Upgrade and rehabilitation of the embankment and spillway of the Alberts Farm dam, Northcliff.

FINAL DRAFT BASIC ASSESSMENT REPORT

November 2019

PREPARED FOR:
The Gauteng Department of Agriculture and Rural Development

PREPARED BY:
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City of Johannesburg
Johannesburg Road Agency
P/Bag x 70
Braamfontein
2017
Tel: (011) 298 5000
Fax: (011) 298 5178
Email: Anel@jra.org.za

Kindly note that:

1. This Basic Assessment Report is the standard report required by GDARD in terms of the EIA Regulations, 2014.

2. This application form is current as of 8 December 2014. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.

3. A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken.

4. A draft Basic Assessment Report (1 hard copy and two CD's) must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application.

5. Five (5) copies (3 hard copies and 2 CDs-PDF) of the final report and attachments must be handed in at offices of the relevant competent authority, as detailed below.

6. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.

7. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.

8. An incomplete report may lead to an application for environmental authorisation being refused.

9. Any report that does not contain a titled and dated full colour large scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorisation being refused.

10. The use of “not applicable” in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the application for environmental authorisation being refused.

11. No faxed or e-mailed reports will be accepted. Only hand delivered or posted applications will be accepted.

12. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.

13. Although pre-application meeting with the Competent Authority is optional, applicants are advised to have these meetings prior to submission of application to seek guidance from the Competent Authority.

DEPARTMENTAL DETAILS

Gauteng Department of Agriculture and Rural Development
Attention: Administrative Unit of the of the Environmental Affairs Branch
P.O. Box 8769
Johannesburg
2000

Administrative Unit of the of the Environmental Affairs Branch
Ground floor Diamond Building
11 Diagonal Street, Johannesburg

Administrative Unit telephone number: (011) 240 3377
Department central telephone number: (011) 240 2500
If this BAR has not been submitted within 90 days of receipt of the application by the competent authority and permission was not requested to submit within 140 days, please indicate the reasons for not submitting within time frame.

Not Applicable.

Is a closure plan applicable for this application and has it been included in this report?

No

if not, state reasons for not including the closure plan.

The application is for the upgrading of the embankment and spillway of the existing Albert’s Farm Dam and does not relate to the decommissioning/closure of a facility.

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity?

Yes

Is a list of the State Departments referred to above attached to this report including their full contact details and contact person?

Yes

If no, state reasons for not attaching the list.

Not Applicable.

Have State Departments including the competent authority commented?

Yes

If no, why?


Section A: Activity information

1. PROPOSAL OR DEVELOPMENT DESCRIPTION

Project title (must be the same name as per application form):

Upgrade and rehabilitation of the embankment and spillway of the Alberts Farm dam, Northcliff:

This Draft Basic Assessment Report is for the proposed upgrade and rehabilitation of the embankment and spillway of the Alberts Farm dam, Northcliff, on the Remainder of the farm Waterval 211 IQ. The site is 73 ha in extent of which the development footprint is 8.9ha.

The site is located between Aasvoëlkop in the north and Mellville Koppies in the south. Its north-eastern boundary abuts Waterval Estate and its western boundary abuts Northcliff Township (Figure 1).

The proposed scope of the activities include:

**Spillway:**
- Increase the spillway capacity to pass the 1:20-year flood peak (please see the design report and Issues and response report in Appendix E6 why the design cannot accommodate the 1:50 and 1:100 year floodline).
- Add (or implement) measures to ensure that the spillway has no undercutting by adding reno mattress or gabion protection or equivalent on the upstream and downstream of the spillway.
- Form a spillway return channel using AmorFlex or equivalent approved, filled with soil and vegetation from the environment; and
- It is recommended that a pedestrian access bridge (±1.2 m wide) is designed and constructed over the spillway.

**Embankment:**
- The breach in the embankment which had previously been repaired using sandbags should be repaired and/or upgraded to currently accepted engineering standards using the correct materials i.e. not sandbags.
- The crest level of the embankment should be reinstated and raised to 1664.30 masl in order to pass the 1:20-year flood peak (please see the design report and Issues and response report in Appendix E6 why the design cannot accommodate the 1:50 and 1:100 year floodline) through the spillway with the design freeboard. Design freeboard meaning total freeboard i.e. NOC level minus FSL.
- The crest width of the embankment should be at least 3 m wide and should be widened to meet the criteria.
- The embankment crest should be protected with a suitable grass cover with a paved footpath in the centre of the crest of the dam.
- The downstream slope should be flattened with fill material added on the downstream slope to a suitable slope. The downstream slope should be covered with grass.
- If required, seepage control measures (i.e. a chimney drain) will be included in the design. The need for a chimney drain will only be known when the downstream slope and toe area of the dam has been cleared.
Figure 1: Locality Map
Select the appropriate box

The application is for an upgrade of an existing development [x]  The application is for a new development [ ] Other, specify [ ]

Does the activity also require any authorisation other than NEMA EIA authorisation?

[ ] YES  [x] NO

If yes, describe the legislation and the Competent Authority administering such legislation

- National Heritage Resources Act, 1999 (Act No. 25 of 1999) -South African Heritage Resources Agency

If yes, have you applied for the authorisation(s)?
[ ] YES  [x] NO

If yes, have you received approval(s)? (attach in appropriate appendix)

[ ] YES  [x] NO

2. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations:

<table>
<thead>
<tr>
<th>Title of legislation, policy or guideline:</th>
<th>Administering authority:</th>
<th>Promulgation Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983), as amended</td>
<td>National &amp; Provincial</td>
<td>1 June 1984</td>
</tr>
<tr>
<td>The Gauteng Draft Red Data Policy</td>
<td>Provincial</td>
<td>2001</td>
</tr>
<tr>
<td>GDARD Conservation Plan, Version 3.3</td>
<td>Provincial</td>
<td>October 2014</td>
</tr>
<tr>
<td>GDARD Requirements for Biodiversity Assessments (Version 3, 2014)</td>
<td>Provincial</td>
<td>March 2014</td>
</tr>
<tr>
<td>Gauteng Agricultural Hubs Policy</td>
<td>Provincial</td>
<td>2006</td>
</tr>
<tr>
<td>City of Johannesburg Spatial Development Framework (JSDF) and Integrated Development Plan (IDP)</td>
<td>Local</td>
<td>2040 and 2018/19</td>
</tr>
<tr>
<td>Title of legislation, policy or guideline</td>
<td>Administering authority</td>
<td>Promulgation Date</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------</td>
<td>-------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Johannesburg Metropolitan Open Space Policy</td>
<td>Local</td>
<td>2002</td>
</tr>
<tr>
<td>Section 108 of the Town Planning and Townships Ordinance, 1986 (Ord. 15 of 1986)</td>
<td>National &amp; Provincial</td>
<td>18 December 1986</td>
</tr>
<tr>
<td>World Heritage Convention Act, 1999 (Act No. 49 of 1999);</td>
<td>National &amp; Provincial</td>
<td>9 December 1999</td>
</tr>
</tbody>
</table>

