

**FINAL ENVIRONMENTAL MANAGEMENT  
PROGRAMME FOR**

**THE PROPOSED DEVELOPMENT OF SU  
CASA PRIVATE BURIAL ESTATE AND  
ASSOCIATED ACTIVITIES ON PORTION 10  
OF FARM DOORNRUG 302 IN EMALAHLENI  
LOCAL MUNICIPALITY, MPUMALANGA  
PROVINCE**

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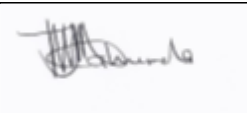
(C) 073 504 3122

(F) 086 667 2088

(E) [info@eaglesage.co.za](mailto:info@eaglesage.co.za)

(W) [www.eaglesage.co.za](http://www.eaglesage.co.za)

3 Fouriesburg Street  
Emerald Gardens  
Rooihuiskraal  
Centurion  
0157

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| <b>Title of the document:</b>  | <b>FINAL ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE PROPOSED DEVELOPMENT OF SU CASA PRIVATE BURIAL ESTATE AND ASSOCIATED ACTIVITIES ON PORTION 10 OF FARM DOORNRUG 302 IN EMALAHLENI LOCAL MUNICIPALITY, MPUMALANGA PROVINCE</b> |
| <b>Revision Number:</b>  | 0  |
| <b>Prepared By:</b>  | <b>Prepared For:</b>   |
|   | Su Casa Burial Estate (Pty) Ltd.   |
| Masala Mahumela<br>(C) 073 504 3122<br>(F) 086 667 2088<br>(E) <a href="mailto:masala.mahumela@eaglesage.co.za">masala.mahumela@eaglesage.co.za</a><br><br>3 Fouriesburg Street<br>Emerald Gardens<br>Rooihuiskraal<br>Centurion<br>0157 | Mr Tshepo Mavundla<br><br><br>Plot 126, West Street, Clewer,<br>Witbank,<br>1036   |
| <b>Document Prepared By:</b>   |  |
| <br>M. Mahumela Pr. Sci. Nat. / EAPASA  |  |

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## 1. INTRODUCTION

Some of the cemeteries in Emalahleni Local Municipality have reached capacity while other will reach capacity in future. In order to increase future capacity for cemeteries, Su Casa Burial Estate (Pty) Ltd. (hereafter referred to as Su Casa) proposes to construct a private cemetery on the Remaining Extent of Portion 10 (a portion of Portion 9) of the Farm Doornrug 302 JS. The total size of the proposed project site is ~26ha. The proposed burial estate is located ~18km west of Emalahleni and ~2km south of the N4.

The proposed project triggers activities listed under the Environmental Impact Assessment (EIA) Regulations of 2014 as amended, promulgated under the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA), as such requires an Environmental Authorisation (EA) before construction commences. Further, the proposed project triggers activities listed under Section 21 of the National Water Act, 1998 (Act 36 of 1998) and requires a Water Use Licence (WUL) before construction activities commence. In addition, the proposed project requires a permit to establish a cemetery.

The application for the EA will be lodged with the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA) whereas the Water Use Licence Application (WULA) will be lodged with the Department of Water and Sanitation (DWS). The permit to establish the cemetery will be obtained from the Emalahleni Local Municipality.

Eaglesage (Pty) Ltd. (hereafter referred to as Eaglesage) has been appointed by Su Casa to undertake the Basic Assessment (BA) and WULA processes for the proposed project.

This Environmental Management Programme is prepared for the afore-mentioned development in line with the Environmental Impact Assessment Regulations (EIA) of 2014 as amended, under the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA)

## 2. DETAILS OF THE PROJECT PROPONENT AND ENVIRONMENTAL ASSESSMENT PRACTITIONER

### 2.1. Details of the Project Proponent

Table 1 below includes the details of the project proponent.

Table 1: Details of the project proponent

| Aspect            | Details   |
|-------------------|---|
| Applicant:        | Su Casa Burial Estate (Pty) Ltd.                |
| Trading name:     | Su Casa Burial Estate (Pty) Ltd.                |
| Contact person:   | Tshepo Mavundla                                 |
| Physical address: | Plot 126, West Street, Clewer,<br>Witbank, 1036 |

| Aspect          | Details  |
|-----------------|--|
| Postal address: | Plot 126, West Street, Clewer,<br>Witbank, 1036                    |
| Telephone:      | 013 007 1382   |
| E-mail:         | <a href="mailto:tshepo@zitholama.co.za">tshepo@zitholama.co.za</a> |

## 2.2. Details of the Environmental Assessment Practitioner

Table 2 below includes the details of the Environmental Assessment Practitioner (EAP)

Table 2: Details of the EAP

| Aspect                                 | Details   |
|--|---|
| Company name of EAP:                   | Eaglesage (Pty) Ltd.  |
| EAP's name and surname:                | J.M. Mahumela   |
| Postal address:                        | P.O. BOX 5264, The Reeds,<br>0158   |
| Fax:                                   | 086 667 2088  |
| E-mail:                                | <a href="mailto:masala.mahumela@eaglesage.co.za">masala.mahumela@eaglesage.co.za</a> /<br><a href="mailto:info@eaglesage.co.za">info@eaglesage.co.za</a>  |
| Qualifications and relevant experience | B.Sc. Honours Environmental Management.<br>Fourteen years in the environmental consulting field.<br>Refer to Appendix A for CV and Qualifications   |
| Professional affiliations              | <ul style="list-style-type: none"> <li>South African Council for Natural Scientific Professions (SACNASP).<br/>Registration Number 400536/14.</li> <li>Environmental Assessment Practitioners of South Africa (EAPASA).<br/>Registration Number 2019/1296.</li> </ul> |

## 3. PROJECT LOCATION

The Proposed Su Casa Burial Estate and associated infrastructure will be located on Farm Doornrug 302 JS, Remaining Extent of Portion 10 (a Portion of Portion 9), in Emalahleni Local Municipality in the Mpumalanga Province. The 21 digit Surveyor General code for the property is T0JS00000000030200010. The site is located south of the N4 and R104 between Balmoral and Witbank. The property is zoned for agricultural purposes and maize has been cultivated over the years, but the Developer is applying for Special Consent so that the site can be used as a cemetery. The area surrounding the project area consists predominantly of agricultural fields and mining operations to the east of the project area.

It is important to note that the proposed project site has been purchased and belongs to the project proponent. Figures 1 and 2 below illustrate the proposed project locality and an indication of the transformation that has taken place on the proposed site.

