Index**, both proposed sites are considered **satisfactory** for development.

v. **Heritage** –

a. Archaeology – Archaeological visibility is extremely low due to dense vegetation cover, but indications are that the receiving environment is not a sensitive archaeological landscape.

b. Palaeontological – No fossil remains were recorded on Farm Re/502 Louw's Bos during the short palaeontological site visit. It is concluded that the palaeontological sensitivity of the Memorial Park study area is very low.

c. Visual – The greatest likely heritage related impact is on the visual environment since it is rural and partially scenic along this route.

Using the risk rating and assessment criteria as explained in Appendix I, the proposed development will have a high visual impact on the landscape (both sites) causing noticeable (South site) to some (North site) change to the visual environment. The proposed development has moderate (North site) to high (South site) visual exposure, moderate (both sites) visual absorption capacity, medium (both sites) compatibility, and is moderately (North site) to highly visible (South site) along Annandale Road.

vi. **Socio-economic** – Using criteria (as detailed in the socio-economic assessment appended to the BAR) five probable land use options for the proposed preferred development site were subjected to a ranking system in which the lower the score the lower the cost to the receiving community and the greater the benefits viz. the 'no-go' option, establish a vineyard, establish a strawberry farm, establish a public cemetery and memorial park, or develop suburban housing on the proposed development site.

The possibility of establishing a vineyard or strawberry farm scored the lowest in the ranking system which means that it has the least costs for the receiving community and most benefits.

The 'no-go' alternative scored the same as the establishment of a public cemetery and memorial park which placed approximately mid-way in the ranking system.

The possibility of the land being used for residential/suburban use scored the highest ranking and thus has the highest cost and least benefits for the receiving community.

The proposed development i.e. a public cemetery and memorial park, although having the greatest level of public outcry, would have moderate costs and benefits, and would be most consistent with the landowner's responsibility to provide for amenities such as cemeteries.

As per the Socio-economic Assessment as per Appendix G10, the establishment of a public cemetery and memorial park on the preferred southern site will fulfil the societal need for burial spaces and is supported.

In addition to preserving and promoting the introduction of indigenous vegetation in the area, the proposed public cemetery and memorial park will provide employment for local individuals, while meeting the need for the essential service of a contextualised public cemetery and memorial park.

The proposed development will also facilitate the provision of a safe community or social utilisation amenity in the form of the memorial park which may also be used other than for burial / remembrance purposes.

In addition to meeting the need for the essential service of a contextualised public cemetery and memorial park, the proposed development will preserve the cultural heritage of the region, provide employment for local individuals and serve as a community/social amenity while also being an educational/potentially tourism facility, promoting and conserving the introduction of indigenous vegetation in the area.

Considering all the information, it is not envisaged that this will have a significant overall negative impact on the environment.

It is therefore recommended that this application be authorised with the necessary conditions of approval as described throughout this BAR.

(ii) Has a map of appropriate scale been provided, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers?	YES ✓	NO
(iii) A summary of the positive and negative impacts that the proposed development and alternatives will cause in the environment and community.		

See Appendix I attached

5. IMPACT MANAGEMENT, MITIGATION AND MONITORING MEASURES

- (a) Based on the assessment, describe the impact management, mitigation and monitoring measures as well as the impact management objectives and impact management outcomes included in the EMPr. The EMPr must be attached to this report as Appendix O.

The overall objective of the Environmental Management Plan/Programme (EMPr) is to direct and guide all responsible parties, binding all contractors, sub-contractors and all other persons working on the site to adhere to the terms and conditions of the EMPr during the construction, operation, maintenance and anticipated demolition/decommissioning phases of the project.

The EMPr forms part of the contractual obligations to which all persons including but not limited to, contractors/sub-contractors or employees involved in construction, operation, maintenance or decommissioning work, must be committed. It serves as a baseline information document for the project applicant and any entity working on behalf of the applicant, during the various phases of the proposed activity.