**Description of compliance with the relevant legislation, policy or guideline:**

<table>
<thead>
<tr>
<th>Legislation, policy of guideline</th>
<th>Description of compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Environmental Management Act No. 107 of 1998 as amended (NEMA).</td>
<td>Environmental Authorization applied for in terms of NEMA - Government Notice R 983 (Listing Notice 1): 19. The infilling or depositing of any material of more than 10 cubic meters into, or excavation, removal or moving of soil, pebbles or rocks of more than 10 cubic meters from a water course. 49. The expansion of slipways by 100 square meters, boardwalks by more than 100 square meters or infrastructure or structures where the physical footprint is expanded by 100 square meters or more within a watercourse. Government Notice R 985 (Listing Notice 3): 12. The clearance or an area of 300 square meters 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 within: 1. CBA or ESA areas 2. On land that was zoned open space. 14: The development of iii) bridges; iv) dams; vi) bulk storm water outlet; ix) slipways or Xii) infrastructure exceeding 10 square meters in sites identified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). 23. The expansion of iii) bridges; iv) dams; vi) bulk storm water outlet; ix) slipways or Xii) infrastructure exceeding 10 square meters in sites identified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs).</td>
</tr>
<tr>
<td>Constitution of Southern Africa Act No. 108 of 1996</td>
<td>The proposed development entails the provision of light industrial stands which is in line with the provisions of the Constitution of Southern Africa of socioeconomic development and the advancement of human rights and freedoms.</td>
</tr>
<tr>
<td>The National Water Act, 1998 (Act No. 36 of 1998) General Notice 509 - development within 500 meters of a wetland</td>
<td>Development within 500 m of a watercourse requires a Water Use License. The proposed activities are located within a wetland, thus a Water Use License will be applied for.</td>
</tr>
<tr>
<td>Gauteng Planning and Development Act, 2003 (Act No. 3 of 2003) (GPDA)</td>
<td>Compliance with the planning and development principles of the GPDA.</td>
</tr>
<tr>
<td>Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)</td>
<td>Determination of the agricultural potential of proposed site. The site does not have agricultural potential.</td>
</tr>
<tr>
<td>GDARD Requirements for Biodiversity Assessments (Version 3, 2014)</td>
<td>Identification of biodiversity areas and determining the sensitivity thereof.</td>
</tr>
<tr>
<td>Gauteng Agricultural Hubs Policy</td>
<td>Determination of the agricultural potential of the proposed development site – this site is not in an agricultural Hub.</td>
</tr>
<tr>
<td>Johannesburg Spatial Development Framework (JSDF, 2040) and Integrated Development Plan (IDP, 2018/19)</td>
<td>The proposed development is in line with the development guidelines of the Spatial Development Framework and Integrated Development Plan of the EMM.</td>
</tr>
<tr>
<td>Johannesburg Metropolitan Open Space Policy (2002)</td>
<td>The upgrade and maintenance work is in line with the JMOSS.</td>
</tr>
<tr>
<td>Section 108 of the Town Planning and Townships Ordinance, 1986 (Ord. 15 of 1986).</td>
<td>Proposed residential development (township establishment) in line with Town Planning and Townships Ordinance.</td>
</tr>
<tr>
<td>The South African Heritage Resources Act (SAHRA), 1999 (Act No. 25 of 1999)</td>
<td>Heritage Impact Assessment conducted in line with SAHRA.</td>
</tr>
<tr>
<td>The Municipal Systems Act, 2000 (Act No. 32 of 2000) and the Integrated Development Plans (IDP)</td>
<td>Regulates the planning processes of the local Municipality.</td>
</tr>
<tr>
<td>World Heritage Convention Act, 1999 (Act No. 49 of 1999);</td>
<td>The heritage of the proposed development site was determined.</td>
</tr>
</tbody>
</table>
3. ALTERNATIVES

Describe the proposal and alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. The determination of whether the site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

The no-go option must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. **Do not include the no go option into the alternative table below.**

**Note:** After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Please describe the process followed to reach (decide on) the list of alternatives below

<table>
<thead>
<tr>
<th>Activity</th>
<th>DISQUALIFYING CONSIDERATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative A: (Preferred) - Upgrade and rehabilitation of the embankment of the Alberts Farm dam and the upgrade of the spillway with hydrological functioning:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Repair the breach and raise the height of the embankment.</td>
</tr>
<tr>
<td></td>
<td>• Upgrade the spillway and construct a silt trap.</td>
</tr>
<tr>
<td></td>
<td>• Replace the sand filter at the embankment</td>
</tr>
<tr>
<td></td>
<td>• Clear reeds and other vegetation from the embankment and spillway</td>
</tr>
<tr>
<td></td>
<td>• Construct a pathway over the embankment and a pedestrian bridge over the spillway.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Leave small pockets within the spillway for hydrological functioning and for aquatic invertebrate and vertebrate movements up and downstream.</strong></td>
</tr>
<tr>
<td></td>
<td>• Lily Pond will be left to silt up or removed to improve wetland hydrology.</td>
</tr>
<tr>
<td>Alternative B</td>
<td>Rehabilitation of only the embankment where it was breached of the Alberts Farm dam:</td>
</tr>
<tr>
<td></td>
<td>• Repair the breach of the embankment.</td>
</tr>
<tr>
<td></td>
<td>• Clear reeds and other vegetation from the embankment and spillway</td>
</tr>
</tbody>
</table>

**No-go alternative**
The situation where the environment is left in the present condition and no interference is attempted; therefore the status quo is maintained. This will potentially result in embankment failure, (as it was already breached in the past and only fixed with sand bags) and spillway overtopping with associated hydrological and hydromorphological impacts, which could have disastrous consequences to the downstream wetland and residents living in close proximity in terms of flooding during the rainy season.

**Preferred option**
The preferred option, Alternative A, is to upgrade and rehabilitate the embankment and spillway and to remove the Lily pond or leave it to silt up to improve the wetland hydrological functioning.

**Conclusion:**
See Table below for a summary of the feasible alternatives identified for the study site.
SUMMARY OF THE FEASIBLE ALTERNATIVE IDENTIFIED

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>EVALUATION</th>
</tr>
</thead>
</table>
| 1. No-go option (Status Quo) | **Positive:**
|  | o No access restrictions to the Alberts Farm park or traffic impacts in the surrounding area
|  | o No noise or dust pollution
|  | **Negative:**
|  | o Potential embankment failure
|  | o Potential for spillway overtopping
|  | o Associated hydrological and hydromorphological impacts
|  | o Potential flooding of downstream wetland and houses during the rainy season, should the embankment be breached or fail. |

| 2. Upgrade and rehabilitation of Embankment and spillway (Alternative A) | **Positive:**
|  | o Upgrading of hydrological conditions
|  | o Control of erosion and sedimentation
|  | o Improvement in biodiversity
|  | o Clearance of alien invader trees and other species that could cause embankment failure in the future or spreading of these species downstream
|  | o Reduction of erosion potential of the embankment by pedestrians, cyclists or runners with the formal pathway.
|  | **Negative:**
|  | o The access to the park will be restricted where construction is taking place but will be temporary.
|  | o Construction activities could cause noise and dust pollution during working hours.
|  | o Construction vehicles could cause increased traffic in the area. |

This study therefore recommends that the preferred alternative be instituted. This assessment is not strictly conducted on the conventional impact assessment process, but integrates strengths of environmental planning from the inception phase to ensure that sensitive environmental features are excluded from development, and that environmental opportunities and constraints are integrated into the planning and design of the scheme.

Provide a description of the alternatives considered

<table>
<thead>
<tr>
<th>No.</th>
<th>Alternative type, either alternative: site on property, properties, activity, design, technology, energy, operational or other(provide details of “other”)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Proposal (Preferred Option)</td>
<td>The preferred option, Alternative A, is to upgrade and rehabilitate the embankment and spillway and remove/silt up the Lily pond.</td>
</tr>
<tr>
<td>2</td>
<td>Alternative 1</td>
<td>Rehabilitate the embankment where it was breached.</td>
</tr>
<tr>
<td>3</td>
<td>Alternative 2</td>
<td>N/A</td>
</tr>
<tr>
<td>4</td>
<td>Alternative 3</td>
<td>N/A</td>
</tr>
</tbody>
</table>
In the event that no alternative(s) has/have been provided, a motivation must be included in the table below.

Not Applicable. This is an existing development that needs upgrading and rehabilitation.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the total physical size (footprint) of the proposal as well as alternatives. Footprints are to include all new infrastructure (roads, services etc), impermeable surfaces and landscaped areas:

Proposed activity *(Total environmental (landscaping, parking, etc.) and the building footprint)*

<table>
<thead>
<tr>
<th>Size of the activity:</th>
<th>8.9 ha</th>
</tr>
</thead>
</table>

**Alternatives:**

<table>
<thead>
<tr>
<th>Alternative 1 (if any)</th>
<th>8.9 ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 2 (if any)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Ha/m²

Indicate the size of the site(s) or servitudes (within which the above footprints will occur):

<table>
<thead>
<tr>
<th>Size of the site/servitude:</th>
<th>73 ha</th>
</tr>
</thead>
</table>

**Alternatives:**

<table>
<thead>
<tr>
<th>Alternative 1 (if any)</th>
<th>73 ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 2 (if any)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Ha/m²

5. SITE ACCESS

Proposal

Does ready access to the site exist, or is access directly from an existing road? YES  x  NO

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

Existing access to the site is from De La Rey Road *(Figure 2).*

Include the position of the access road on the site plan (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

**Alternative 1**

Does ready access to the site exist, or is access directly from an existing road? YES  x  NO

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

Existing access to the site is from De La Rey Road *(Figure 2).*

Include the position of the access road on the site plan. (If the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

**Alternative 2**

Does ready access to the site exist, or is access directly from an existing road? YES  x  NO

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

Existing access to the site is from De La Rey Road *(Figure 2).*

Include the position of the access road on the site plan. (If the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).
Figure 2: Development layout plan showing access from De La Rey Road.
6. LAYOUT OR ROUTE PLAN

A detailed site or route (for linear activities) plan(s) must be prepared for each alternative site or alternative activity. It must be attached to this document. The site or route plans must indicate the following:

- The layout plan is printed in colour and is overlaid with a sensitivity map (if applicable);
- The layout plan is of acceptable paper size and scale, e.g.
  - A4 size for activities with development footprint of 10sqm to 5 hectares;
  - A3 size for activities with development footprint of > 5 hectares to 20 hectares;
  - A2 size for activities with development footprint of >20 hectares to 50 hectares);
  - A1 size for activities with development footprint of >50 hectares);
- The layout plan is of acceptable paper size and scale, e.g.
  - A0 = 1: 500
  - A1 = 1: 1000
  - A2 = 1: 2000
  - A3 = 1: 4000
  - A4 = 1: 8000 (±10 000)
- Shapefiles of the activity must be included in the electronic submission on the CD’s;
- The property boundaries and Surveyor General numbers of all the properties within 50m of the site;
- The exact position of each element of the activity as well as any other structures on the site;
- The position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, septic tanks, storm water infrastructure;
- Servitudes indicating the purpose of the servitude;
- Sensitive environmental elements on and within 100m of the site or sites (including the relevant buffers as prescribed by the competent authority) including (but not limited thereto):
  - Rivers and wetlands;
  - The 1:100 and 1:50 year flood line;
  - Ridges;
  - Cultural and historical features;
  - Areas with indigenous vegetation (even if it is degraded or infested with alien species);
- Where a watercourse is located on the site at least one cross section of the water course must be included (to allow the position of the relevant buffer from the bank to be clearly indicated)

FOR LOCALITY MAP (NOTE THIS IS ALSO INCLUDED IN THE APPLICATION FORM REQUIREMENTS)

- The scale of locality map must be at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map;
- The locality map and all other maps must be in colour;
- Locality map must show property boundaries and numbers within 100m of the site, and for poultry and/or piggery, locality map must show properties within 500m and prevailing or predominant wind direction;
- For gentle slopes the 1m contour intervals must be indicated on the map and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the map;
- Areas with indigenous vegetation (even if it is degraded or infested with alien species);
- Locality map must show exact position of development site or sites;
- Locality map showing and identifying (if possible) public and access roads; and
- The current land use as well as the land use zoning of each of the properties adjoining the site or sites.

7. SITE PHOTOGRAPHS

Colour photographs from the center of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under the appropriate Appendix. It should be supplemented with additional photographs of relevant features on the site, where applicable.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity to be attached in the appropriate Appendix.
Section b: description of receiving environment

Note: Complete Section B for the proposal and alternative(s) (if necessary)

Instructions for completion of Section B for linear activities
1) For linear activities (pipelines etc) it may be necessary to complete Section B for each section of the site that has a significantly different environment.
2) Indicate on a plan(s) the different environments identified
3) Complete Section B for each of the above areas identified
4) Attach to this form in a chronological order
5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route Not Applicable times

Instructions for completion of Section B for location/route alternatives
1) For each location/route alternative identified the entire Section B needs to be completed
2) Each alternative location/route needs to be clearly indicated at the top of the next page
3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives Not Applicable times (complete only when appropriate)

Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way
- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route (complete only when appropriate for above)

Section B – Location/route Alternative No. (complete only when appropriate for above)

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)

The site is situated on Alberts Farm, Northcliff, on the Remainder of the farm Waterval 211 IQ and is 73 ha in extent of which the development footprint is 8.9ha.

The site is located between Aasvoëlkop in the north and Melville Koppies in the south. Its north-eastern boundary abuts Waterval Estate and its western boundary abuts Northcliff Township.

2. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative: Proposal, Alternative 1 and Alternative 2

<table>
<thead>
<tr>
<th>Latitude (S)</th>
<th>Longitude (E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.156523°</td>
<td>27.970743°</td>
</tr>
</tbody>
</table>

In the case of linear activities: Not applicable

Alternative:
- Starting point of the activity
- Middle point of the activity
- End point of the activity

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix.

The 21 digit Surveyor General code of each cadastral land parcel
PROPOSAL
T 0 I R 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
ALT. 1 T 0 I R 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
ALT. 2 T 0 I R 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
etc.

TOIQ00000000021100000

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

<table>
<thead>
<tr>
<th>Flat (1:60)</th>
<th>1:50 – 1:20</th>
<th>1:20 – 1:15</th>
<th>1:15 – 1:10</th>
<th>1:10 – 1:7.5</th>
<th>1:7.5 – 1:5</th>
<th>Steeper than 1:5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1:15 – 1:10</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

4. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site.

<table>
<thead>
<tr>
<th>Ridgeline</th>
<th>Plateau</th>
<th>Side slope of hill/ridge</th>
<th>Valley</th>
<th>Plain</th>
<th>Undulating plain/low hills</th>
<th>River front</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

a) Is the site located on any of the following?

- Shallow water table (less than 1.5m deep) [YES ☑ NO]
- Dolomite, sinkhole or doline areas [YES ☑ NO]
- Seasonally wet soils (often close to water bodies) [YES ☑ NO]
- Unstable rocky slopes or steep slopes with loose soil [YES ☑ NO]
- Dispersive soils (soils that dissolve in water) [YES ☑ NO]
- Soils with high clay content (clay fraction more than 40%) [YES ☑ NO]
- Any other unstable soil or geological feature [YES ☑ NO]
- An area sensitive to erosion [YES ☑ NO]

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s) [YES ☑ NO]

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S): o o
Longitude (E): o o

c) are any caves located within a 300m radius of the site(s) [YES ☑ NO]

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S): o o
Longitude (E): o o

d) are any sinkholes located within a 300m radius of the site(s) [YES ☑ NO]

If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department.

6. AGRICULTURE
Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)?

Please note: The Department may request specialist input/studies in respect of the above.

7. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

<table>
<thead>
<tr>
<th>Natural veld - good condition</th>
<th>Natural veld with scattered aliens</th>
<th>Natural veld with heavy alien infestation</th>
<th>Veld dominated by alien species</th>
<th>Landscaped (vegetation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% = 30</td>
<td>% = 40</td>
<td>% =</td>
<td>% = 30</td>
<td>% =</td>
</tr>
</tbody>
</table>

Sport field

Cultivated land

Paved surface (hard landscaping)

Building or other structure

Bare soil

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site

If YES, specify and explain:

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site.

If YES, specify and explain:

Are there any special or sensitive habitats or other natural features present on the site?

If YES, specify and explain:

Acacia – Eragrostis grassland, Eragrostis – Themeda grassland with rocky outcrops, wetland vegetation.

Was a specialist consulted to assist with completing this section

If yes complete specialist details

Name of the specialist: Mr Bertus Fourie (Wetland specialist)
Qualification(s) of the specialist: M.Sc. Aquatic Health, Pr. Sci. Nat
Postal address: 638 Turf Street, Wingate Park
Postal code: 0180
Telephone: 012 345 4891 Cell: 082 322 5688
E-mail: vanessam@lantic.net Fax: 086 675 6136

Are any further specialist studies recommended by the specialist?

If YES, specify:

If YES, is such a report(s) attached?
If YES list the specialist reports attached below

<table>
<thead>
<tr>
<th>Signature of specialist:</th>
<th>Date: 31/07/2019</th>
</tr>
</thead>
</table>

Name of the specialist: Mrs. P. Lemmer (Botanist)
Qualification(s) of the specialist: B.Sc., Pri.Sci.Nat.
Postal address: 638 Turf Street, Wingate Park
Postal code: 0180
Telephone: 012 345 4891
E-mail: vanessam@lantic.net
Cell: 082 322 5688
Fax: 086 675 6136
Are any further specialist studies recommended by the specialist? **YES**
If YES, specify:
If YES, is such a report(s) attached? **YES**
If YES list the specialist reports attached below

<table>
<thead>
<tr>
<th>Signature of specialist:</th>
<th>Date: 31/07/2019</th>
</tr>
</thead>
</table>

**Please note:** If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

### 8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>31. Open cast mine</td>
<td>32. Underground mine</td>
<td>33. Spoil heap or slimes dam</td>
<td>34. Small Holdings</td>
<td>Other land uses (describe):</td>
</tr>
</tbody>
</table>


NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

<table>
<thead>
<tr>
<th>NORTH</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>8</td>
<td>12</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>12</td>
<td>9</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td></td>
<td>8</td>
<td>2</td>
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<tr>
<td>8</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td>8</td>
<td>9</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEST</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>9</td>
<td></td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EAST</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOUTH</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: More than one (1) Land-use may be indicated in a block

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "A" and with an "N" respectively.

Have specialist reports been attached

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

If yes indicate the type of reports below

- Vegetation study
- Fauna studies (Mammals, Avifauna and Herpetofauna)
- Wetland delineation study
- Heritage Study

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

The area consists of low to medium density residential development with scattered retail centres.

10. Cultural/Historical Features

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-
(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of a site-
   (i) exceeding 5 000 m² in extent; or
   (ii) involving three or more existing erven or subdivisions thereof; or
   (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
   (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
(d) the re-zoning of a site exceeding 10 000 m² in extent; or
(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.
Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?  

If YES, explain:

Graveyard on site; The dam wall is a historical feature as it dates from post the Anglo Boer war and requires a SAHRA phase 2 permit for alterations.