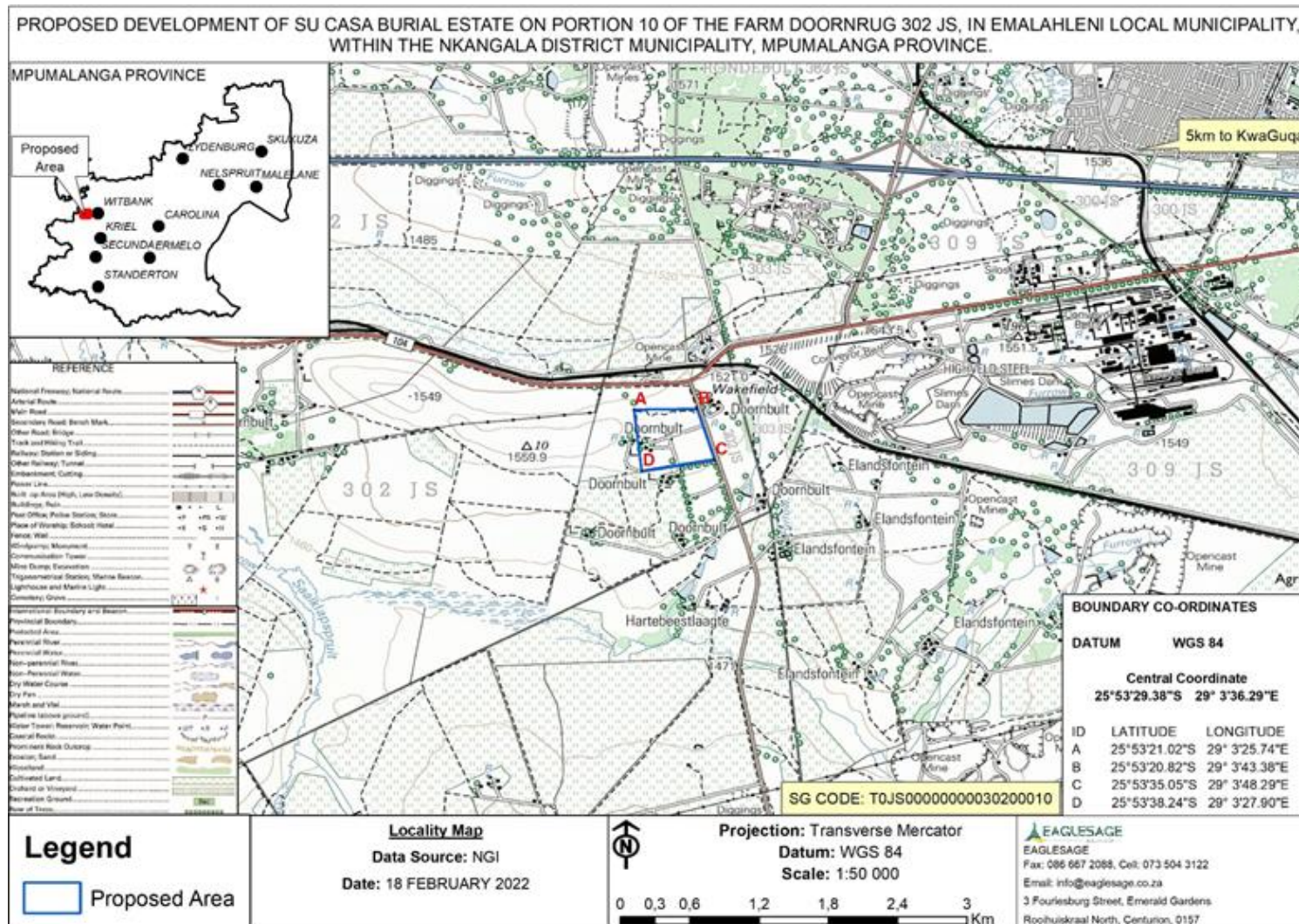


Figure 1: Locality map of the proposed site



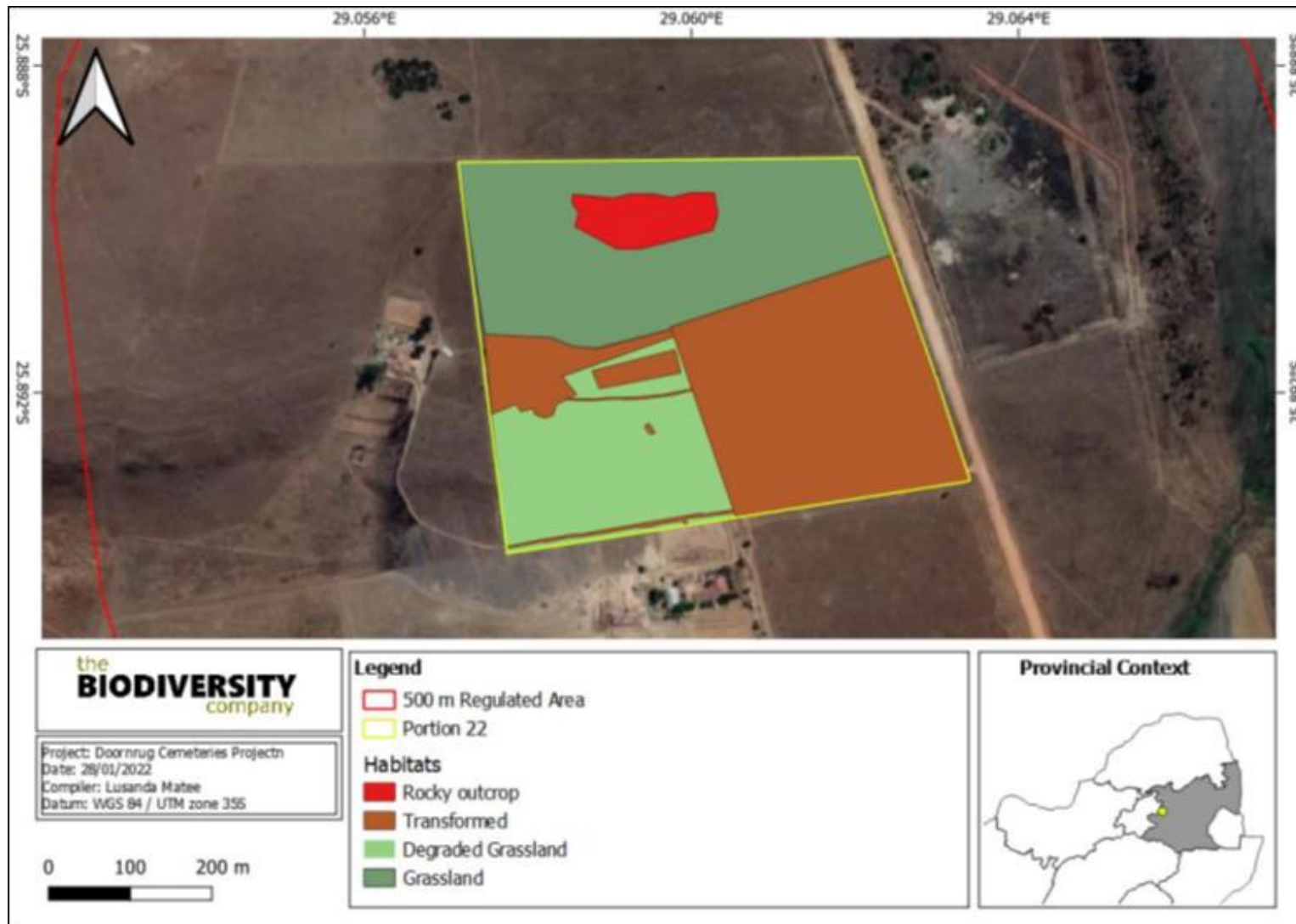


Figure 2: Degraded area and the habitat units identified in the project area

#### 4. DESCRIPTION OF THE SCOPE OF THE PROPOSED ACTIVITY INCLUDING LISTED ACTIVITIES

##### 4.1. The Scope of the proposed project

The proposed project will entail development of a private cemetery and associated infrastructure which include but is not limited to the following:

- Chapel,
- Dining hall,
- Ablution facilities,
- Admin offices,
- Fencing,
- Parking areas,
- Internal roads,
- Walkways,
- Security houses,
- Landscaping,
- Ash scattering garden,
- Ablution facilities which will be connected to a septic tank(s),
- Upgrade of the existing two boreholes for provision of domestic water during construction and operational phases,
- Establishment of a new borehole for provision of domestic water during construction and operational phases,
- Establishment of two ponds,
- Wall of remembrance, and
- Electrification of the facilities.

An existing dwelling house has been noted on site, however, it will not be demolished. Further, the excavations of graves will be to a depth of about 2 m as and when required.

##### 4.2. Listed Activities Triggered by the Proposed Project

The proposed activity will trigger a number of listed activities and the following table contains all those activities being applied for:

Table 3: Activities Triggered Under NEMA

The proposed activity will trigger a number of listed activities and the following table contains all those activities being applied for:

Figure 3: Table Listed activities

| Activities Listed under the NEMA EIA Regulations                    |   |   |
|---|---|---|
| Listing Notice 1 (GNR 983) under EIA Regulations of 2014 as amended |   |   |
| Activity Number   | Description of the relevant Basic Assessment Activity as per Listing Notice 1   | Applicability of the Listed Activity to the proposed project  |
| 9   | <i>The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water—<br/>(i) with an internal diameter of 0,36 metres or more; or<br/>(ii) with a peak throughput of 120 litres per second or more;</i>   | The proposed project may entail development of an approximately 1km pipeline for transportation of storm water. |
| 12  | <i>The development of—<br/>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or<br/>(ii) infrastructure or structures with a physical footprint of 100 square metres or more;<br/>where such development occurs—<br/>(a) within a watercourse;<br/>(b) in front of a development setback; or<br/>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; —<br/>excluding—</i> | This was a recommendation from the Biodiversity Specialist.   |

|    |   |  |
|----|---|--|
|    | <p><i>(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</i></p> <p><i>(bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</i></p> <p><i>(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;</i></p> <p><i>(dd) where such development occurs within an urban area;</i></p> <p><i>(ee) where such development occurs within existing roads, road reserves or railway line reserves; or</i></p> <p><i>(ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.</i></p> |  |
| 23 | <p><i>“The development of cemeteries of 2 500 square metres or more in size.”</i></p>   | <p>The proposed project entails development of a private cemetery which will be more than 2500 square meters in size.</p>  |
| 27 | <p><i>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation.</i></p>   | <p>The proposed site constitute approximately 26 ha in size and was used for maize farming. Approximately 10 ha of the 26 ha is transformed due to farming or other activities. Indigenous vegetation exists on site, however, it covers less than 20 ha. Refer to Figure 4 above.</p> |

|  |  |   |
|--|--|---|
| 28   | <p><i>Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:</i></p> <p><i>(i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or</i></p> <p><i>(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;</i></p> <p><i>Excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.</i></p> | <p>The proposed site was used for agricultural purposes after 1998 and the Developer proposes to develop a private cemetery and the total property size is approximately 26 ha.</p>   |
| <b>Listing Notice 3 (GNR 985) under EIA Regulations of 2014 as amended</b> |  |   |
| Activity Number  | Description of the relevant Basic Assessment Activity as per Listing Notice 3  | Applicability of the Listed Activity to the proposed project  |
| 2  | <p><i>The development of reservoirs, excluding dams, with a capacity of more than 250 cubic metres.</i></p> <p><i>f. Mpumalanga</i></p> <p><i>i. In a protected area identified in terms of NEMPAA, excluding conservancies;</i></p> <p><i>ii. Outside urban areas:</i></p> <p><i>(aa) National Protected Area Expansion Strategy Focus areas;</i></p> <p><i>(bb) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</i></p>  | <p>A man-made water feature (artificial pond) will be constructed and trees will be planted close to it for families who wish to have a quiet time and place at the cemetery when they miss their loved ones. The pond will have a radius of 25m.</p> |

|          |  |   |
|----------|--|---|
|          | <p><i>(cc) Sites or areas identified in terms of an international convention;</i></p> <p><i>(dd) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p> <p><i>(ee) Core areas in biosphere reserves; or</i></p> <p><i>(ff) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve, where such areas comprise indigenous vegetation; or</i></p> <p><i>iii. Inside urban areas:</i></p> <p><i>(aa) Areas zoned for use as public open space; or</i></p> <p><i>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for a conservation purpose.</i></p> |   |
| <p>4</p> | <p><i>The development of a road wider than 4 metres with a reserve less than 13,3 metres.</i></p> <p><i>f. Mpumalanga</i></p> <p><i>i. Outside urban areas:</i></p> <p><i>(aa) A protected area identified in terms of NEMPAA, excluding disturbed areas;</i></p> <p><i>(bb) National Protected Area Expansion Strategy Focus areas;</i></p>   | <p>A small portion of a CBA has been identified towards the northern boundary of the site. The CBA may be affected by the internal roads.</p> |

|           |  |  |
|-----------|--|--|
|           | <p><i>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</i></p> <p><i>(dd) Sites or areas identified in terms of an international convention;</i></p> <p><i>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p> <p><i>(ff) Core areas in biosphere reserves; or</i></p> <p><i>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas, where such areas comprise indigenous vegetation; or</i></p> |  |
| <p>12</p> | <p><i>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i></p> <p><i>f. Mpumalanga</i></p> <p><i>i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified</i></p>   | <p>A Critical Biodiversity Area towards the southern northern boundary of the proposed site. Clearance of more than 300 square metres of indigenous vegetation may take place within the Critical Biodiversity Area.</p> |

|           |  |   |
|-----------|--|---|
|           | <p><i>as critically endangered in the National Spatial Biodiversity Assessment 2004;</i></p> <p><i>ii. Within critical biodiversity areas identified in bioregional plans.</i></p>   |   |
| <p>14</p> | <p><i>The development of—</i></p> <p><i>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or</i></p> <p><i>(ii) infrastructure or structures with a physical footprint of 10 square metres or more;</i></p> <p><i>where such development occurs—</i></p> <p><i>(a) within a watercourse;</i></p> <p><i>(b) in front of a development setback; or</i></p> <p><i>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</i></p> <p><i>f. Mpumalanga</i></p> <p><i>i. Outside urban areas:</i></p> <p><i>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</i></p> <p><i>(bb) National Protected Area Expansion Strategy Focus areas;</i></p> | <p>An artificial pond with a diameter of 25m will be developed.</p> |



|  |  |  |
|--|--|--|
|  | <p>(cc) World Heritage Sites;</p> <p>(dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(ee) Sites or areas identified in terms of an international convention;</p> <p>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(gg) Core areas in biosphere reserves; or</p> <p>(hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve, where such areas comprise indigenous vegetation; or</p> |  |
| <b>Activities Listed under the National Water Act, 1998 (Act 36 of 1998)</b> |  |  |
| Activity 21 a  | <i>Taking water from a water resource</i>  | A new borehole will be established and the existing borehole will be upgraded. Water for domestic use (ablution facilities, dining hall, etc.) will be sourced from these boreholes. |
| Activity 21 c  | <i>Impeding or diverting the flow of water in a watercourse.</i>   | The proposed private cemetery will be developed within 500m of a wetland.  |
| Activity 21 g  | <i>Disposing of waste in a manner which may detrimentally impact on a water resource;</i>  | A septic tank will be used to manage sewer generated on site and sewer will be collected by a registered service provider.   |

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|               |   |   |
|---------------|---|---|
|               |   |   |
| Activity 21 i | <i>Altering the bed, banks, course or characteristics of a watercourse.</i> | The proposed private cemetery will be developed within 500m of a wetland. |

## 5. APPLICABLE DOCUMENTATION

The following environmental documentation is applicable for the project, and should be read in conjunction with this EMPr:

- Basic Assessment Report for the proposed filling station;
- Other Permits or licences that may need to be acquired e.g. retail licence; and
- All acts, ordinances and by-laws relevant to the proposed project.