The EMPr aims to comply with Section 24N of the National Environmental Management Act No. 107 of 1998, as amended (NEMA), as well as any additional specific information requested by any government department, including the regulating authority for this specific project, the DEA&DP. The overall outcome of the EMPr is to prevent avoidable damage and/or minimise or mitigate unavoidable environmental damage associated with the construction, operation, maintenance and possible decommissioning phases of the proposed project. The outcomes of the EMPr will be achieved if it is ensured that the mitigation and management measures detailed in this EMPr are implemented and adhered to throughout the project duration. Compliance monitoring and independent assessment/auditing also allow the verification of achievement of the EMPr objectives.

The EMPr is partly prescriptive (identifying specific people or organisations to undertake specific tasks, in order to ensure that impacts on the environment are minimised) but it is also a dynamic, evolving document, in that information gained during the various activities and/or monitoring of procedures on site, could lead to changes in the EMPr.

This EMPr:

- identifies project activities that could cause actual environmental damage (or potential environmental risks) and provides a summary of actions required;

- identifies persons responsible for ensuring compliance with the EMPr;
- provides standard procedures to avoid and/or minimise the identified negative environmental impacts and to enhance the positive impact of the project on the environment;
- provides site and project specific rules and actions required, including a site plan/s showing:
 - areas where construction, maintenance, or demolition work may be carried out;
 - areas where any material or waste may be stored;
 - allowed access routes, parking and turning areas for construction or construction related vehicles;
- forms a written record of procedures, responsibilities, requirements and rules for contractor/s, their staff and any other person who must comply with the EMPr;
- provides a monitoring and auditing programme to track and record compliance and identify and respond to any potential or actual negative environmental impacts; and
- provides a monitoring programme to record any mitigation measures that are implemented

Specific impact mitigation and management measures may be found in Appendix I (Impact Assessment and rating with mitigation measures), as well as Appendix O (EMPr), attached.

- (b) Describe any provisions for the adherence to requirements that are prescribed in a Specific Environmental Management Act relevant to the listed activity or specified activity in question.

As detailed in section 3.3 to 3.5 of the EMPr (Appendix O):

The National Environmental Management: Waste Act No. 59 of 2008 (NEMWA), provides "Norms and Standards for the Storage of Waste", as contained in Government Notice (GN) No. 926 of 2013.

Therefore, should more than 100m³ of general waste, or more than 80m³ of hazardous waste be stored on site for a period exceeding 90 days, registration and adherence in terms of GN No. 926 will be required.

Any solid waste must be appropriately stored at on site and disposed of at a licenced facility suitable/appropriate to the type of waste being disposed.

No waste is to be burned or buried on site.

In terms of the Hazardous Substances Act 15 of 1973, all fuels must be stored in a bunded area capable of holding at least 110% of the total volume of fuel stored.

Any spills of hazardous substances on site which could lead to environmental degradation, must be managed and reported on in line with Section 30 of NEMA.

Section 38 of the National Heritage Resources Act 25 of 1999 (NHRA) states the following:

"38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

(i) exceeding 5 000m² in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000m² in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development".

A Notice of Intent to develop was submitted in line with the NHRA and a final comment/authorisation for the proposed development was received as captured in Appendix E4.

Appropriate firebreaks in line with the National Veld and Forest Fire Act 101 of 1998 (NVFFA) must be maintained for the proposed development site.

Several listed activities under section 21 of the National Water Act 36 of 1998 (NWA) are triggered/potentially triggered by the proposed development due to the fact that they are defined as a water use:

"21. For the purposes of this Act, water use includes –

(a) taking water from a water resource;

(b) storing water;

(c) impeding or diverting the flow of water in a watercourse;

(g) disposing of waste in a manner which may detrimentally impact on a water resource;"

A water use authorisation is required for Section 21 water uses of the the NWA. Application will be made and once the respective authorisation is received it must be kept as Appendix 13.2 of this EMPr.

- (c) Describe the ability of the applicant to implement the management, mitigation and monitoring measures.

Stellenbosch Municipality has a dedicated department, Community and Protection Services under which parks, rivers and area cleaning falls. The management of public cemeteries also falls under this department. In addition, with the cemeteries in the Stellenbosch region, nearing maximum capacity, the Municipality should be able to redeploy its resources tyo effectively manage the proposed new public cemetery and memorial park.