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

The indicated graveyard and individual graves should be marked and avoided by at least a 25m buffer during the construction phase. It is recommended that the original dam wall be subjected to a second phase of documentation before any work commences. Due to its historic value, a permit for any alterations to the dam wall will have to be applied for through SAHRA and the Gauteng Provincial Heritage Resources Agency's Built Environment Committee.

Will any building or structure older than 60 years be affected in any way?  

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?  

If yes, please attached the comments from SAHRA in the appropriate Appendix

Comments from SAHRA have not been received

SECTION C: PUBLIC PARTICIPATION (SECTION 41)

1. The Environmental Assessment Practitioner must conduct public participation process in accordance with the requirement of the EIA Regulations, 2014.

2. LOCAL AUTHORITY PARTICIPATION

Local authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least thirty (30) calendar days before the submission of the application to the competent authority.

Was the draft report submitted to the local authority for comment?  

If yes, has any comments been received from the local authority?

If “YES”, briefly describe the comment below (also attach any correspondence to and from the local authority to this application):

The local authority is the applicant and has been involved with the planning and design of the project. Comments will be received from their environmental section during the Draft BAR comment period. See the Issues and Comments register in Appendix E – Annexure E6

If “NO” briefly explain why no comments have been received or why the report was not submitted if that is the case.

This is a Draft Basic Assessment Report and will only now be circulated for comments
3. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the activity, site or property, such as servitude holders and service providers, should be informed of the application at least thirty (30) calendar days before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?  

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

If “YES”, briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

A Forum meeting was held to discuss design options in August 2019. A public meeting will be held during the draft BA phase after the I&APs have had a chance to review the documents. See Appendix E – Annexure E6 for comments.

If “NO” briefly explain why no comments have been received

4. GENERAL PUBLIC PARTICIPATION REQUIREMENTS

The Environmental Assessment Practitioner must ensure that the public participation process is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees and ratepayers associations. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was flawed.

The EAP must record all comments and respond to each comment of the public / interested and affected party before the application report is submitted. The comments and responses must be captured in a Comments and Responses Report as prescribed in the regulations and be attached to this application.

5. APPENDICES FOR PUBLIC PARTICIPATION

All public participation information is to be attached in the appropriate Appendix. The information in this Appendix is to be ordered as detailed below

Appendix 1 – Proof of site notice - Refer to Annexure E1
Appendix 2 – Written notices issued as required in terms of the regulations - Refer to Annexure E2
Appendix 3 – Proof of newspaper advertisements Refer to Annexure E3
Appendix 4 – Communications to and from interested and affected parties - Refer to Annexure E4
Appendix 5 – Minutes of any public and/or stakeholder meetings - Refer to Annexure E5
Appendix 6 - Comments and Responses Report - Refer to Annexure E6
Appendix 7 – Comments from I&APs on Basic Assessment (BA) Report – Refer to Annexure E7
Appendix 8 – Comments from I&APs on amendments to the BA Report

Not Applicable – No amendments to BA Report
Appendix 9 – Copy of the register of I&APs - Refer to Annexure E9
Appendix 10 – Comments from I&APs on the application

No Comments from I&APs on the application were received
Appendix 11 – Other

Refer to Annexure E11
Not Applicable – No Other Information
SECTION D: RESOURCE USE AND PROCESS DETAILS

Note: Section D is to be completed for the proposal and alternative(s) (if necessary)

Instructions for completion of Section D for alternatives
1) For each alternative under investigation, where such alternatives will have different resource and process details (e.g. technology alternative), the entire Section D needs to be completed
4) Each alternative needs to be clearly indicated in the box below
5) Attach the above documents in a chronological order

Section D has been duplicated for alternatives 0 times (complete only when appropriate)

Section D Alternative No. [Proposal] (complete only when appropriate for above)

1. WASTE, EFFLUENT, AND EMISSION MANAGEMENT

Solid waste management
Will the activity produce solid construction waste during the construction/initiation phase? YES X NO
If yes, what estimated quantity will be produced per month? Unknown m³
How will the construction solid waste be disposed of (describe)? Construction waste will be disposed of at an approved waste disposal site.
Domestic waste generated during the construction phase will be separated and recycled to reduce materials taken to landfill sites. Construction materials will be used in the construction phase and where possible included in all the structures. Vegetation removed will be shredded to be used as compost, unless alien and invasive species that could spread to indigenous vegetation, which will be removed to registered landfill sites.

Where will the construction solid waste be disposed of (describe)?
Construction waste will be disposed of at an approved waste disposal site.

Will the activity produce solid waste during its operational phase? YES X NO
If yes, what estimated quantity will be produced per month?

How will the solid waste be disposed of (describe)?
Domestic waste will be removed by contractor and disposed of at a registered landfill site
Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity? YES X NO
Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?
Not applicable.

Note: If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation? YES X NO
If yes, inform the competent authority and request a change to an application for scoping and EIA.
Is the activity that is being applied for a solid waste handling or treatment facility?  
Yes ☑️ No ☓
If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Describe the measures, if any, that will be taken to ensure the optimal reuse or recycling of materials:

None – Not Applicable.

**Liquid effluent (other than domestic sewage)**

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?  
Yes ☑️ No ☓
If yes, what estimated quantity will be produced per month?  

\[ m^3 \]

Will the activity produce any effluent that will be treated and/or disposed of on site?  
Yes ☑️ No ☓
If yes, what estimated quantity will be produced per month?  

\[ m^3 \]

If yes describe the nature of the effluent and how it will be disposed.

Note that if effluent is to be treated or disposed on site the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?  
Yes ☑️ No ☓
If yes, provide the particulars of the facility:  
Facility name:  
Contact person:  
Postal address:  
Postal code:  
Telephone:  
E-mail:  
Cell:  
Fax:  

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

**Liquid effluent (domestic sewage)**

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?  
Yes ☑️ No ☓
If yes, what estimated quantity will be produced per month?  

Will the activity produce any effluent that will be treated and/or disposed of on site?  
Yes ☑️ No ☓
If yes describe how it will be treated and disposed off.
Emissions into the atmosphere
Will the activity release emissions into the atmosphere?

If yes, is it controlled by any legislation of any sphere of government?

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.
If no, describe the emissions in terms of type and concentration:

2. WATER USE

Indicate the source(s) of water that will be used for the activity

<table>
<thead>
<tr>
<th>Municipal</th>
<th>Directly from water board</th>
<th>groundwater</th>
<th>river, stream, dam or lake</th>
<th>other</th>
<th>the activity will not use water</th>
</tr>
</thead>
</table>

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month: **Not applicable**

If Yes, please attach proof of assurance of water supply, e.g. yield of borehole, in the appropriate Appendix

Does the activity require a water use permit from the Department of Water Affairs?

If yes, list the permits required

If yes, have you applied for the water use permit(s)?
If yes, have you received approval(s)? (attached in appropriate appendix)

3. POWER SUPPLY

Please indicate the source of power supply eg. Municipality / Eskom / Renewable energy source

If power supply is not available, where will power be sourced from?

4. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:
SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts as well as the impacts of not implementing the activity (Section 24(4)(b)(i)).

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summarise the issues raised by interested and affected parties.

<table>
<thead>
<tr>
<th>Concerns raised included:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Construction period and access restrictions during construction: clear signage is required during the construction period</td>
</tr>
<tr>
<td>• A sewer pipe is leaking northwest of the site in De La Rey Road.</td>
</tr>
<tr>
<td>• The Lily pond is becoming a rubbish dump and is invested with alien invader species and requires cleaning up</td>
</tr>
<tr>
<td>• Floating islands on the dam for water bird habitat and nesting should be provided</td>
</tr>
<tr>
<td>• A solution is required for the erosion at the spring eye</td>
</tr>
</tbody>
</table>

Summary of response from the practitioner to the issues raised by the interested and affected parties (including the manner in which the public comments are incorporated or why they were not included)

(A full response must be provided in the Comments and Response Report that must be attached to this report):

See Comments and Response Report in Appendix E – Annexure E6

2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION AND OPERATIONAL PHASE

Briefly describe the methodology utilised in the rating of significance of impacts

**Impact Assessment Methodology:**

A description of the nature of the impact, any specific legal requirements and the stage (construction/decommissioning or operation) will be given. Impacts are considered to be the same during construction and decommissioning. The significance of the potential impacts will be considered before and after identified mitigation is implemented.