## 6. FUNCTIONS AND RESPONSIBILITIES

Formal responsibilities are necessary to ensure that key procedures are executed. Specific responsibilities of the various personnel for this project are detailed below.

### **The Proponent:**

- Su Casa Estate (Owner) is ultimately accountable for ensuring compliance to the EMPr and conditions contained in the Environmental Authorisation (EA). An independent Environmental Control Officer (ECO) must be contracted by the proponent to objectively monitor implementation of relevant environmental legislation, conditions of EA, and the EMPr for the project.
- The developer must ensure that the ECO is integrated as part of the project team.

### **Project Manager (PM):**

- The Project Manager has over-all responsibility for managing the project, contractors, and consultants and for ensuring that the environmental management requirements are met. All decisions regarding environmental procedures must be approved by the PM. The PM has the authority to stop any operational activity in contravention of the EMPr in accordance with an agreed warning procedure.

### **Site Foreman (SF):**

- The project manager's representative on site. Has the power/mandate to issue site instructions, following request by an ECO or instructions from the PM. The SF oversees site works.

### **The Environmental Control Officer (ECO):**

- An independent appointment to objectively monitor implementation of relevant environmental legislation, conditions of EA, and the EMPr for the project. The ECO must be on site prior to any site establishment and must endeavour to form an integral part of the project team.
- The ECO must be proactive and have access to specialist expertise as and when required, these include wetland specialists, etc.
- The ECO must conduct audits on compliance to relevant environmental legislation, conditions of EA, and the EMPr for the project. The size and sensitivity of the development based on the EA will determine the frequency at which

the ECO will be required to conduct audits. (Based on the nature of this project it is recommended that a bi-annual site inspection be undertaken).

- The ECO must be the liaison between the relevant authorities and the project team. The ECO must communicate and inform the proponent and project manager of any changes to environmental conditions as required by relevant authoritative bodies. The ECO must ensure that the registration and updating of all relevant EMPr documentation is carried out.
- The ECO must be suitably experienced with the relevant environmental management qualifications and preferably competent in environmental related methods and practices.
- The ECO must handle information received from whistle blowers as confidential and must address and report these incidences to the relevant Authority as soon as possible.

### **6.1. General Guidelines**

The following measures provide guideline solutions to frequently anticipated issues on most development activities:

- The prevention of any site degradation due to non-compliance, administrative or financial problems, and inactivity during the operation phase, illegal activities, delays caused by archaeological finds etc. is ultimately the responsibility of the applicant/developer. Section 28, National Environmental Management Act, 1998 (Act No. 107 of 1998) [NEMA].
- The study area must be clearly defined according to the project authorisation. All workforce members and other construction personnel are not to go beyond the designated footprint.
- The site staff must adhere to agreed and approved access points and haul roads.
- No camping is allowed on any private property.
- Damage to private or public property such as fences, gates and other infrastructure may occur at any time. All damage to be repaired immediately and to the satisfaction of the owner.
- The Project Manager must adhere to all conditions of contract including this EMPr.
- Proper planning of the construction process must be undertaken to allow for disruptions due to rain and very wet conditions.
- All private and public manmade structures near the project site must be protected against damage at all times and any damage must be rectified immediately.
- Proper site management and regular monitoring of site works.
- Proper documentation and record keeping of all complaints and actions taken.
- Regular site inspections and good control over the construction process throughout the construction period.
- A positive attitude towards Environmental Management by all site personnel must be motivated through regular and effective awareness and training sessions.
- An ECO is to be appointed to implement this EMPr. The ECO is to deal with any environmental related matters.
- Environmental Audits to be carried out during construction and upon completion and decommissioning (rehabilitation) of the project.

## **6.2. Awareness and Training**

The ECO is responsible for ensuring everyone on site is given an environmental awareness induction session which not only clearly defines what the environment is and gives specifics detailing the local environment but outlines the requirements of the EMPr as a management tool to protect the environment.

Refresher courses must be conducted as and when required. The PM must ensure weekly (or as needed) toolbox talks include alerting the workforce to particular environmental concerns associated with the tasks for that week or the area/habitat in which they are working. Awareness posters and a hand out must be produced to create awareness throughout the site (as needed).

## **6.3. Environmental Method Statements**

Method Statements are written submissions to the ECO by the PM, in response to a request by the ECO. The Method Statements set out the plant, materials, labour and method that the PM proposes using to carry out an activity, identified by the ECO. The Method Statements contain the appropriate detail such that the ECO is able to assess whether the PM's proposal is in accordance with the requirements of the EMP. The PM must sign each Method Statement along with the ECO to formalise the approved Method Statement.

All Method Statements including those which may be required as ad hoc or emergency construction method statements must be submitted to the ECO for approval prior to the commencement of the activity.

Any changes to the method of works must be reflected by amendments to the original approved Method Statement. Any changes in this regard must be approved by the ECO on the understanding that such changes are environmentally acceptable and in line with the requirements of this EMPr.

The pro forma Method Statements attached (amongst others) must be used and method statements for the following activities must be submitted to the ECO for approval as soon as recommencement of the project occurs:

- Solid waste management;
- Crew camps and operation lay down areas;
- Dust control;
- Hydrocarbon and emergency spills procedures;
- Fire;
- Odours;
- Movement of construction material;
- Potential incidents or emergency situations;
- Use of temporary access roads by construction vehicles; and
- Water washing and toilet facilities at construction camps and works

## **6.4. Site Documentation**

The following is a list of documentation amongst others, which must be held on site and must be made available to the ECO and/or Approving Authority on request.

- Site daily diary /instruction book/ Incident reports;
- Records of all remediation / rehabilitation activities;
- Copies of ECO reports (management and monitoring);
- Environmental Management Programme (EMPr);
- Complaints register;
- Method statements; and
- Environmental Authorisation.

### **6.5. Site Documentation**

(a) Before to the re-commencement of the activity

The following documentation should be available before commencement of construction activities. The documents include but are not limited to the following:

- Declaration of understanding by the Developer;
- Declaration of understanding by the Project Manager;
- Method statements; and
- ECO approval for method statements.

(b) During operational activities

The following attached pro forma documentation is to be filled out and maintained. These are binding to the EMP and project contract. They include, but are not limited to, the following:

- Amended Method Statements;
- Environmental incidents; and
- Records of all remediation / rehabilitation activities.

### **6.6. Environmental Monitoring and Reporting**

The ECO appointed by the applicant will be responsible to monitor compliance with the conditions of the Environmental Authorization, environmental legislation and this EMPr for the duration of the planning, construction and rehabilitation phases of the project and must submit monthly compliance reports to the Competent Authority. After completion of the rehabilitation phase a post construction audit must be carried out and submitted to the Competent Authority. The tables

below include the identified impacts, mitigation measures and the responsible parties for the implementation of the mitigation measures.

**7. MITIGATION MEASURES FOR IMPACTS ANTICIPATED DURING CONSTRUCTION AND OPERATIONAL PHASES**

| Aspect  | Impact   | Mitigation measure   | Responsible Party   | Frequency  | Phase                      | Applicable Legislation/Guideline/ Document   |
|---|--|--|---|------------|----------------------------|--|
| Employment opportunities as a result of the proposed project. | Positive impact as people will be able to earn an income.    | The Developer and Contractor should comply with the legislation that deal with employment issues.  | Developer and Contractor  | Continuous | Construction and Operation | <ul style="list-style-type: none"> <li>Labour Relations Act, No 66 of 1995</li> <li>Basic Conditions of Employment Act No. 75 of 1997</li> </ul> |
| Construction camp   | Establishment of construction camp on sensitive environments | <ul style="list-style-type: none"> <li>Construction camp should be established outside of sensitive environment and within the approved area.</li> </ul> | <ul style="list-style-type: none"> <li>Contractor</li> <li>ECO</li> </ul>                     | Continuous | Construction               | <ul style="list-style-type: none"> <li>Site plan</li> </ul>  |
| Site footprint and vegetation                                 | Disturbance of areas outside of the project footprint        | <ul style="list-style-type: none"> <li>All construction activities must be carried out according to the generally accepted</li> </ul>                    | <ul style="list-style-type: none"> <li>Environmental Officer &amp; Design Engineer</li> </ul> | Continuous | Life of operation          |  |



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| Aspect                                      | Impact   | Mitigation measure  | Responsible Party  | Frequency         | Phase | Applicable Legislation/Guideline/ Document |
|---|--|---|--|-------------------|-------|--|
|   |  | <p>environmental best practice and the spatial footprint must be kept to a minimum.</p>   |  |                   |       |  |
| <p>Disturbance of indigenous vegetation</p> | <p>Areas of indigenous vegetation surrounding the proposed development</p> | <ul style="list-style-type: none"> <li>• Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further. Clearing of vegetation should be minimized and avoided where possible. All activities must be restricted within the development footprint sensitivity areas. No loss of areas</li> </ul> | <ul style="list-style-type: none"> <li>• Project manager, Environmental Officer</li> </ul> | <p>Continuous</p> |       |  |