In addition, the EMPr sets out guidelines for management, mitigation and monitoring measures, to which the applicant must adhere during operation and maintenance of the proposed development.

- (d) Provide the details of any financial provisions for the management of negative environmental impacts, rehabilitation and closure of the proposed development.

N/A - due to the nature of the proposed development, it does not undergo closure or decommissioning.

- (e) Provide the details of any financial provisions for the management of negative environmental impacts, rehabilitation and closure of the proposed development.

N/A - due to the nature of the proposed development, it does not undergo closure or decommissioning.

- (f) Describe any assumptions, uncertainties, and gaps in knowledge which relate to the impact management, mitigation and monitoring measures proposed.

Unknown

SECTION H: RECOMMENDATIONS OF THE EAP AND SPECIALISTS

(a) In my view as the appointed EAP, the information contained in this BAR and the documentation attached hereto is sufficient to make a decision in respect of the listed activity(ies) applied for.	YES ✓	NO
(b) If the documentation attached hereto is sufficient to make a decision, please indicate below whether, in your opinion, the listed activity(ies) should or should not be authorised:		
Listed activity(ies) should be authorised:	YES ✓	NO
Provide reasons for your opinion		
<p>Preliminary geohydrological assessments indicate that <u>attenuation</u> of any biological pathogens or contaminants before groundwater is reached, is very likely – the fractured aquifer lies at a depth much greater than the minimum depth required for attenuation of contaminants with a more than sufficient clay layer to impede and attenuate leachate.</p> <p>The positive impacts on biodiversity, heritage, aesthetics and job-creation are likely to be realised with the proposed public cemetery and memorial park development. However, adherence to landscape management plans and the EMP, as well as sound management of the resources available to the Municipality once the development is established, must be monitored and maintained.</p> <p>From a socio-economic perspective, the development of a public cemetery and memorial park on the preferred site on Louw's Bos Farm RE/502, although having the greatest level of public outcry, would have moderate costs and benefits, and would be most consistent with the landowner's responsibility to provide for amenities such as cemeteries. Therefore, the establishment of a public cemetery and memorial park on the preferred southern site will fulfil the societal need for burial spaces and is supported.</p>		
(c) Provide a description of any aspects that were conditional to the findings of the assessment by the EAP and Specialists which are to be included as conditions of authorisation.		
<p>Minimum wetland/watercourse setback or buffer area to be adhered to (specialist's recommendation of 15m – EAP recommends 32m).</p> <p>Geotechnical specialist designation of areas suitable for burial sections of proposed development to be considered.</p> <p>On site monitoring boreholes for baseline and early detection of potential groundwater impact must be established.</p> <p>Procedures/method statements for construction and operational aspects must be developed. In particular, routine requirements such as</p>		
(d) If you are of the opinion that the activity should be authorised, please provide any conditions, including mitigation measures that should in your view be considered for inclusion in an environmental authorisation.		
<p>It is recommended that this application be authorised with the necessary conditions of approval as described throughout this BAR and EMP (Appendix O).</p>		

i. **Biodiversity** – The site and its immediate surroundings are considered transformed with no natural veld remaining. Only a few hardy/weedy species remain.

However, implementing the following recommendations can ensure a potential positive environmental impact:

- A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase.
- All alien plants and all waste must be removed from the site and its immediate surroundings.
- Only indigenous plants should be used for any revegetation/landscaping within the memorial park.
- All areas impacted as a result of construction must be rehabilitated on completion of the project.

ii. **Freshwater** – A slow decline in the Louw's Bos South wetland health was found to be most likely in the case of the 'No-go' scenario, and therefore, preferred layout alternative 1 is the lowest impact option of all:

- Current land use i.e. existing prior to commencement of the proposed development, has already negatively impacted the wetland in Louw's Bos South significantly and preferred layout alternative 1 would, in the operational phase with mitigation, result in an improvement over the current state of the wetland in every impact category evaluated.
- It is therefore recommended that the proposed development be implemented in accordance with the Preferred Layout with implementation of all essential mitigation measures and that the necessary environmental and water use authorisations be granted.
- The minimum 15m wetland buffer must be maintained should preferred layout alternative 1 be implemented.
- Stormwater runoff be managed so that it does not negatively impact in the catchment/Bonte River.
- Should irrigation of grey water be employed, the necessary authorisation, if required, must be obtained.

iii. **Geohydrology** – There are a number of groundwater users in the area. Drill records indicate that the boreholes have above average yield, with groundwater quality been classified as "good" according to drinking water guidelines, (with the exception of elevated iron concentrations).

The sites have a "low/medium" groundwater vulnerability rating, due to the presence of a clay layer which acts as a barrier above the main aquifer and the relative depth to the groundwater level.

From a groundwater perspective, due to the relatively thick clay layer above the main aquifer the proposed sites can be considered for the development of a Memorial Park.

Louw's Bos south is more suited to the development of a memorial park due to its location away from major existing groundwater users.

Monitoring boreholes must be established within the site boundaries.

iv. **Geotechnical** – Provided that the burial portion of the proposed development for either site is sited in the area proposed by the geotechnical investigations (as per Appendix G5), the DWS requirements for the siting of cemeteries are met.

Leachate migration in the proposed site is unlikely as the clays in the profile are impervious. Nonetheless, adequate subsurface drainage must be installed 'down stream' of subsurface flow, to prevent possible leachate migration off the property.

v. Heritage –

a. Archaeological – The results of the archaeological impact assessment indicate that the proposed development of a new municipal cemetery on Remainder Farm No. 502 near Stellenbosch, will not impact any important pre-colonial archaeological heritage.

No archaeological mitigation is required for either sites prior to construction activities commencing. Both proposed sites are suitable for development.

b. Palaeontological – No fossil remains were recorded on Farm Louw's Bos RE/502 during the palaeontological site visit. It is concluded that the palaeontological sensitivity of the development study area is very low.

It is recommended that, pending the exposure of significant new fossils (e.g. mammalian bones and teeth) during construction, exemption from further specialist palaeontological studies and mitigation be granted for this development.

If fossil material is discovered during construction, this should be safeguarded, preferably *in situ*, and the ECO should alert Heritage Western Cape (Tel: 086-142 142. Fax: 021-483 9842. Email: hwc@pgwc.gov.za), so that appropriate mitigation (i.e. recording, sampling or collection) can be taken by a professional palaeontologist. The tabulated 'Chance Fossil Finds Protocol' and associated recommendations, appended to the Heritage Impact Assessment report (Appendix G7 of the BAR) must be implemented.

c. Visual – This is the greatest likely heritage related impact is on the visual environment since it is rural and partially scenic along this route. Implementation of a sound visual management and monitoring plan/routine visual impact assessment by the ECO/site manager, would help to manage and possible mitigate further negative visual impacts during the construction and operational phases.

Strict adherence to the landscape plan and maintenance of the memorial park areas to provide visual screening and softening of the proposed development must be ensured.

Heritage (additional):

In the event that indicator(s) of heritage resources are identified, the following actions should be taken immediately:

- All construction within a radius of at least 20m of the indicator should cease. This distance should be increased at the discretion of supervisory staff if heavy machinery or explosives could cause further disturbance to the suspected heritage resource.
- This area must be marked using clearly visible means, such as barrier tape, and all personnel should be informed that it is a no-go area.
- A guard should be appointed to enforce this no-go area if there is any possibility that it could be violated, whether intentionally or inadvertently, by construction staff or members of the public.
- No measures should be taken to cover up the suspected heritage resource with soil, or to collect any remains such as bone, ceramics or stone.
- If a heritage practitioner has been appointed to monitor the project, s/he should be contacted and a site inspection arranged as soon as possible.
- If no heritage practitioner has been appointed to monitor the project, SAHRA must be contacted at the SAHRA head office.
- The South African Police Services should be notified by a SAHRA staff member or an independent heritage practitioner if human remains are identified. No SAPS official may disturb or exhume such remains, whether of recent origin or not.