The following criteria will be used to evaluate significance:

- **Nature:** The nature of the impact will be classified as positive or negative, and direct or indirect.
- **Extent and location:** Magnitude of the impact and is classified as:
  - Local: the impacted area is only at the site – the actual extent of the activity
  - Regional: the impacted area extends to the surrounding, immediate and neighbouring properties.
  - National: the impact can be considered to be of national importance.
- **Duration:** This measures the lifetime of the impact, and is classified as:
  - Short term: the impact will be for 0 – 3 years, or only last for the period of construction.
  - Medium term: three to ten years.
  - Long term: longer than 10 years or the impact will continue for the entire operational lifetime of the project.
  - Permanent: this applies to the impact that will remain after the operational lifetime of the project.
- **Severity:** This is the degree to which the project affects or changes the environment, and is classified as:
  - Low: the change is slight and often not noticeable, and the natural functioning of the environment is not affected.
  - Medium: The environment is remarkably altered, but still functions in a modified way.
  - High: Functioning of the affected environment is disturbed and can cease.
- **Probability:** This is the likelihood or the chances that the impact will occur, and is classified as:
  - Low: during the normal operation of the project, no impacts are expected.
  - Medium: the impact is likely to occur if extra care is not taken to mitigate them.
• High: the environment will be affected irrespectively; in some cases such impact can be reduced.
  o Confidence: This is the level knowledge/information, the environmental impact practitioner or a specialist had in his/her judgement, and is rated as:
    • Low: the judgement is based on intuition and not on knowledge or information.
    • Medium: common sense and general knowledge informs the decision.
    • High: Scientific and or proven information has been used to give such a judgment.
  o Significance: Based on the above criteria the significance of issues will be determined. This is the importance of the impact in terms of physical extent and time scale, and is rated as:
    • Low: the impacts are less important.
    • Medium: the impacts are important and require attention; mitigation is required to reduce the negative impacts
    • High: the impacts are of great importance. Mitigation is therefore crucial.
  o Cumulative Impacts: The possible cumulative impacts will also be considered.
  o Mitigation: Mitigation for significant issues is incorporated into the EMP.

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

The impacts for the Preferred Alternative are mostly centred within the footprint of the proposed activities and impacts can be mitigated during construction. However, the impacts of the No-Go Alternative (*status quo*) include embankment failure and spillway overtopping with associated hydrological and hydromorphological impacts, which could have disastrous consequences in terms of flooding during the rainy season.
## 2.1 IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE:

### PROPOSAL

<table>
<thead>
<tr>
<th>Potential impacts:</th>
<th>Significance rating of impacts (positive or negative):</th>
<th>Proposed mitigation:</th>
<th>Significance rating of impacts after mitigation:</th>
<th>Risk of the impact and mitigation not being implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Destruction of habitat due to vegetation clearing.</strong></td>
<td>Low (-)</td>
<td><img src="#" alt="List of mitigation measures" /></td>
<td>Low (+)</td>
<td>Vegetation clearing will lead to the destruction of the existing habitat and erosion of sloped areas.</td>
</tr>
<tr>
<td><strong>Loss of Fauna and Flora</strong></td>
<td>Medium (-)</td>
<td><img src="#" alt="List of mitigation measures" /></td>
<td>Low (+)</td>
<td>Site clearing will be minimal and there are no Red or Orange List species on the site.</td>
</tr>
<tr>
<td><strong>Irreversible loss of biodiversity</strong></td>
<td>Medium (-)</td>
<td><img src="#" alt="List of mitigation measures" /></td>
<td>Low (+)</td>
<td>Site clearing will be minimal however biodiversity will not improve without alien vegetation removal.</td>
</tr>
<tr>
<td><strong>Soil contamination</strong></td>
<td>Medium (-)</td>
<td><img src="#" alt="List of mitigation measures" /></td>
<td>Low (-)</td>
<td>Contamination of soil due to construction activities.</td>
</tr>
<tr>
<td><strong>Soil disturbance</strong></td>
<td>Medium (-)</td>
<td><img src="#" alt="List of mitigation measures" /></td>
<td>Low (-)</td>
<td>Disturbance of soil by construction activities.</td>
</tr>
</tbody>
</table>

### BIODIVERSITY AND CONSERVATION

- Dumping of construction rubble and other waste in the areas earmarked for exclusion must be prevented, through fencing or other management measures. Regular cleanup of sensitive areas will be done during the construction phase to reduce windblown waste.
- Declared weed and invader species must be removed from disturbed areas during the construction phase and 3 years after rehabilitation. An Alien invasive species eradication plan must be developed and implemented for the Alberts Farm.
- All areas of disturbed and compacted soils need to be ripped and reseeded after the construction phase.
- No dumping of domestic and construction waste should take place within the study area. If any spills or waste deposits occur, they should be immediately cleaned up.
- During the construction phase of the proposed upgrade, erosion berms should be installed to prevent gully formation and erosion. The following points should serve to guide the placement of erosion berms:
  - Where the track has slope of less than 2%, berms every 50m should be installed.
  - Where the track slopes between 2% and 10%, berms every 25m should be installed.
  - Where the track slopes between 10%–15%, berms every 20m should be installed.
  - Where the track has a slope greater than 15%, berms every 10m should be installed.

- Vegetation clearing will lead to the destruction of the existing habitat and erosion of sloped areas.

- Site clearing will be minimal and there are no Red or Orange List species on the site.

- Site clearing will be minimal however biodiversity will not improve without alien vegetation removal.
| **Gully formation and erosion** | Medium (-) | Low (-) | Erosion caused by construction activities and increased storm water run-off. |
| **AIR QUALITY** | | | |
| **Fugitive particulate emissions (dust) related to construction activities.** | Medium (-) | Low (-) | Dust pollution caused by construction activities. |
| | • Dust Control measures to be put in place as per the EMP. | | |
| | • Dust and fume level monitoring. | | |
| | • Maintenance of construction vehicles must be done regularly. | | |
| | • Surrounding tar roads must be cleaned / swept of soil from construction vehicle’s tires daily to reduce dust. | | |
| **Construction vehicle gas emissions** | Medium (-) | Low (-) | Vehicle gas emissions caused by construction vehicles. |
| **HERITAGE RESOURCES** | | | |
| **Destruction of identified and unidentified heritage sites** | Low (-) | Low (-) | Heritage resources destroyed by construction activities. |
| | • The indicated graveyard and individual graves should be marked and avoided by at least a 25m buffer during the construction phase. | | |
| | • It is recommended that the original dam wall be subjected to a second phase heritage assessment before any work commences. | | |
| | • Due to its historic value, a permit for any alterations to the dam wall will have to be applied for through SAHRA and the Gauteng Provincial Heritage Resources Agency’s Built Environment Committee. | | |
| **WATER RESOURCES** | | | |
| **Rehabilitation of embankment and restoration of hydrological processes and connectivity through a proper spillway** | High (+) | High (+) | Connectivity is very important through habitat provision and proper design. |
| | • The spillway will be done with Amorflex and pockets will be kept open for small invertebrate and vertebrate movement to and from the dam and wetland below. | | |
| **Surface and Groundwater contamination:** Contamination of water resources through storm water runoff, spills and leaks. | Medium (-) | Low (-) | Contamination of water resources caused by construction activities. |
| | • Diversion of water from area of construction | | |
| | • Prevention and detection of spills/leaks. | | |
| | • Provide adequate sanitation for construction workers. | | |
| | • Off-site vehicle maintenance and filling with fuel as far as possible. | | |
| | • Contain runoff water. | | |
| | • Environmental awareness. | | |
| | • Proper waste disposal. | | |
| | • No plant machinery may be stored or left near the aquatic areas, when not in use. | | |
### HYDROLOGY

<table>
<thead>
<tr>
<th>Alteration of watercourse characteristics</th>
<th>Medium (-)</th>
<th>Specialist measures for diverting water to minimise alteration of water quality, quantity and velocity must be implemented.</th>
<th>Low (-)</th>
<th>Increased turbidity, suspended and dissolved solids. Altered flow velocity.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>When dam levels are lowered during the construction phase, then the water must be pumped into the stormwater management system in De La Rey Road and not directly into the downstream wetland, as this will cause erosion and gulley forming in the wetland downstream.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### WASTE MANAGEMENT

<table>
<thead>
<tr>
<th>Soil/water/air pollution due to improper waste handling, storage and disposal</th>
<th>Medium (-)</th>
<th>General litter from construction workers as well as construction waste on site must be effectively controlled. Rubble and general construction waste on site should be removed at regular intervals. The Contractor shall prevent littering and the random discard of solid waste on the site. All waste must be separated according to type and stored in separate drums, adequately marked according to waste sort. Waste collected during the construction phase will be recycled, reused or recovered as far as economically feasible.</th>
<th>Low (-)</th>
<th>Pollution (soil/water/air) due to the improper handling of waste during the construction phase.</th>
</tr>
</thead>
</table>