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| Aspect                        | Impact  | Mitigation measure   | Responsible Party   | Frequency  | Phase        | Applicable Legislation/Guideline/ Document         |
|-------------------------------|---|--|---|------------|--------------|--|
|                               |   | <p>surrounding the development area. It is recommended that areas to be developed be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon (including fencing off the defined project area);</p> |   |            |              |  |
| Site footprint and vegetation | Disturbance of indigenous vegetation outside the project footprint. | <ul style="list-style-type: none"> <li>Should any indigenous vegetation be removed outside the designated areas or direct project footprint, the Contractor must notify the relevant person on site, i.e., the Project Manager, and</li> </ul>       | <ul style="list-style-type: none"> <li>Environmental Officer &amp; Design Engineer</li> </ul> | Continuous | Construction | <ul style="list-style-type: none"> <li></li> </ul> |

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|----------------------------------|--|---|---|------------|--|--|
|                                  |  | the site must be rehabilitated if required and the structures replaced  |   |            |  |  |
| Protection of SCC floral species | Disturbance of Regionally Protected Species    | <ul style="list-style-type: none"> <li>Regionally protected (SCC species) must be marked for rescue and relocation, or removal (where permit application would then apply) before any vegetation removal commences</li> </ul> | <ul style="list-style-type: none"> <li>Environmental Officer &amp; Contractor</li> </ul>      | Ongoing    | Post Construction/Closure Phase/Rehabilitation phase | <ul style="list-style-type: none"> <li></li> </ul> |
| Roads and paths used             | Opening of unnecessary routes                  | <ul style="list-style-type: none"> <li>Where possible, existing access routes and walking paths must be made use of, and the development of new routes limited.</li> </ul>  | <ul style="list-style-type: none"> <li>Environmental Officer &amp; Design Engineer</li> </ul> | Ongoing    | All phases   | <ul style="list-style-type: none"> <li></li> </ul> |
| Site rehabilitation              | Poor or no rehabilitation of the site may lead | <ul style="list-style-type: none"> <li>Disturbed sites must be rehabilitated as soon as construction</li> </ul>   | <ul style="list-style-type: none"> <li>Environmental Officer &amp; Contractor</li> </ul>      | Continuous | Post Construction/Closure Phase/Rehabilitation phase | <ul style="list-style-type: none"> <li></li> </ul> |

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| Aspect                     | Impact  | Mitigation measure  | Responsible Party  | Frequency   | Phase  | Applicable Legislation/Guideline/ Document         |
|----------------------------|---|---|--|---|--|--|
|                            | to degradation of the site.   | in an area is complete or near-complete and not left until the end of the project to be rehabilitated (concurrent rehabilitation)   |  |   |  |  |
| Site rehabilitation        | Lack of landscaping and rehabilitation may lead to degradation of the site. | <ul style="list-style-type: none"> <li>Effective landscaping must be conducted in areas affected by erosion/sedimentation. The developer must ensure that any open spaces are rehabilitated, and the appropriate indigenous vegetation is introduced</li> </ul> | <ul style="list-style-type: none"> <li>Environmental Officer &amp; Contractor</li> </ul> | Throughout Post Construction/Closure Phase/Rehabilitation phase | Post Construction/Closure Phase/Rehabilitation phase | <ul style="list-style-type: none"> <li></li> </ul> |
| Laydown areas and material | Establishment of laydown areas and storage areas                            | <ul style="list-style-type: none"> <li>All laydown, chemical toilets etc. should be restricted to low</li> </ul>  | <ul style="list-style-type: none"> <li>Environmental Officer &amp;</li> </ul>            | Ongoing   | Construction/Operational Phase                       | <ul style="list-style-type: none"> <li></li> </ul> |

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|-------------------------------|---|--|---|-----------|--------------|--|
| storage & placement           | in unapproved areas may result in disturbance of sensitive areas. | sensitivity areas. Any materials may not be stored for extended periods of time and must be removed from the project area once the construction/closure phase has been concluded. Buildings should preferably be prefabricated or constructed of reusable/recyclable materials. No storage of vehicles or equipment will be allowed outside of the designated project areas. | Design Engineer   |           |              |  |
| Site footprint and vegetation | Lack of training of the construction                              | <ul style="list-style-type: none"> <li>It is recommended that the supervisor of the</li> </ul>   | <ul style="list-style-type: none"> <li>Environmental Officer &amp;</li> </ul> | Ongoing   | Construction | <ul style="list-style-type: none"> <li></li> </ul> |

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| Aspect                           | Impact   | Mitigation measure  | Responsible Party  | Frequency | Phase             | Applicable Legislation/Guideline/ Document         |
|----------------------------------|--|---|--|-----------|-------------------|--|
|                                  | staff may lead to unnecessary removal of vegetation. | vegetation clearing contractors receive adequate training as to the presence, identity, and management of species of conservation importance, and that a botanical specialist/ECO (Environmental Control Officer) be appointed during vegetation clearing to conduct monthly on-site audits of the vegetation clearing process. | Design Engineer  |           |                   |  |
| Spill events, Vehicles dripping. | Inappropriate storage and or use of hydrocarbons     | <ul style="list-style-type: none"> <li>A hydrocarbon spill management plan must be put in place to ensure that should</li> </ul>  | <ul style="list-style-type: none"> <li>Environmental Officer &amp; Contractor</li> </ul> | Ongoing   | Life of operation | <ul style="list-style-type: none"> <li></li> </ul> |

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| Aspect | Impact   | Mitigation measure   | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--|--|-------------------|-----------|-------|--|
|        | <p>may lead to soil and water contamination.</p> | <p>there be any chemical spill out or over that, it does not run into the surrounding areas.</p> <ul style="list-style-type: none"> <li>• The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site.</li> <li>• Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use.</li> <li>• No servicing of equipment on-site during construction unless necessary. All contaminated soil/yard</li> </ul> |                   |           |       |  |

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|------------------|---|---|--|-----------|-------------------|--|
|                  |   | stone shall be treated in situ or removed and be placed in containers.  |  |           |                   |  |
| Leaks and spills | Leakages may lead to soil and water contamination | <ul style="list-style-type: none"> <li>Leaking equipment and vehicles must be repaired immediately or be removed from the project areas to facilitate the repair.</li> </ul>  | <ul style="list-style-type: none"> <li>Environmental Officer &amp; Contractor</li> </ul>               | Ongoing   | Life of operation | <ul style="list-style-type: none"> <li></li> </ul> |
| Fire Management  | Damage of properties due to fire                  | <ul style="list-style-type: none"> <li>A fire prevention and emergency response plan needs to be complied and implemented to restrict the impact fire might have on the project area and it's immediate surrounding.</li> <li>Serviced fire extinguishers and fire</li> </ul> | <ul style="list-style-type: none"> <li>Environmental Officer &amp; Contractor and Developer</li> </ul> | Ongoing   | Life of operation | <ul style="list-style-type: none"> <li></li> </ul> |



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|--|---|--|---|-----------|--------------|--|
|  |   | <p>beater should be available on site.</p> <ul style="list-style-type: none"> <li>Contact details of the nearest Fire Department should be made available on site and communicated staff members.</li> <li>Relevant staff should be treated on fire management.</li> </ul> |   |           |              |  |
| Faunal mortalities including SCC species | Non-compliance due to lack of training/ induction | <ul style="list-style-type: none"> <li>Employees and contractors should be made aware of the presence of, and rules regarding fauna through suitable induction training and on-site signage.</li> </ul>  | <ul style="list-style-type: none"> <li>Environmental Officer &amp; Design Engineer</li> </ul> | Ongoing   | Construction | <ul style="list-style-type: none"> <li></li> </ul> |
| Faunal mortalities                       | Lack of training may result in unnecessary        | <ul style="list-style-type: none"> <li>It is recommended that the supervisors of the vegetation clearing,</li> </ul>   | <ul style="list-style-type: none"> <li>Environmental Officer &amp;</li> </ul>                 | Ongoing   | Construction | <ul style="list-style-type: none"> <li></li> </ul> |

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|--|--|---|---|----------------------|-------------------|--|
| including SCC species                                | removal of vegetation.                             | and construction contractors receive adequate training as to the presence, identity and management of on-site fauna   | Design Engineer   |                      |                   |  |
| Assess presence and encroachment of alien vegetation | Deterioration of the site due to invasive species. | <ul style="list-style-type: none"> <li>An Alien Invasive Plant management plan must be developed and implemented because of the invasive species identified on site which, if left unchecked, will continue to grow and spread prolifically leading to further and more significant deterioration to the health of the natural</li> </ul> | <ul style="list-style-type: none"> <li>Project manager, Environmental Officer &amp; Contractor</li> </ul> | Quarterly monitoring | Life of operation | <ul style="list-style-type: none"> <li></li> </ul> |

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| Aspect   | Impact   | Mitigation measure   | Responsible Party   | Frequency            | Phase              | Applicable Legislation/Guideline/ Document         |
|--|--|--|---|----------------------|--------------------|--|
|  |  | environment within the project area.   |   |                      |                    |  |
| Assess presence and encroachment of alien vegetation | Lack of minoring of the Alien Invasive plants may lead to encroachment.                      | <ul style="list-style-type: none"> <li>Regular monitoring of the implementation of this plan for the rehabilitation of disturbed areas must be conducted by the appointed ECO.</li> </ul>  | <ul style="list-style-type: none"> <li>Project manager, Environmental Officer &amp; Contractor</li> </ul>           | Quarterly monitoring | Construction Phase | <ul style="list-style-type: none"> <li></li> </ul> |
| Management of bins and collection of waste           | Improper management of waste may lead to bad smells, lack, pollution and potential diseases. | <ul style="list-style-type: none"> <li>Formal waste management and sewerage systems must be put in place for contractors.</li> <li>Waste management must be a priority and all waste must be collected and stored effectively.</li> <li>No dumping of litter, rubble or cleared</li> </ul> | <ul style="list-style-type: none"> <li>Environmental Officer, Contractor &amp; Health and Safety Officer</li> </ul> | Ongoing              | Life of operation  | <ul style="list-style-type: none"> <li></li> </ul> |

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| Aspect | Impact | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|---|-------------------|-----------|-------|--|
|        |        | <p>vegetation on site should be allowed.</p> <ul style="list-style-type: none"> <li>• Infrastructure and rubble removed as a result of the construction activities should be reduced, re-used or recycled with disposal to landfill as last resort.</li> <li>• No temporary dump sites should be allowed in areas with natural vegetation.</li> <li>• It is advised that waste disposal containers and bins be provided during the construction phase for all construction rubble and general waste. Vegetation cuttings</li> </ul> |                   |           |       |  |