- All parties concerned should respect the potentially sensitive and confidential nature of the heritage resources, particularly human remains, and refrain from making public statements until a mutually agreed time.
- Any extension of the project beyond its current footprint involving vegetation and/or earth clearance should be subject to prior assessment by a qualified heritage practitioner, taking into account all information gathered during this initial heritage impact assessment.
- We recommend the appointment of a Stone Age Specialist if any large finds of stone tools are discovered during construction.

vi. Socio-economic – The proposed development i.e. a public cemetery and memorial park, although having the greatest level of public outcry, would have moderate costs and benefits, and would be most consistent with the landowner's responsibility to provide for amenities such as cemeteries.

In addition, besides the potential empowerment of the local community in being employed by or involved in the operational and maintenance aspects of the proposed development, the development aims towards educating and promoting more sustainable methods of interment and remembrance – something which is sorely lacking in the district.

The socio-economic specialist supports the establishment of a public cemetery and memorial park on the preferred southern site since it fulfils the societal need for burial spaces.

(e) Please indicate the recommended periods in terms of the following periods that should be specified in the environmental authorisation:

i. the period within which commencement must occur;	5 years from date of issue
ii. the period for which the environmental authorisation is granted and the date on which the development proposal will have been concluded, where the environmental authorisation does not include operational aspects;	Development boundary and subsurface infrastructural establishment: 5-10 years from date of issue. (Due to the nature of the amenity, the development 'grows' over the projected lifespan to eventually occupy the total footprint applied for. Development takes place in 'precincts' which are established approximately every 3 to 5 years within the proposed site boundary).
iii. the period for which the portion of the environmental authorisation that deals with non-operational aspects is granted; and	Within the main boundary of the development, precincts will be established in 3 to 5 year phases over the expected 30 year lifespan
iv. the period for which the portion of the environmental authorisation that deals with operational aspects is granted.	30 to 49 years

SECTION I: APPENDICES

The following appendices must be attached to this report:

APPENDIX		Confirm that Appendix is attached
Appendix A:	Locality map	Yes
Appendix B:	Site development plan(s)	Yes
	A map of appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffer areas;	Yes
Appendix C:	Photographs	Yes
Appendix D:	Biodiversity overlay map	Yes
Appendix E:	Comment / Permits / Licenses from Organs of State, including service letters from the municipality.	Yes
Appendix F:	Public participation information: including a copy of the register of I&APs, the comments and responses report, proof of notices, advertisements and any other public participation information as is required in Section C above.	Yes
Appendix G:	Specialist Reports	Yes
Appendix H:	I&AP List	Yes
Appendix I:	If applicable, description of the impact assessment process followed to reach the proposed preferred alternative within the site.	Yes
Appendix J:	Rezoning Information/Proof of Submission	Yes
Appendix K:	Minutes of Stellenbosch Municipality Council Meeting (partial)	Yes
Appendix L:	First Report, Final October 2016	Yes
Appendix M:	Motivation to Obtain Stellenbosch Council's Endorsement	Yes
Appendix N:	Cemetery Feasibility Study, October 2006	Yes
Appendix O:	EMPr	Yes

SECTION J: DECLARATIONS

THE APPLICANT

Note: Duplicate this section where there is more than one applicant.

I, Ratnas Anil Kumar....., ~~in my personal capacity or~~ [†] duly authorised thereto, hereby declare/affirm all the information submitted as part of this Report is true and correct, and that I –

- am aware of and understand the content of this report;
- am fully aware of my responsibilities in terms of the NEMA, the EIA Regulations in terms of the NEMA (Government Notice No. R. 982, refers) (as amended) and any relevant specific environmental management Act and that failure to fulfil these requirements may constitute an offence in terms of relevant environmental legislation;
- have provided the EAP and Specialist, Review EAP (if applicable), and Review Specialist (if applicable), and the Competent Authority with access to all information at my disposal that is relevant to the application;
- will be responsible for complying with conditions that may be attached to any decision(s) issued by the Competent Authority;
- will be responsible for the costs incurred in complying with the conditions that may be attached to any decision(s) issued by the Competent Authority;

Note: If acting in a representative capacity, a certified copy of the resolution or power of attorney must be attached.