### NOISE

<table>
<thead>
<tr>
<th>Nuisance to neighbouring residents and businesses due to noise from construction activities.</th>
<th>Medium – High (-)</th>
<th>The contractor must be familiar with and adhere to any regulations (including Gauteng Noise Control Regulations and SANS 10103 provisions) and local by-laws regarding the generation of noise and hours of operation. All construction activities will take place during normal working hours (between 7am and 5pm weekdays). Transport vehicle tailgates will be kept closed where possible. Surrounding communities must be notified in advance of noisy construction activities. All equipment should be provided with standard silencers. Silencer units on vehicles and equipment must be kept in good working order. Construction staff working in areas where the 8-hour ambient noise levels exceed 85 Dba should wear ear protection equipment.</th>
<th>Medium (-)</th>
<th>Nuisance noise caused by construction activities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRAFFIC</td>
<td>Increased traffic in the project area and in the region</td>
<td>Medium (-)</td>
<td>All contractors should commit to following road safety rules.</td>
<td>Traffic in and around the site will be increased.</td>
</tr>
<tr>
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</tr>
<tr>
<td></td>
<td>Risks to the safety of pedestrians and road users</td>
<td>Medium – High (-)</td>
<td>• All contractors should commit to following road safety rules.</td>
<td>Traffic to and from the construction site should be limited to daylight hours, after peak hours where possible.</td>
</tr>
<tr>
<td>SOCIAL: ACCESS TO FACILITIES</td>
<td>Restricted access during construction period</td>
<td>Medium (-)</td>
<td>• All construction areas, construction camp, stockpile areas and construction access roads must be fenced off.</td>
<td>Risk of injury of visitors.</td>
</tr>
<tr>
<td></td>
<td>Risks to the safety of dog walkers and visitors</td>
<td>Medium – High (-)</td>
<td>• No visitor access to the fenced off construction areas.</td>
<td>Reduced safety of visitors.</td>
</tr>
<tr>
<td>WASTE WATER (EFFLUENT)</td>
<td>Water contamination and health hazards due to inadequate sanitation</td>
<td>Medium – High (-)</td>
<td>• Appropriate signage must be placed.</td>
<td>• Contractor must ensure that trucks are not overloaded.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Ablution facilities shall be serviced on a regular basis by an approved service provider.</td>
<td>• Contents of ablution facilities (e.g. chemical toilets) shall be disposed of to a permitted / licensed waste water treatment works and the necessary measures shall be taken to ensure that it will not impact on the operations of the waste water treatment works.</td>
</tr>
</tbody>
</table>
### ALTERNATIVE 1: Rehabilitation of the embankment

<table>
<thead>
<tr>
<th>Potential impacts:</th>
<th>Significance rating of impacts (positive or negative):</th>
<th>Proposed mitigation:</th>
<th>Significance rating of impacts after mitigation:</th>
<th>Risk of the impact and mitigation not being implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIODIVERSITY AND CONSERVATION</td>
<td></td>
<td>------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destruction of habitat due to vegetation clearing.</td>
<td>Low (-)</td>
<td>● Dumping of construction rubble and other waste in the areas earmarked for exclusion must be prevented, through fencing or other management measures. Regular cleanup of sensitive areas will be done during the construction phase to reduce windblown waste.</td>
<td>Low (+)</td>
<td>Vegetation clearing will lead to the destruction of the existing habitat and erosion of sloped areas.</td>
</tr>
<tr>
<td>Loss of Fauna and Flora</td>
<td>Medium (-)</td>
<td>● Declared weed and invader species must be removed from disturbed areas during the construction phase and 3 years after rehabilitation. An Alien invasive species eradication plan must be developed and implemented for the Alberts Farm.</td>
<td>Low (+)</td>
<td>Site clearing will be minimal and there are no Red or Orange List species on the site.</td>
</tr>
<tr>
<td>Irreversible loss of biodiversity</td>
<td>Medium (-)</td>
<td>● All areas of disturbed and compacted soils need to be ripped and reseeded after the construction phase.</td>
<td>Low (+)</td>
<td>Site clearing will be minimal however biodiversity will not improve without alien vegetation removal.</td>
</tr>
<tr>
<td>Soil contamination</td>
<td>Medium (-)</td>
<td>● During the construction phase of the proposed upgrade, erosion berms should be installed to prevent gully formation and erosion. The following points should serve to guide the placement of erosion berms:</td>
<td>Low (-)</td>
<td>Contamination of soil due to construction activities.</td>
</tr>
<tr>
<td>Soil disturbance</td>
<td>Medium (-)</td>
<td>● Where the track has slope of less than 2%, berms every 50m should be installed.</td>
<td>Low (-)</td>
<td>Disturbance of soil by construction activities.</td>
</tr>
<tr>
<td>Gully formation and erosion</td>
<td>Medium (-)</td>
<td>● Where the track slopes between 2% and 10%, berms every 25m should be installed.</td>
<td>Low (-)</td>
<td>Erosion caused by construction activities and</td>
</tr>
</tbody>
</table>
### AIR QUALITY

<table>
<thead>
<tr>
<th>Description</th>
<th>Level</th>
<th>Details</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fugitive particulate emissions (dust) related to construction activities.</td>
<td>Medium</td>
<td>- Dust Control measures to be put in place as per the EMPr.</td>
<td>Low (-) Dust pollution caused by construction activities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Dust and fume level monitoring.</td>
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<td></td>
<td></td>
<td>- Maintenance of construction vehicles must be done regularly.</td>
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<tr>
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<td></td>
<td>- Surrounding tar roads must be cleaned / swept of soil from construction vehicle's tires daily to reduce dust.</td>
<td></td>
</tr>
<tr>
<td>Construction vehicle gas emissions</td>
<td>Medium</td>
<td>- Dust and fume level monitoring.</td>
<td>Low (-) Vehicle gas emissions caused by construction vehicles.</td>
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<td></td>
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<td>- Maintenance of construction vehicles must be done regularly.</td>
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<td>- Surrounding tar roads must be cleaned / swept of soil from construction vehicle's tires daily to reduce dust.</td>
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</table>

### HERITAGE RESOURCES

<table>
<thead>
<tr>
<th>Description</th>
<th>Level</th>
<th>Details</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destruction of identified and unidentified heritage sites</td>
<td>Low (-)</td>
<td>- The indicated graveyard and individual graves should be marked and avoided by at least a 25m buffer during the construction phase.</td>
<td>Low (-) Heritage resources destroyed by construction activities.</td>
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<td></td>
<td>- It is recommended that the original dam wall be subjected to a second phase heritage assessment before any work commences.</td>
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<td>- Due to its historic value, a permit for any alterations to the dam wall will have to be applied for through SAHRA and the Gauteng Provincial Heritage Resources Agency's Built Environment Committee.</td>
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</tr>
</tbody>
</table>

### WATER RESOURCES

<table>
<thead>
<tr>
<th>Description</th>
<th>Level</th>
<th>Details</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehabilitation of embankment</td>
<td>Medium</td>
<td>- The embankment will still have the potential of overtopping as the spillway will not be upgraded, so the embankment will have to be rehabilitated regularly.</td>
<td>High (-) Connectivity will be limited and potential for overtopping still exist.</td>
</tr>
<tr>
<td>Surface and Groundwater contamination: Contamination of water resources</td>
<td>Medium</td>
<td>- Diversion of water from area of construction</td>
<td>Low (-) Contamination of water resources caused by construction activities.</td>
</tr>
<tr>
<td>through storm water runoff, spills and leaks.</td>
<td></td>
<td>- Prevention and detection of spills/leaks.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Provide adequate sanitation for construction workers.</td>
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<td>- Off-site vehicle maintenance and filling with fuel as far as possible.</td>
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<td>- Contain runoff water.</td>
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<td></td>
<td></td>
<td>- Environmental awareness.</td>
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<td></td>
<td>- Proper waste disposal.</td>
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<td>- No plant machinery may be stored or left near the aquatic areas, when not in use.</td>
<td></td>
</tr>
<tr>
<td>HYDROLOGY</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>-----------</td>
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<td>---</td>
<td></td>
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<tr>
<td>Alteration of watercourse characteristics</td>
<td>Medium (-)</td>
<td>• When dam levels are lowered during the construction phase, then the water must be pumped into the stormwater management system in De La Rey Road and not directly into the downstream wetland, as this will cause erosion and gulley forming in the wetland downstream.</td>
<td>Low (-)</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>WASTE MANAGEMENT</th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| Soil/water/air pollution due to improper waste handling, storage and disposal | Medium (-) | • General litter from construction workers as well as construction waste on site must be effectively controlled.  
• Rubble and general construction waste on site should be removed at regular intervals.  
• The Contractor shall prevent littering and the random discard of solid waste on the site.  
• All waste must be separated according to type and stored in separate drums, adequately marked according to waste sort.  
• Waste collected during the construction phase will be recycled, re-used or recovered as far as economically feasible. | Low (-) | Pollution (soil/water/air) due to the improper handling of waste during the construction phase. |