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| Aspect       | Impact                               | Mitigation measure   | Responsible Party  | Frequency  | Phase                        | Applicable Legislation/Guideline/ Document          |
|--------------|--------------------------------------|--|--|------------|------------------------------|---|
|              |                                      | <p>must be carefully collected and disposed of at a separate waste facility.</p> <ul style="list-style-type: none"> <li>• Refuse bins must be placed at strategic positions to ensure that litter does not accumulate within the construction site.</li> <li>• A minimum of one toilet must be provided per 10 persons.</li> <li>• Portable toilets must be pumped dry to ensure the system does not degrade over time and spill into the surrounding area.</li> </ul> |  |            |                              |   |
| Septic tanks | Potential spill of sewage leading to | <ul style="list-style-type: none"> <li>• The septic tanks should be installed</li> </ul>   | <ul style="list-style-type: none"> <li>• Environment Officer</li> <li>• Developer</li> </ul> | Continuous | Construction and Operational | <ul style="list-style-type: none"> <li>•</li> </ul> |

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| Aspect                     | Impact   | Mitigation measure   | Responsible Party   | Frequency | Phase   | Applicable Legislation/Guideline/ Document          |
|----------------------------|--|--|---|-----------|---|---|
|                            | soil and water pollution.                          | <p>according to the manufacture's design.</p> <ul style="list-style-type: none"> <li>• The septic tanks will be installed in bunded surfaces to ensure that no sewage reach the ground in case of a spill.</li> <li>• The septic tanks should be regularly emptied.</li> <li>• Sewage removed from the septic tanks should be disposed at a registered waste water treatment works and the Safe Disposal Certificates (SDC) should be kept on site.</li> </ul> |   |           |   |   |
| Compliance to the training | Lack of training may lead to non-compliance to the | <ul style="list-style-type: none"> <li>• Ensure that all site personnel have a basic level of</li> </ul>   | <ul style="list-style-type: none"> <li>• Environmental Officer</li> </ul> | Ongoing   | <ul style="list-style-type: none"> <li>• Life of operation</li> </ul> | <ul style="list-style-type: none"> <li>•</li> </ul> |

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| Aspect | Impact  | Mitigation measure   | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|---|--|-------------------|-----------|-------|--|
|        | <p>Environmental Management Programme and other relevant permits and/or licenses.</p> | <p>environmental awareness training.</p> <ul style="list-style-type: none"> <li>• A signed register of attendance must be kept for proof. Discussions are required on sensitive environmental receptors within the project area to inform contractors and site staff of the possible presence of SSC, their identification, conservation status and importance, biology, habitat requirements and management requirements the Environmental</li> </ul> |                   |           |       |  |

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|---|---|---|---|-----------|--|--|
|   |   | <p>Authorisation and within the EMPr.</p> <ul style="list-style-type: none"> <li>The avoidance and protection of the surrounding watercourses and riparian areas must be included into a site induction.</li> <li>Contractors and employees must all undergo the induction and be made aware of the areas to be avoided.</li> </ul> |   |           |  |  |
| Emergencies, non-compliance and communication | Lack of method statements may lead to non-compliance to the EMPr. | <ul style="list-style-type: none"> <li>The Contractor must provide method statements on the protocols to be followed and contingencies to be implemented.</li> </ul>  | <ul style="list-style-type: none"> <li>Environmental Officer, contractor &amp; Design Engineer</li> </ul> | Ongoing   | <ul style="list-style-type: none"> <li>Construction Phase</li> </ul> | <ul style="list-style-type: none"> <li></li> </ul> |



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| Aspect                        | Impact  | Mitigation measure  | Responsible Party   | Frequency                         | Phase  | Applicable Legislation/Guideline/ Document         |
|-------------------------------|---|---|---|-----------------------------------|--|--|
| Site footprint and vegetation | Lack of stormwater management measures may lead to erosion.                   | <ul style="list-style-type: none"> <li>A Stormwater Management Plan must be developed to control runoff and prevent erosion of the site and its surroundings.</li> </ul>  | <ul style="list-style-type: none"> <li>Environmental Officer &amp; Design Engineer</li> </ul> | Ongoing                           | <ul style="list-style-type: none"> <li>Construction</li> </ul>       | <ul style="list-style-type: none"> <li></li> </ul> |
| Site footprint and vegetation | Lack of stormwater management measures may lead to erosion and sedimentation. | <ul style="list-style-type: none"> <li>Appropriate stormwater structures alongside a stormwater management plan must be designed to minimise erosion of the surrounding environment and sedimentation of surrounding watercourses.</li> </ul> | <ul style="list-style-type: none"> <li>Environmental Officer &amp; Design Engineer</li> </ul> | Ongoing                           | <ul style="list-style-type: none"> <li>Life of operation</li> </ul>  | <ul style="list-style-type: none"> <li></li> </ul> |
| Dustfall                      | Dust generation during movement of vehicles and                               | <ul style="list-style-type: none"> <li>Dust minimization and control measures should be</li> </ul>  | <ul style="list-style-type: none"> <li>Contractor</li> </ul>                                  | As per the air quality report and | <ul style="list-style-type: none"> <li>Construction Phase</li> </ul> | <ul style="list-style-type: none"> <li></li> </ul> |

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|--------|---|--|-------------------|------------------------------|-------|--|
|        | excavations may lead to poor air quality. | <p>implemented on the construction site at regular intervals. This includes wetting of exposed soft soil surfaces.</p> <ul style="list-style-type: none"> <li>• No water may be abstracted from any water source without an applicable License from DWS. The frequency of implementation of dust suppression measures should be increased when it is expected that high wind conditions will develop.</li> <li>• Obey speed limit.</li> <li>• A complaints register should be kept on site.</li> </ul> |                   | the dust monitoring program. |       |  |

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|--------|--------|--|-------------------|-----------|-------|--|
|        |        | The register should include the following but not limited to: <ul style="list-style-type: none"> <li>• Name and Surname of the complainant.                             <ul style="list-style-type: none"> <li>○ Contact details: phone number, Postal and Residential Address, Email Address, Fax Number etc.</li> <li>○ Date of submission of the complaint</li> <li>○ Date of closure of complaint</li> </ul> </li> </ul> |                   |           |       |  |

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|---------|---|--|--|-----------|--|---|
|         |   | <ul style="list-style-type: none"> <li>○ Details of the complaint</li> <li>• All complaints brought to site should be addressed to the satisfaction of the complainant. If agreement cannot be reached, the Gauteng Department of Agriculture and Rural Development should be involved.</li> </ul> |  |           |  |   |
| Erosion | Lack of re-vegetation of site may lead to erosion and encroachment by alien invasive plant species. | <ul style="list-style-type: none"> <li>• Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events.</li> <li>• This will also reduce the likelihood of</li> </ul>   | <ul style="list-style-type: none"> <li>• Contractor</li> </ul> | Ongoing   | <ul style="list-style-type: none"> <li>• Construction Phase</li> </ul> | <ul style="list-style-type: none"> <li>•</li> </ul> |

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|----------|----------------------------------|---|---|------------|--|--|
|          |                                  | <p>encroachment by alien invasive plant species.</p> <ul style="list-style-type: none"> <li>Vegetation clearing should only occur immediately prior to the commencement of construction activities in an area to minimize the amount of exposed soil on the site. Stockpiles and spoil heaps must be covered with tarps or straw to prevent fugitive dust.</li> </ul> |   |            |  |  |
| Heritage | Disturbance of heritage features | <p>Comments by the Heritage Specialist:</p> <ul style="list-style-type: none"> <li>UP-DRB-2529-01 is a farmhouse with associated outbuildings. Precise</li> </ul>   | <ul style="list-style-type: none"> <li>Contractor</li> <li>Environmental Officer</li> </ul> | Continuous | <ul style="list-style-type: none"> <li>Pre-Construction, Construction and Operation</li> </ul> | <ul style="list-style-type: none"> <li></li> </ul> |

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|--------|--------|--|-------------------|-----------|-------|--|
|        |        | <p>dating of the building is difficult, but aerial imagery suggests an original structure was erected in the late 1950s - early 1960s. In subsequent years, several major alterations were applied to the building to convert it into a house. The numerous alterations and severe alterations of the building means that it has very little heritage value. This assessment therefore finds that the building is of low significance (2a). No further steps are required.</p> |                   |           |       |  |

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|--------|--------|---|-------------------|-----------|-------|--|
|        |        | <ul style="list-style-type: none"> <li>UP-DRB-2529-02, UP-DRB-2529-06 and UP-DRB-2529-07 are the remains of farm labourer quarters. While one (UP-DRB-2529-02) still has its walls mostly intact, the others are completely demolished. Surface material and aerial photos suggests an age likely less than 60 years. This date and the fact that the buildings and surrounding area have no archaeological or cultural deposits, means that UP-DRF-2529-01 carries low significance (2a) as a</li> </ul> |                   |           |       |  |

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|--------|--------|--|-------------------|-----------|-------|--|
|        |        | <p>heritage site. It was recorded and documented in this Phase I assessment. No further mitigation steps are required.</p> <ul style="list-style-type: none"> <li>UP-DRB-2529-03 and UP-DRB-2529-04 are circular stone features of unknown use/function. No evidence suggests that these are archaeological in nature, and they likely relate to 20th century farming activities. As a result, it carries no significance (1) as a heritage site. No further mitigation steps are required.</li> </ul> |                   |           |       |  |



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|--------|--------|---|-------------------|-----------|-------|--|
|        |        | <ul style="list-style-type: none"> <li>• UP-DRB-2529-05 are the remains of 20<sup>th</sup> century linear field boundary walls less than 60 years old. These walls carry no significance (1). It was adequately recorded and documented in the Phase I Heritage Assessment. No further mitigation steps are required.</li> <li>• Investigation of the Project Area identified seven sites. These however respectively carry no (category 1 – no mitigation) and low (category 2a - recording) heritage significance. These</li> </ul> |                   |           |       |  |

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|--------|--------|--|-------------------|-----------|-------|--|
|        |        | <p>ratings mean that no further mitigation is needed and that the proposed cemetery can continue from a heritage point of view.</p> <p>Comments by The South African heritage Resources Agency (SAHRA):</p> <ul style="list-style-type: none"> <li>• 38(4)a – The SAHRA has no objections to the proposed development;</li> <li>• 38(4)b – The recommendations of the specialists are supported and must be adhered to. Further additional specific conditions are provided for the development as follows:</li> </ul> |                   |           |       |  |