Signature of the Applicant: 

Name of Organisation: Jellantachi Municipality

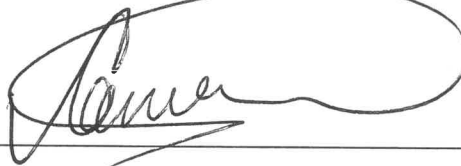
Date: 13 September 2019

THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

I VIVIANNE THOMPSON, as the appointed EAP hereby declare/affirm:

- the correctness of the information provided as part of this Report;
- that all the comments and inputs from stakeholders and I&APs have been included in this Report;
- that all the inputs and recommendations from the specialist reports, if specialist reports were produced, have been included in this Report;
- any information provided by me to I&APs and any responses by me to the comments or inputs made by I&APs;
- that I have maintained my independence throughout this EIA process, or if not independent, that the review EAP has reviewed my work (Note: a declaration by the review EAP must be submitted);
- that I have throughout this EIA process met all of the general requirements of EAPs as set out in Regulation 13;
- I have throughout this EIA process disclosed to the applicant, the specialist (if any), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared as part of the application;
- have ensured that information containing all relevant facts in respect of the application was distributed or was made available to I&APs and that participation by I&APs was facilitated in such a manner that all I&APs were provided with a reasonable opportunity to participate and to provide comments;
- have ensured that the comments of all I&APs were considered, recorded and submitted to the Department in respect of the application;
- have ensured the inclusion of inputs and recommendations from the specialist reports in respect of the application, if specialist inputs and recommendations were produced;
- have kept a register of all I&APs that participated during the PPP; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the EAP:



Name of Company:

ENVIROAFRICA CC

Date:

13 SEPTEMBER 2019

THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I Pat Rotes....., as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist:



Name of Company:

PRconsult

Date:

19 June 2019

THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I **David J. McDonald**, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I :

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist:



Name of Company:

Bergwind Botanical Surveys & Tours CC

Date:

31 January 2019

THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I J. G. ERICKE....., as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist:

J. G. Ericke

Name of Company:

Enviro Swift (Pty) Ltd.

Date:

08.02.2017

THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

IJulian Conrad....., as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I :

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist:



Name of Company:

Geohydrological and Spatial Solutions International (Pty)
Ltd trading as GEOSS

Date:

30 January 2019

THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I C. HARTLEY, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist:

C. Hartley

Name of Company:

CONQUANA CEO SOLUTIONS

Date:

7/02/2019

THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I, JOHANN LANZ, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist:



Name of Company:

JOHANN LANZ - SOIL SCIENTIST

Date:


15/03/2019

THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

- I **Bruce Eitzen** as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I :
 - in terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - ~~am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);~~
 - in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
 - have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
 - am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist:



Name of Company:

New World Associates, Landscape Architects

Date:

31 January 2019

THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I Jonathan Kaplan, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist:



Name of Company:

Agency for Cultural Resource Management

Date:

30 January, 2019

THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I, **Dr John Edward Almond**, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I :

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist:

John E. Almond

Name of Company:

NATURA VIVA CC

Date:

31 January 2019

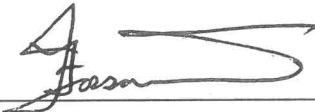
THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I FJ Rossouw as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I :

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist:



Name of Company:

iX Engineers

Date:

26/03/2019

THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

IANELIA COERZEE..... as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I :

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist:



Name of Company:

LEAP SUSTAINABLE DEVELOPMENT

Date:

5/3/2019

THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I Barend du Preez, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist:

Barend du Preez

Name of Company:

Sturgeon Consulting (Pty) Ltd

Date:

26 March 2019

THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I, Johan van Papendorp the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist:

Johan van Papendorp

Name of Company:

OvP ASSOCIATES.

Date:

25 MARCH 2019.