<table>
<thead>
<tr>
<th>NOISE</th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| Nuisance to neighbouring residents and businesses due to noise from construction activities. | Medium – High (-) | • The contractor must be familiar with and adhere to any regulations (including Gauteng Noise Control Regulations and SANS 10103 provisions) and local by-laws regarding the generation of noise and hours of operation.  
• All construction activities will take place during normal working hours (between 7am and 5pm weekdays).  
• Transport vehicle tailgates will be kept closed where possible.  
• Surrounding communities must be notified in advance of noisy construction activities.  
• All equipment should be provided with standard silencers. Silencer units on vehicles and equipment must be kept in good working order.  
• Construction staff working in areas where the 8-hour ambient noise levels exceed 85 Dba should wear ear protection equipment. | Medium (-) | Nuisance noise caused by construction activities. |
<table>
<thead>
<tr>
<th>TRAFFIC</th>
<th>Medium (-)</th>
<th>Medium (-)</th>
<th>Traffic in and around the site will be increased.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased traffic in the project area and in the region</td>
<td>• All contractors should commit to following road safety rules.</td>
<td>• Traffic to and from the construction site should be limited to daylight hours, after peak hours where possible.</td>
<td></td>
</tr>
<tr>
<td>Risks to the safety of pedestrians and road users</td>
<td>• Traffic to and from the construction site should be limited to daylight hours, after peak hours where possible.</td>
<td>• Appropriate signage must be placed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Appropriate signage must be placed.</td>
<td>• Contractor must ensure that trucks are not overloaded.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low (-)</td>
<td>Low (-)</td>
<td>Reduced safety of pedestrians and road users.</td>
</tr>
<tr>
<td>SOCIAL: ACCESS TO FACILITIES</td>
<td>Medium (-)</td>
<td>Medium (-)</td>
<td>Risk of injury of visitors.</td>
</tr>
<tr>
<td>Restricted access during construction period</td>
<td>• All construction areas, construction camp, stockpile areas and construction access roads must be fenced off.</td>
<td>• No visitor access to the fenced off construction areas.</td>
<td></td>
</tr>
<tr>
<td>Risks to the safety of dog walkers and visitors</td>
<td>• Appropriate signage must be placed.</td>
<td>• Construction road access control must be instituted.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Construction road access control must be instituted.</td>
<td>• A security guard must be present on site 24 hours a day to ensure that public do not enter the construction areas and camp.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low (-)</td>
<td>Low (-)</td>
<td>Reduced safety of visitors.</td>
</tr>
<tr>
<td>WASTE WATER (EFFLUENT)</td>
<td>Medium – High (-)</td>
<td>Low (-)</td>
<td>Contamination of water caused by inadequate sanitation.</td>
</tr>
<tr>
<td>Water contamination and health hazards due to inadequate sanitation</td>
<td>• Sufficient ablution facilities shall be provided to service the construction site.</td>
<td>• Ablution facilities shall be serviced on a regular basis by an approved service provider.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ablution facilities shall be serviced on a regular basis by an approved service provider.</td>
<td>• Contents of ablution facilities (e.g. chemical toilets) shall be disposed of to a permitted / licensed waste water treatment works and the necessary measures shall be taken to ensure that it will not impact on the operations of the waste water treatment works.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The designated service provider will make details of inspection reports available to the contractor.</td>
<td>• Diversion of water from area where construction is taking place – specific specialist recommendations to be implemented</td>
<td></td>
</tr>
</tbody>
</table>
### 2.2 IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

#### PROPOSAL AND ALTERNATIVE 1

<table>
<thead>
<tr>
<th>Potential impacts:</th>
<th>Significance rating of impacts (positive or negative):</th>
<th>Proposed mitigation:</th>
<th>Significance rating of impacts after mitigation:</th>
<th>Risk of the impact and mitigation not being implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• Declared weed and invader species must be removed continuously.</td>
<td>Medium (+)</td>
<td>Proliferation of invader species.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Vegetation growth should be promoted within the construction footprint in order to protect soils and to reduce the percentage of the surface area which is left as bare ground. No trees or exotic and invader species may be allowed to establish on the embankment.</td>
<td>Medium (+)</td>
<td></td>
</tr>
<tr>
<td>Removal of weed and invader species</td>
<td>Medium (+)</td>
<td>• Only indigenous vegetation species may be used for post-construction rehabilitation.</td>
<td>Low (-)</td>
<td>Erosion due to areas not vegetated. Failure of embankment caused by root growth of tree species.</td>
</tr>
<tr>
<td>Promotion of indigenous vegetation species for landscaping</td>
<td>Medium – Low (+)</td>
<td></td>
<td>Medium (+)</td>
<td></td>
</tr>
<tr>
<td>Soil erosion</td>
<td>Medium (-)</td>
<td></td>
<td>Low (-)</td>
<td></td>
</tr>
</tbody>
</table>

#### BIODIVERSITY AND CONSERVATION

- **Removal of weed and invader species**
  - Medium (+)
  - Proposed mitigation:
    - Declared weed and invader species must be removed continuously.
    - Vegetation growth should be promoted within the construction footprint in order to protect soils and to reduce the percentage of the surface area which is left as bare ground. No trees or exotic and invader species may be allowed to establish on the embankment.
    - Only indigenous vegetation species may be used for post-construction rehabilitation.
  - Significance rating of impacts after mitigation: Medium (+)
  - Risk of the impact and mitigation not being implemented: Proliferation of invader species.

- **Promotion of indigenous vegetation species for landscaping**
  - Medium – Low (+)
  - Proposed mitigation:
    - Only indigenous vegetation species may be used for post-construction rehabilitation.
  - Significance rating of impacts after mitigation: Medium (+)
  - Risk of the impact and mitigation not being implemented: Soil erosion caused by bare soil.

- **Soil erosion**
  - Medium (-)
  - Proposed mitigation:
    - Measures must be implemented to restore flow velocity, water quality and quantity to original watercourse conditions.
  - Significance rating of impacts after mitigation: Low (-)
  - Risk of the impact and mitigation not being implemented: Altered watercourse state.

#### HYDROLOGY

- **Alteration characteristics of the watercourse**
  - Medium (-)
  - Proposed mitigation:
    - Measures must be implemented to restore flow velocity, water quality and quantity to original watercourse conditions.
  - Significance rating of impacts after mitigation: Low (-)
  - Risk of the impact and mitigation not being implemented: Altered watercourse state.

---

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

- Aquatic ecosystem delineation
- Flora Assessment
- Fauna Assessments
- Detail Design Report
- Heritage Impact Assessment
- Geotechnical Report
- Floodline Report

Describe any gaps in knowledge or assumptions made in the assessment of the environment and the impacts associated with the proposed development.

None
3. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING AND CLOSURE PHASE

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Please note that the activity is not subject to decommissioning or closure.

<table>
<thead>
<tr>
<th>Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Potential impacts:</strong></td>
</tr>
<tr>
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<td></td>
</tr>
</tbody>
</table>

Alternative 1

| **Potential impacts:** | **Significance rating of impacts (positive or negative):** | **Proposed mitigation:** | **Significance rating of impacts after mitigation:** | **Risk of the impact and mitigation not being implemented** |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Alternative 2

| **Potential impacts:** | **Significance rating of impacts (positive or negative):** | **Proposed mitigation:** | **Significance rating of impacts after mitigation:** | **Risk of the impact and mitigation not being implemented** |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

N/A

Where applicable indicate the detailed financial provisions for rehabilitation, closure and ongoing post decommissioning management for the negative environmental impacts.

Not applicable.
4. **CUMULATIVE IMPACTS**

Describe potential impacts that, on their own may not be significant, but is significant when added to the impact of other activities or existing impacts in the environment. Substantiate response:

**Construction phase:**

- **Biodiversity and Conservation** – biodiversity will improve with the removal of alien invasive vegetation and alien fish species.
- The cumulative impact on the wetland/watercourse during construction will be minimal as all potential impacts on biodiversity will be mitigated on site.
- The social impact will be temporary and will be mitigated on site.
- Increase in ambient noise and dust during the construction phase – impact to be managed in accordance with the EMPr and will be of short duration.

5. **ENVIRONMENTAL IMPACT STATEMENT**

Taking the assessment of potential impacts into account, please provide an environmental impact statement that sums up the impact that the proposal and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

**Proposal: Albert’s Farm Dam upgrade of embankment and spillway**

Albert’s Farm is a major regional parkland which currently fulfils both a conservation and a recreational function within the City. The Alberts Farm dam is a heritage site, and fed by various upstream water sources including an artesian spring.