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| Aspect | Impact | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|---|-------------------|-----------|-------|--|
|        |        | <ul style="list-style-type: none"> <li>• A tracklog of the completed survey must be submitted;</li> <li>• As Sites 02 – 07 are most likely not older than 60 years old, they are not considered to be heritage resources, however, demolition and ground clearance around sites 02, 03, 04, 06 and 07 must be monitored, as human remains may be present. These human remains would most likely be younger than 60 years and not protected by the NHRA, but will still be protected by other legislation;</li> <li>• Should site 01 be older than 60 years, a permit must be</li> </ul> |                   |           |       |  |

## Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|---|-------------------|-----------|-------|--|
|        |        | applied for the destruction of the site in terms of section 34 of the NHRA from the Mpumalanga Provincial Heritage Resources Authority; <ul style="list-style-type: none"> <li>• 38(4)c(i) – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA (Natasha Higgitt 021 202 8660/ nhiggitt@sahra.org.z</li> </ul> |                   |           |       |  |

## Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|---|-------------------|-----------|-------|--|
|        |        | <p>a) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule;</p> <ul style="list-style-type: none"> <li>• 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Ngqabutho Madida 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of</li> </ul> |                   |           |       |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure   | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|--|-------------------|-----------|-------|--|
|        |        | <p>the NHRA and item 5 of the Schedule;</p> <ul style="list-style-type: none"> <li>• 38(4)d – See section 51 of the NHRA regarding offences;</li> <li>• 38(4)e – The following conditions apply with regards to the appointment of specialists:</li> <li>• With reference to the mitigation work noted above, a qualified archaeologist must be appointed to undertake the work in terms of the permit applied for as noted above;</li> <li>• If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the</li> </ul> |                   |           |       |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|---|-------------------|-----------|-------|--|
|        |        | <p>nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA;</p> <ul style="list-style-type: none"> <li>• The Final BAR and EMPr must be submitted to SAHRA for record purposes;</li> <li>• The decision regarding the EA Application must be communicated to SAHRA and uploaded to the SAHRIS Case application.</li> </ul> |                   |           |       |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect        | Impact                                   | Mitigation measure   | Responsible Party   | Frequency  | Phase  | Applicable Legislation/Guideline/ Document         |
|---------------|--|--|---|------------|--|--|
| Palaeontology | Disturbance of palaeontological features | <ul style="list-style-type: none"> <li>Based on experience and the lack of any previously recorded fossils from the area, it is extremely unlikely that any fossils would be preserved in the Dwyka Group shales and tillites and not in the overlying soils and sands of the Quaternary. There is a very small chance that fossils may occur below ground in the adjacent shales and tillites of the Dwyka Group (Karoo Supergroup) so a Fossil Chance Find Protocol should be added to the EMPr. If</li> </ul> | <ul style="list-style-type: none"> <li>Contractor</li> <li>Environmental Officer</li> </ul> | Continuous | <ul style="list-style-type: none"> <li>Pre-Construction, Construction and Operation</li> </ul> | <ul style="list-style-type: none"> <li></li> </ul> |



Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|---|-------------------|-----------|-------|--|
|        |        | <p>fossils are found by the environmental officer, or other responsible person once excavations have commenced then they should be rescued and a palaeontologist called to assess and collect a representative sample. The impact on the palaeontological heritage would be low so as far as the palaeontology is concerned, the project should be authorised.</p> <ul style="list-style-type: none"> <li>• The Chance Find Protocol is included in Section 9.</li> </ul> |                   |           |       |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect   | Impact                  | Mitigation measure  | Responsible Party   | Frequency  | Phase  | Applicable Legislation/Guideline/ Document  |
|----------|-------------------------|---|---|------------|--|---|
| Wetlands | Disturbance of wetlands | <p>The following mitigation measures are aimed at the conservation of wetlands in general:</p> <ul style="list-style-type: none"> <li>• The contractors used for the construction should have spill kits available prior to construction to ensure that any fuel, oil or hazardous substance spills are cleaned-up and discarded correctly;</li> <li>• All construction activities must be restricted to the development footprint area. This includes laydown and storage areas, ablutions, offices etc.;</li> </ul> | <ul style="list-style-type: none"> <li>• Contractor</li> <li>• Environmental Officer</li> </ul> | Continuous | <ul style="list-style-type: none"> <li>• Construction and Operation</li> </ul> | <ul style="list-style-type: none"> <li>• National Water Act No. 36 of 1998</li> </ul> |

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| Aspect | Impact | Mitigation measure   | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|--|-------------------|-----------|-------|--|
|        |        | <ul style="list-style-type: none"> <li>• During construction activities, all rubble generated must be removed from the site;</li> <li>• Construction vehicles and machinery must make use of existing access routes;</li> <li>• All chemicals and toxicants to be used for the construction must be stored in a demarcated area;</li> <li>• All machinery and equipment should be inspected regularly for faults and possible leaks, these should be serviced off-site;</li> <li>• All contractors and employees should undergo induction</li> </ul> |                   |           |       |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|---|-------------------|-----------|-------|--|
|        |        | <p>which is to include a component of environmental awareness. The induction is to include aspects such as the need to avoid littering, the reporting and cleaning of spills and leaks and general good “housekeeping”;</p> <ul style="list-style-type: none"> <li>• Adequate sanitary facilities and ablutions on the servitude must be provided for all personnel throughout the project area. Use of these facilities must be enforced (these facilities must be kept clean so that they are a desired alternative to</li> </ul> |                   |           |       |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure   | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|--|-------------------|-----------|-------|--|
|        |        | <p>the surrounding vegetation);</p> <ul style="list-style-type: none"> <li>• All removed soil and material stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds;</li> <li>• Any exposed earth should be rehabilitated promptly by planting suitable vegetation (vigorous indigenous grasses) to protect the exposed soil;</li> <li>• No dumping of construction material on site may take place;</li> <li>• All waste generated on site during</li> </ul> |                   |           |       |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|---|-------------------|-----------|-------|--|
|        |        | <p>construction must be adequately managed. Separation and recycling of different waste materials should be supported.</p> <p><b>Recommendations:</b></p> <p>The following recommendations have been made to ensure the conservation of the delineated wetlands during the construction and operational phase:</p> <ul style="list-style-type: none"> <li>• It is recommended that a stormwater management plan be implemented for the cemetery. This is to prioritise the appropriate</li> </ul> |                   |           |       |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|---|-------------------|-----------|-------|--|
|        |        | <p>management of surface water;</p> <ul style="list-style-type: none"> <li>• A condition for the Environmental Authorisation should be the bi-annual monitoring of surface water in both the HGM units during the operational phase of the cemetery. In the event contamination of the system by the functioning of the cemetery is recorded, reactive measures must be taken and the issuing authority consulted in this regard; and</li> <li>• A 15 m buffer area must be adhered to for</li> </ul> |                   |           |       |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect      | Impact                                 | Mitigation measure  | Responsible Party  | Frequency  | Phase  | Applicable Legislation/Guideline/ Document          |
|-------------|--|---|--|------------|--|---|
|             |  | <p>the identified watercourse within the 500 m regulated area.</p>  |  |            |  |   |
| Groundwater | Potential contamination of groundwater | <ul style="list-style-type: none"> <li>• Digging of geotechnical test pits on site to assess soil characteristics such as thickness, clay content and permeability.</li> <li>• Establishment of an upstream and a downstream monitoring borehole, for which use the two on-site boreholes 5 and 6 could possibly be adapted.</li> <li>• Establishment of a lateral buffer zone of 65 m from the site boundaries for rivers, wells and springs.</li> </ul> | <ul style="list-style-type: none"> <li>• Environmental Officer</li> <li>• Developer</li> </ul> | Continuous | <ul style="list-style-type: none"> <li>• Construction and Operation</li> </ul> | <ul style="list-style-type: none"> <li>•</li> </ul> |



Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|---|-------------------|-----------|-------|--|
|        |        | <ul style="list-style-type: none"> <li>• Establishment of a lateral buffer zone of 350 m from the site boundaries for drinking water sources.</li> <li>• The taking of a water sample from these boreholes prior to the establishment of the cemetery and laboratory analysis for pH, EC, TDS, Na, K, Mg, Ca, Cl, SO4, NO3, F, Fe, Mn, Cu, Ni, Cd, Cr, Zn, Al, As and Total Alkalinity, plus bacteriological/pathogen indicators.</li> <li>• Taking of a water sample on a biannual basis from these</li> </ul> |                   |           |       |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|---|-------------------|-----------|-------|--|
|        |        | <p>boreholes and analysis for the above parameters.</p> <ul style="list-style-type: none"> <li>• Compilation of a monitoring record of water levels and quality and assessment of the data by a hydrogeologist every six months. Submission of reports to the DHSWS, as required by them.</li> <li>• Continuation or modification of the monitoring programme as dictated by results or the regulatory authorities.</li> <li>• Refer to Section 10 for recommended</li> </ul> |                   |           |       |  |

## Final EMPr for the Proposed Su Casa Burial Estate

| Aspect                 | Impact   | Mitigation measure  | Responsible Party  | Frequency  | Phase  | Applicable Legislation/Guideline/ Document          |
|------------------------|--|---|--|------------|--|---|
|                        |  | groundwater monitoring procedure.   |  |            |  |   |
| Pedology / Agriculture | Loss of land capability  | <ul style="list-style-type: none"> <li>• Monitor compaction on site.</li> <li>• Detailed investigation into ideal locations for the construction of all the infrastructure on site.</li> <li>• Clearing of vegetation.</li> <li>• Implement proper storm water management plans.</li> </ul> | <ul style="list-style-type: none"> <li>• Contactor</li> <li>• Environmental Officer</li> </ul> | Ongoing    | <ul style="list-style-type: none"> <li>• Construction/Operational phase</li> </ul> | <ul style="list-style-type: none"> <li>•</li> </ul> |
| Abstraction boreholes  | Faults zones may have an impact on the local hydrogeological regime as it can serve as potential preferred pathways for groundwater flow | <ul style="list-style-type: none"> <li>• The aquifer in the cemetery is located within shallow zones which pose risk to the local users since the area is going to be used for the burial of human remains, therefore, it is</li> </ul>   | <ul style="list-style-type: none"> <li>• Environmental Officer</li> <li>• Developer</li> </ul> | Continuous | <ul style="list-style-type: none"> <li>• Construction and Operation</li> </ul>     | <ul style="list-style-type: none"> <li>•</li> </ul> |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact                     | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|----------------------------|---|-------------------|-----------|-------|--|
|        | and contaminant transport. | <p>recommended that monitoring and sampling of water quality be done in accordance with the proposed motoring requirements.</p> <p>Monitoring programmes must be effectively done on a monthly basis in order to monitor seepages that might to the groundwater course.</p> <ul style="list-style-type: none"> <li>It is recommended that the area might be used as a cemetery as it is zoned within the farming zone. The certain measure needs to be taken into consideration during</li> </ul> |                   |           |       |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure   | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|--|-------------------|-----------|-------|--|
|        |        | <p>the construction of the cemetery such as the depth as the geology of the area indicate fractured lithologies.</p> <ul style="list-style-type: none"> <li>• It is recommended that two boreholes must be used as a position to monitor the pollution downstream and upstream of the Cemetery.</li> <li>• Care must be followed in case the water is used for human consumption, the water quality from the boreholes is not suitable for human health, therefore, it is recommended that the water be treated</li> </ul> |                   |           |       |  |

## Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|---|-------------------|-----------|-------|--|
|        |        | <p>especially for the nitrate level in BH02 and high turbidity in BH01.</p> <ul style="list-style-type: none"> <li>The two boreholes' yields were measured hence the BH01 showed low yield due to shallow aquifer water availability which for human consumption or domestic use might be useful while borehole BH02 indicated high water yield which in this case of use of the water by human consumption is very sustainable. The two boreholes may be used for domestic use,</li> </ul> |                   |           |       |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect        | Impact   | Mitigation measure  | Responsible Party   | Frequency  | Phase  | Applicable Legislation/Guideline/ Document         |
|---------------|--|---|---|------------|--|--|
|               |  | <p>while in case of the cemetery use, it is recommended.</p>  |   |            |  |  |
| Hydropedology | <ul style="list-style-type: none"> <li>The proposed Su Casa Burial Estate and associated infrastructure components will have very little impact on the hydrology of the relevant hillslopes, regardless of the position of the grave sites (crest, mid-slope or</li> </ul> | <ul style="list-style-type: none"> <li>Measures can be set on soils with some expected changes in flow paths prior to the burial estate establishment.</li> <li>Development should avoid areas with responsive (saturated) hydrological soil types as they can promote contaminates migration and also act as receptors for groundwater stores.</li> <li>Refer to the Surface Water Monitoring Programme included in Section 11.</li> </ul> | <ul style="list-style-type: none"> <li>Contractor</li> <li>Environmental Officer</li> </ul> | Continuous | <ul style="list-style-type: none"> <li>Construction</li> </ul> | <ul style="list-style-type: none"> <li></li> </ul> |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact  | Mitigation measure | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|---|--------------------|-------------------|-----------|-------|--|
|        | <p>valley bottom).</p> <ul style="list-style-type: none"> <li>The proposed Su Casa Burial Estate and associated infrastructure components will have no effect on the hillslope hydrology due to the extent of the grave sites (diameter), the fact that recharge dominates even though shallow</li> </ul> |                    |                   |           |       |  |



Final EMPr for the Proposed Su Casa Burial Estate

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|--------|---|--|--|------------|------------|--|
|        | <p>throughout as well as the size of the greater catchment. Also, no impacts on the total streamflow of watercourses as both lateral and vertical flow paths will occur in response to the flow impediment.</p> |  |  |            |            |  |
| Visual | <p>Negative visual impact due to construction and operation of a</p>  | <ul style="list-style-type: none"> <li>The proposed site is located close to a mine dump, therefore, it is not expected to have a</li> </ul> | <ul style="list-style-type: none"> <li>Contractor</li> </ul> | Continuous | Continuous |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact                                     | Mitigation measure   | Responsible Party   | Frequency  | Phase   | Applicable Legislation/Guideline/ Document   |
|--------|--|--|---|------------|---|--|
|        | new building and associated infrastructure | major negative impact on site. <ul style="list-style-type: none"> <li>• Install a palisade fence to limit visual intrusion.</li> </ul>   |   |            |   |  |
| Noise  | Noise generation                           | <ul style="list-style-type: none"> <li>• Use noise barriers and equipment with low noise.</li> <li>• Noise control plant should be prepared</li> <li>• Site vehicles and equipment should be maintained.</li> <li>• Where necessary staff should be provided with ear plugs.</li> <li>• No loud music will be allowed on site.</li> <li>• No construction activities will be undertaken at night unless an agreement had been sought from</li> </ul> | <ul style="list-style-type: none"> <li>• Contractor</li> <li>• ECO</li> </ul> | Continuous | <ul style="list-style-type: none"> <li>•</li> </ul> | <ul style="list-style-type: none"> <li>• Method Statement for Noise Generation.</li> </ul> |

## Final EMPr for the Proposed Su Casa Burial Estate

| Aspect             | Impact                       | Mitigation measure  | Responsible Party   | Frequency  | Phase  | Applicable Legislation/Guideline/ Document   |
|--------------------|------------------------------|---|---|------------|--|--|
|                    |                              | neighbours before such work can be undertaken. <ul style="list-style-type: none"> <li>• Broken and noisy equipment will be removed from site.</li> <li>• Use noise barriers and equipment with low noise.</li> <li>• Noise control plant should be prepared</li> <li>• Site vehicles and equipment should be maintained.</li> <li>• Where necessary staff should be provided with ear plugs.</li> </ul> |   |            |  |  |
| Soil contamination | Potential soil contamination | <ul style="list-style-type: none"> <li>• A spill management plan must be put in place to ensure that should there be any chemical spill out or</li> </ul>   | <ul style="list-style-type: none"> <li>• ECO</li> <li>• Contractor</li> </ul> | Continuous | <ul style="list-style-type: none"> <li>• Construction and Operation</li> </ul> | <ul style="list-style-type: none"> <li>• Method Statement for Soil Management</li> </ul> |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document  |
|--------|--------|---|-------------------|-----------|-------|---|
|        |        | <p>over that it does not run into the surrounding areas.</p> <ul style="list-style-type: none"> <li>• The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site.</li> <li>• Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use.</li> <li>• No servicing of equipment on site unless necessary.</li> <li>• All contaminated soil / yard stone shall be treated in situ or</li> </ul> |                   |           |       | <ul style="list-style-type: none"> <li>• Method Statement for Spill Management</li> </ul> |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect                  | Impact                               | Mitigation measure   | Responsible Party  | Frequency         | Phase                      | Applicable Legislation/Guideline/ Document |
|-------------------------|--------------------------------------|--|--|-------------------|----------------------------|--|
|                         |                                      | <p>removed and be placed in containers.</p> <ul style="list-style-type: none"> <li>Leaking equipment and vehicles must be repaired immediately or be removed from project area to facilitate repair.</li> </ul>        |  |                   |                            |  |
| Construction activities | Development within demarcated areas. | <ul style="list-style-type: none"> <li>It is recommended that areas to be developed be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon.</li> </ul>           | <ul style="list-style-type: none"> <li>Contractor</li> <li>ECO</li> </ul>                          | Life of operation | Construction and Operation | Site Plan                                  |
| Stormwater              | Stormwater                           | <ul style="list-style-type: none"> <li>A Stormwater Management Plan should be developed and implemented on site.</li> <li>Ensure that storm water is efficiently and effectively removed from the proximity</li> </ul> | <ul style="list-style-type: none"> <li>Design Engineer</li> <li>Contractor</li> <li>ECO</li> </ul> | Continuous        |                            | Stormwater Management Plan                 |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect               | Impact   | Mitigation measure   | Responsible Party   | Frequency  | Phase                      | Applicable Legislation/Guideline/ Document |
|----------------------|--|--|---|------------|----------------------------|--|
|                      |  | <p>of the infrastructure and safely distributed or deposited into either municipal storm water systems or natural river courses.</p> <ul style="list-style-type: none"> <li>Contaminated water should be stored in a containment and disposed appropriately as waste water.</li> </ul> |   |            |                            |  |
| Roads and paths used | Disturbance of nearby properties.              | All construction/operational and access must make use of the approved roads.   | <ul style="list-style-type: none"> <li>ECO</li> <li>Design Engineer</li> </ul>                          | Continuous | Construction and Operation | Design layout                              |
| Lighting             | Potential Light pollution and period of light. | <ul style="list-style-type: none"> <li>Outside lighting should be designed and limited to minimize impacts on fauna.</li> <li>Fluorescent and mercury vapor lighting should be avoided and sodium vapor (yellow) lights</li> </ul>   | <ul style="list-style-type: none"> <li>Project Manager</li> <li>ECO</li> <li>Design Engineer</li> </ul> | Ongoing    | Construction and Operation | Design Layout                              |

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|--------|--------|--|-------------------|-----------|-------|--|
|        |        | <p>should be used wherever possible.</p> <ul style="list-style-type: none"> <li>• Switch off unnecessary lights to reduce light pollution.</li> <li>• Where possible use automatic systems to turn off street light at certain times.</li> <li>• Outdoor lights should not be directed towards neighboring properties as they create discomfort.</li> <li>• Use glare-free bulbs, installing low hanging bulbs.</li> <li>• Where possible, ensure that lights are facing downwards.</li> <li>• Cover the bulbs to reduce bright skies at night.</li> </ul> |                   |           |       |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect                      | Impact  | Mitigation measure   | Responsible Party  | Frequency | Phase                      | Applicable Legislation/Guideline/ Document |
|-----------------------------|---|--|--|-----------|----------------------------|--|
| Crime                       | Crime activities in the area due to the new filling station | <ul style="list-style-type: none"> <li>Security staff should be available on site.</li> <li>Contact details of the nearest Police Station should be made available on site and communicated staff members.</li> </ul>  | <ul style="list-style-type: none"> <li>Contractor</li> </ul>   | Phase     | Construction and Operation |  |
| Compliance to the training. | Over-speeding   | <ul style="list-style-type: none"> <li>All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife.</li> <li>Speed limits must still be enforced to ensure that road killings and erosion is limited.</li> <li>Delivery of materials should be done outside of pick hours.</li> </ul> | <ul style="list-style-type: none"> <li>Health and Safety Officer</li> <li>ECO</li> <li>Contractor</li> </ul> | Ongoing   | Construction and Operation |  |