The site consists of natural vegetation as well as parkland and alien invasive vegetation. The site is bordered by roads, residential and retail areas and the Braamfontein spruit. **The proposed activities will not have a negative impact on the environment – it will in fact have the opposite effect, contributing to the rehabilitation of a site which currently poses hydrological challenges, potential risk of failure and includes areas with alien invasive vegetation.**

Although not regarded as a significant dam for stormwater management, the dam does serve as an important hydrological feature in the landscape and helps to manage flows to the downstream wetland system. The dam supports considerable biodiversity and is hence also important from an ecosystem perspective.

The dam wall is an old earth wall, and has been failing for a number of years. The wall is currently in danger of breaching completely, which is a risk both to the downstream wetland system, residents as well as the biodiversity which is dependent on this water source. One of the problems is the old roots of trees which have created pathways for egress of water. At the same time these roots are part of the structure of the dam wall. The problem is exacerbated by the inadequacy of the spillway, which means that during heavy storm events the wall or embankment overtops. The construction of a more formal spillway is therefore required to limit the frequency of overtopping of the embankment.

Should the embankment and spillway not be upgraded as proposed, the hydrological issues, loss of connectivity and risk of failure will continue.

During construction all predicted negative impacts can be mitigated to a low significance with the exception of noise impacts inherent to construction activities, and construction related traffic. Mitigation measures have been included in the EMPr for these impacts and they have a medium significance post-mitigation.
The proposal will therefore have a **positive impact on the environment, be of long duration** and have the following positive outcomes:

- Restoration of connectivity between the dam and downstream wetland
- Upgrading of hydrological conditions and processes
- Control of erosion and sedimentation
- Improvement in biodiversity
- Eradication of alien invasive species

The proposal will have the following negative outcomes:

- The access to the park will be restricted where construction is taking place but will be temporary.
- Noise and dust during the construction phase.
- Increase in traffic with delivery of construction materials and with construction workers on site.

### Alternative 1: Rehabilitation of the dam embankment where it was breached

This alternative would entail only the rehabilitation of the embankment where it was breached. This would have a continuous negative impact on the environment, as the risk of failure will still be high (the spillway will not be upgraded or the embankment raised). Biodiversity will decline further as there is limited hydrological or aquatic connectivity between the dam and the downstream wetland. The potential for further breaches of the embankment remains high as the problem will not be resolved. Erosion of the embankment will continue as a result of pedestrians, cyclists and runners.

**This alternative will therefore be of short duration, limited in scope and have a low negative impact on the environment.**

### Alternative 2

N/A

### No-go (compulsory)

The situation where the environment is left in the present condition and no interference is attempted; therefore the status quo is maintained.

The embankment will keep on overtopping during mayor rainfall events, this could potentially increase the risk of failure of the embankment, causing flooding that could negatively influence the downstream wetland or cause damage to properties. If the embankment fail or water levels decrease then biodiversity in and around the dam will also be impacted negatively.

Should the embankment and spillway not be upgraded as proposed, the hydrological issues, loss of connectivity and risk of failure will continue.

**This alternative will be of long term duration and have a significant negative impact on the environment.**
### 6. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

#### For proposal:

Although not regarded as a significant dam for stormwater management, the dam does serve as an important hydrological feature in the landscape and helps to manage flows to the downstream wetland system. The dam supports considerable biodiversity and is hence also important from an ecosystem perspective.

The proposal will have the following positive outcomes:
- Restoration of connectivity between the dam and downstream wetland
- Upgrading of hydrological conditions and processes
- Control of erosion and sedimentation
- Improvement in biodiversity
- Eradication of alien invasive species

The proposal will have the following negative outcomes:
- The access to the park will be restricted where construction is taking place but will be temporary.
- Noise and dust during the construction phase.
- Increase in traffic with delivery of construction materials and with construction workers on site.

#### For alternative:

See section 5

Having assessed the significance of impacts of the proposal and alternative(s), please provide an overall summary and reasons for selecting the proposal or preferred alternative.

There is an urgent need for the rehabilitation and upgrading of the spillway and embankment of the Alberts Farm dam, before it fails completely.

The proposed activities will increase hydrological / aquatic connectivity between the dam and downstream wetland and decrease the potential risk of flooding and failure of the embankment and restore hydrological functioning of the dam in the greater wetland area on site, reducing erosion potential and the spread of alien invasive species.

The proposal will therefore have a **positive impact on the environment, be of long duration** and have the following positive outcomes:
- Restoration of connectivity between the dam and downstream wetland
- Upgrading of hydrological conditions and processes
- Control of erosion and sedimentation
- Improvement in biodiversity
- Eradication of alien invasive species

The proposal will have the following negative outcomes:
- The access to the park will be restricted where construction is taking place but will be temporary.
- Noise and dust during the construction phase.
- Increase in traffic with delivery of construction materials and with construction workers on site.
7. SPATIAL DEVELOPMENT TOOLS

Indicate the application of any spatial development tool protocols on the proposed development and the outcome thereof.

A Geographic Information System (PlanetGIS) was utilized to identify areas of biodiversity concern that may be affected by the proposed development. The Gauteng Conservation plan 3.3 was used to verify CBA and ESA areas and BGIS from SANBI were used as references.

8. RECOMMENDATION OF THE PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the Environmental Assessment Practitioner as bound by professional ethical standards and the code of conduct of EAPASA).

If “YES”, please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

Refer to EMPr

9. THE NEEDS AND DESIREABILITY OF THE PROPOSED DEVELOPMENT (as per notice 792 of 2012, or the updated version of this guideline)

Urbanized catchments have increased volumes and peak discharges in comparison with natural catchments – and the problem is exacerbated by the increased drainage efficiency of urbanized catchments. The spillways of these dams are sized for relatively frequent flood events so that for larger events, the balance of the floodwater spills over the embankment crest, creating erosive stress on the downstream slope of the embankment.

Early stages of urban development expose soil, as development progresses surfaces are more protected from erosion. However this is generally by increased runoff, with the result that urban rivers that are free to erode often carry more sediment than natural rivers.

Excess sediment is deposited where velocity is decreased, e.g. in impoundments. The cost of constructing and frequently desilting an upstream silt trap is likely to be similar to the cost of less frequent desilting of the impoundment immediately downstream.

The dam wall at Alberts Farm is an old earth wall, and has been failing for a number of years. The wall is currently in danger of breaching completely, which is a risk both to the downstream wetland system as well as the biodiversity which is dependent on this water source. One of the problems is the old roots of trees which have created pathways for egress of water. At the same time these roots are part of the structure of the dam wall. The problem is exacerbated by the inadequacy of the spillway, which means that during heavy storm events the wall or embankment overtops. The construction of a more formal spillway is therefore required to limit the frequency of overtopping of the embankment.

10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED (CONSIDER WHEN THE ACTIVITY IS EXPECTED TO BE CONCLUDED)

10 years

11. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPPr) (must include post construction monitoring requirements and when these will be concluded.)

If the EAP answers “Yes” to Point 7 above then an EMP is to be attached to this report as an Appendix

EMPPr attached  Yes
SECTION F: APPENDIXES

The following appendixes must be attached as appropriate (this list is inclusive, but not exhaustive):

It is required that if more than one item is enclosed that a table of contents is included in the appendix

Appendix A: Site plan(s) – (must include a scaled layout plan of the proposed activities overlain on the site sensitivities indicating areas to be avoided including buffers)

Appendix B: Photographs – Photographic Report

Appendix C: Facility illustration(s)

Appendix D: Route position information

Not Applicable – No Route Position Information

Appendix E: Public participation information

Annexure E1 – Proof of site notice
Annexure E2 – Written notices issued as required in terms of the regulations
Annexure E3 – Proof of newspaper advertisements
Annexure E4 – Communications to and from interested and affected parties
Annexure E5 – Minutes of any public and/or stakeholder meetings
Annexure E6 - Comments and Responses Report
Annexure E7 – Comments from I&APs on Basic Assessment (BA) Report
Annexure E8 – Comments from I&APs on amendments to the BA Report

Not Applicable – No amendments to BA Report

Annexure E9 – Copy of the register of I&APs
Annexure E10 – Comments from I&APs on the application
Annexure E11 – Other

Not Applicable – No Other Information

Appendix F: Water use license(s) authorization, SAHRA information, service letters from municipalities, water supply information

No Water use license authorization, service letters from municipalities or water supply information attached.

Proof of submission of WULA and SAHRA attached

Appendix G: Specialist reports

Annexure G1: Geotechnical Report
Annexure G2: Heritage Impact Assessment
Annexure G3: Biodiversity Report
  Flora Assessment Report
  Mammal Assessment Report
  Avifauna Assessment Report
  Herpetofauna Assessment Report
  Wetland delineation and Aquatic Report
  Wetland rehabilitation Report
Annexure G4: Design Floodline determination Report
Annexure G5: Detailed design Report

Appendix H: EMPr

Appendix I: Other information

Not Applicable – No Other Information