Final EMPr for the Proposed Su Casa Burial Estate

| Aspect                    | Impact  | Mitigation measure  | Responsible Party   | Frequency         | Phase        | Applicable Legislation/Guideline/ Document |
|---------------------------|---|---|---|-------------------|--------------|--|
|                           |   | <ul style="list-style-type: none"> <li>Traffic control signs should be provided on site.</li> <li>Motorists to obey all traffic rules.</li> </ul>   |   |                   |              |  |
| Sealing holes/excavations | Potential falling of humans and fauna into excavations. | Any holes/excavations need to be sealed to ensure that no fauna species can fall in.  | <ul style="list-style-type: none"> <li>Project Manager</li> <li>ECO</li> <li>Design Engineer</li> </ul> | Daily             | Construction | Method Statement for Excavation.           |
| Pests                     | Introduction of pests on site                           | <ul style="list-style-type: none"> <li>A pest control plan must be put in place and implemented;</li> <li>It is imperative that poisons not be used due to the likely presence of Species of Conservation Concern.</li> </ul> | <ul style="list-style-type: none"> <li>Developer</li> <li>ECO</li> <li>Contractor</li> </ul>            | Life of operation |              | Pest Control Plan                          |
| Fire Management           | Spread of fire  | <ul style="list-style-type: none"> <li>A fire management plan needs to be compiled and implemented to restrict the impact fire might have on the rehabilitated areas.</li> </ul>  | <ul style="list-style-type: none"> <li>Contractor</li> <li>ECO</li> </ul>                               | Continuous        |              | Fire Management Method Statement           |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect       | Impact   | Mitigation measure  | Responsible Party   | Frequency  | Phase  | Applicable Legislation/Guideline/ Document |
|--------------|--|---|---|------------|--|--|
|              |  | <ul style="list-style-type: none"> <li>• Serviced fire extinguishers and fire beaters should be available on site.</li> <li>• Contact details of the local Fire Department should be made available on site and communicated staff members.</li> <li>• Relevant staff should be trained on fire management.</li> </ul>          |   |            |  |  |
| Geotechnical | Disturbance of sub-surface environment (Geotechnical) and potential impact on groundwater. | <ul style="list-style-type: none"> <li>• The majority of the proposed site falls within the unacceptable suitability rating rendering most of the farm portion not suitable for use as a cemetery. The zone comprising approximately 7 ha rates primarily as poor and will require additional precautionary measures</li> </ul> | <ul style="list-style-type: none"> <li>• Contractor,</li> <li>• ECO</li> <li>• Developer</li> </ul> | Continuous | Pre-construction, Construction, Operation and Post Construction. |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure   | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|--|-------------------|-----------|-------|--|
|        |        | <p>prior to and following the development. The extent of each zone may change with additional information gained from future excavations.</p> <ul style="list-style-type: none"> <li>• The most critical geological and geomorphological constraints for this site will be:</li> <li>• The shallow and outcropping bedrock on the northern half and most of the southwestern portion.</li> <li>• The majority of the soils encountered across the site exhibits fair workability but relatively permeable properties.</li> <li>• Negative influences due to the specific site conditions may include sensitivity of</li> </ul> |                   |           |       |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|---|-------------------|-----------|-------|--|
|        |        | <p>the groundwater sources in the area that may need additional investigation where the regional geological and hydrogeological settings are complex.</p> <ul style="list-style-type: none"> <li>• The following suggestions may allow use of larger parts of the site within the context of a burial facility and can be regarded as mitigation measures with regards the poor ratings in the overall site classification for a cemetery:</li> <li>• Larger excavators and pre-excavation of graves for later opening and use.</li> <li>• Importation of backfill material in areas where</li> </ul> |                   |           |       |  |

## Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure  | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|---|-------------------|-----------|-------|--|
|        |        | <p>excavated rock is not suitable for grave backfill.</p> <ul style="list-style-type: none"> <li>• Utilization of parts of shallow bedrock for shallow soil graves taking proper cognisance of surface and groundwater protection and management.</li> <li>• Earthwork to create 2 m of grave depth by importing fill, e.g. appropriately graded mine discard.</li> <li>• Well planned and constructed management of surface water runoff.</li> <li>• Surface structures rather than excavated graves, e.g. crematorium, mausoleums, etc., in the hard rock outcrop areas.</li> </ul> |                   |           |       |  |

Final EMPr for the Proposed Su Casa Burial Estate

| Aspect | Impact | Mitigation measure   | Responsible Party | Frequency | Phase | Applicable Legislation/Guideline/ Document |
|--------|--------|--|-------------------|-----------|-------|--|
|        |        | <ul style="list-style-type: none"> <li>It is recommended that further investigations be considered if some of the above listed measures are considered.</li> </ul> |                   |           |       |  |

**8. MITIGATION MEASURES FOR IMPACTS ANTICIPATED DURING DECOMMISSIONING AND REHABILITATION PHASES**

| Aspect                             | Impact   | Mitigation measure  | Responsible Party   | Frequency    | Applicable Legislation/Guideline/ Document |
|------------------------------------|--|---|---|--------------|--|
| Drill site footprintrehabilitation | Poor rehabilitation of the areas affected by the proposed project. | Progressive rehabilitation will enable topsoil to be returned more rapidly, thus ensuring more recruitment from the existing seed bank. | <ul style="list-style-type: none"> <li>Contractor</li> <li>ECO</li> </ul> | During Phase | Site layout.                               |

## **9. CHANCE FIND PROTOCOL**

### **9.1. Monitoring Programme for Palaeontology – to commence once the excavations begin.**

- The following procedure is only required if fossils are seen on the surface and when excavations commence.
- When excavations begin the rocks and must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (plants, insects, bone, coal) should be put aside in a suitably protected place. This way the project activities will not be interrupted.
- Photographs of similar fossils must be provided to the developer to assist in recognizing the fossil plants, vertebrates, invertebrates or trace fossils in the shales and mudstones (for example see Figure 5). This information will be built into the EMP's training and awareness plan and procedures.
- Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment.
- If there is any possible fossil material found by the developer/environmental officer then the qualified palaeontologist sub-contracted for this project, should visit the site to inspect the selected material and check the dumps where feasible.
- Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits.
- If no good fossil material is recovered then no site inspections by the palaeontologist will be necessary. A final report by the palaeontologist must be sent to SAHRA once the project has been completed and only if there are fossils.
- If no fossils are found and the excavations have finished then no further monitoring is required.

### **9.2. Examples of fossils from the Dwyka Group.**



Figure 3: Photographs of fossil plants of the early *Glossopteris* flora that occur in the Dwyka Group sediments in north western South Africa.

## 10. GROUNDWATER MONITORING PROCEDURE

It is recommended that monitoring boreholes be established at the upstream (north) and downstream (south) boundaries of the site. On-site boreholes 5 and 6 could possibly be adapted for this purpose.

The following groundwater monitoring activities are recommended:

- The taking of a water sample from “Upstream” (No 6) and “Downstream” (No 5) boreholes prior to the establishment of the cemetery. Laboratory analysis for:
  - Physical parameters pH, EC, TDS;
  - Major ions, Na, K, Mg, Ca, Cl, SO<sub>4</sub>, NO<sub>3</sub> and Total Alkalinity;



- Trace ions and metals, F, As, Fe, Mn, Pb, Cd, Cu, Cr, Ni, Cd, Zn and Al;
- Bacteriological indicators.
- Taking of a water sample on a biannual basis from these boreholes and analysis for the above parameters;
- Compilation of a monitoring record of quality and assessment of the data by a hydrogeologist annually. Continuation or modification of the monitoring programme as dictated by results; and as directed by the DEA/DWS.

## 11. SURFACE WATER MONITORING PROGRAMME

The limits prescribed in this monitoring programme are stipulated in the Target Water Quality Range (TWQR) for aquatic ecosystems (DWAF, 1996). This prescribed monitoring programme should be conducted in conjunction with other aspects of riverine monitoring in the form of aquatic biomonitoring which addresses macroinvertebrate and ichthyofauna assemblages on a bi-yearly basis. The surface water monitoring programme will require monthly monitoring of the adjacent valley bottom wetland at two sites, upstream (control site) and a downstream monitoring site. The watercourse should be monitored for the prescribed aspects below.

Contaminants emanating from burial practices are typically based on the following:

- Their sources (whether from the body's decomposition, accessory burial materials, or associated activities)
- The rate at which they are released to the subsurface
- Their mobility and persistence in the subsurface, and
- Their toxicity or health effects on receptors.

Table 4: Proposed water quality parameters

| Parameters   | pH   | Conductivity<br>( $\mu$ S/cm) | Dissolved Oxygen<br>(mg/l) | Temperature ( $^{\circ}$ C) |
|--|--|-------------------------------|----------------------------|-----------------------------|
| TWQR*  | 6.5-9.0  | -                             | >5.00                      | 5-30*                       |
| Metals   | Ti, Cr, Cd, Pb, Fe, Mn, Ni, Zn, As                             |                               |                            |                             |
| Nutrients  | NO <sub>3</sub> , PO <sub>4</sub> , Cl, salts of Ca, Na, K, Mg |                               |                            |                             |
| Organics   | Formaldehyde, Methanol   |                               |                            |                             |
| Pathogens  | Bacteria, Viruses, Microorganisms, Fungi                       |                               |                            |                             |
| <b>*TWQR – Target Water Quality Range (DWAF, 1996)</b> |  |                               |                            |                             |

## 12. ENVIRONMENTAL AWARENESS PLAN

The following Environmental Awareness Programme must be implemented by Nondidwa Rhadasi Family Trust, in order to inform their employees and contractors of the environmental risks that may result from their work. The plan must be conducted as part of the induction process for all new employees (including contractors) that will perform work in terms of the proposed activities. Proof of all training provided must be kept on-site. The training programme should focus on the following aspects:

- Explaining clearly what the environment is and what the environment consists of namely: air, water, soil, fauna, flora and people.
- Once participants have grasped the description of what the environment entails, the training focuses on the potential impacts that the construction, rehabilitation and operational activities may have on each one of these environmental components.
- To ensure that the training is effective, visual aids should be used. Photos should be taken of actual and potential impacts occurring on site and in some cases role-play can be used to illustrate a potential impact.
- The participants are then exposed to a poster that reflects the various environmental components. The various photos taken are posted on the poster on a rotational basis and the participants indicate (based on the visual component) what environmental component was or could have been affected by the activities portrayed on the photo.
- By doing this the participants visualise the action as well as the potential consequence (environmental impact) of their action.
- This general awareness training must be done before construction commences and also when new employees start work.
- The posters should be placed at the communal areas where the impacts.