



**TSHIKOVHA  
ENVIRONMENTAL &  
COMMUNICATION  
CONSULTING**

Reg 2005/179920/23 Vat 4820261982

**747 PARK STREET, ARCADIA,  
PRETORIA 0028**

**DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED ROAD UPGRADE OF ROAD K170  
INCLUDING THE UPGRADE OF EXISTING BRIDGES AND CONSTRUCTION OF NEW BRIDGES ALONG  
THE RIETSPRUIT RIVER WITHIN THE SEBOKENG AREA, UNDER EMFULENI LOCAL MUNICIPALITY,  
WITHIN THE JURISDICTION OF SEDIBENG DISTRICT MUNICIPALITY, GAUTENG PROVINCE**

**APPLICANT:**

**GAUTENG DEPARTMENT OF ROADS AND TRANSPORT**

**PREPARED BY:**

**TSHIKOVHA ENVIRONMENTAL AND COMMUNICATION CONSULTING**

**DATE: APRIL 2017**

**OUR VALUES ARE PASSION, TECHNIQUE AND WE DELIVER ON TIME**

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	<b>Compiled By</b>	<b>Reviewed By</b>
<b>Name</b>	Lindelani Mulugana	Bonita Mtengwa
<b>Designation</b>	Environmental Assessment Practitioner	Environmental Division Manger
<b>Date</b>	April 2017	April 2017

## Executive Summary

Gauteng Department of Roads and Transport proposes to undertake the upgrade of Road K170/ N1-19 Interchange and K170 between K176 and K45 (P73-1/Golden Highway). The upgrade of the road will include the construction of a dual carriageway which follows a north-westerly route from Sebokeng (Westside Park area) in the east toward Westonaria. The section of K170 extends from 800m west of the intersection between existing roads 1017 (K176) and 1358 (K170) to approximately 200m after intersection with P73-1 (K45) (please refer to **Appendix A1**- Layout Plan and **Appendix A2**- Locality Map). The road upgrade will also include the upgrade of existing bridges and construction of new bridges along the Rietspruit River. The project study area has 2 existing bridges i.e. (21.1 m long x 2.5 high bridge (5 spans), 99. 4m long x 5.6 high bridge (4 span crossing N1). The bridges to be upgraded and constructed are as follows:

Bridge 1: 26°34'45.22"S 27°47'33.83"E (refurbishment of existing bridge)

Bridge 2: 26°34'48.47"S 27°47'45.04"E (refurbishment of existing bridge)

Bridge 3: 26°34'46.55"S 27°47'38.32"E (new bridge)

Bridge 4: 26°34'50.31"S 27°47'47.92"E (new bridge)

Tshikovha Environmental and Communication Consulting have been appointed by the Gauteng Department of Road and Transport to conduct Environmental Impact Assessment (i.e. Basic Assessment) in accordance with the stipulated provisions indicated in Government Notice R 982 of the Environmental Impact Assessment (EIA) Regulations of 2014. There are a number of impacts, both environmental and social, that may result from the construction and operation of the proposed project. These impacts have been identified, assessed and ranked according to their significance during the Basic Assessment Process. Mitigation measures have been provided to ensure that the identified negative impacts are minimised and positive impacts maximised, as well as to ensure that the proponent adheres to the applicable environmental legislations.

Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014 (Version 1)

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**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.

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**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

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(For official use only)

NEAS Reference Number:

File Reference Number:						
Application Number:						
Date Received:						

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? YES

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

Not Applicable

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

The list of stakeholder departments has been included as Appendix E9

If no, state reasons for not attaching the list.

Not Applicable

Have State Departments including the competent authority commented? NO

If no, why?

All comments received will be included in the Final Basic Assessment Report.

**SECTION A: ACTIVITY INFORMATION**

**1. PROPOSAL OR DEVELOPMENT DESCRIPTION**

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

The proposed road upgrade of Road K170 including the upgrade of existing bridges and construction of new bridges along the Rietspruit River within the Sebokeng area, under Emfuleni Local Municipality, within the jurisdiction of Sedibeng District Municipality, Gauteng Province

Select the appropriate box

The application is for an upgrade of an existing development

The application is for a new development

Other, specify

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

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

Water Use Licence will be applied from Department of Water and Sanitation and mining permit Mineral will be applied from Department of Mineral Resources.

If yes, have you applied for the authorization(s)?

YES	
	NO

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

**(b) Detailed description of the listed activities associated with the project as applied for**

GN R983, Listing Notice 1		
Activity No.	Activity Description	Project Description related to relevant listed activity
19	The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from: (i) a watercourse.	The proposed road upgrade will include the upgrade of existing bridges and construction of new bridges within the Rietspruit River.



GN R985, Listing Notice 3		
Activity No.	Activity Description	Project Description related to relevant listed activity
12	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan: (ii) within critical biodiversity areas identified in bioregional plans.	The upgrade and construction of the bridges will be undertaken in sensitive areas of the Rietspruit River, which are classified as CBA in the C-Plan.
Activity No.	Activity Description	Project Description related to relevant listed activity
14	The development of (i) canals (ii) channels (ii) bridges exceeding 10 square metres in size where such development occurs in a watercourse: (b) (iv) sites identified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) in the Gauteng Conservation Plan.	The upgrade and construction of the bridges will be undertaken in sensitive areas of the Rietspruit River, which are classified as CBA in the C-Plan.

## 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:

Title of legislation, policy or guideline:

Administering authority:

Promulgation Date:

Constitution of the Republic of South Africa	Parliament	1996
National Environmental Management Act 107 as amended	National & Provincial	2014
The National Water Act (No. 36 of 1998)	National & Provincial	1998
South African National Roads Agency Limited and National Roads Act, 1988 (Act No. 7 of 1988)	National & Provincial	1998
The National Environmental Management: Waste Management Act 59 of 2008	National & Provincial	2009

The National Environmental Management Air Quality Act, 2004 (Act No 39 of 2004)	National & Provincial	2004
National Heritage Resources Act (No. 25 of 1999)	National & Provincial	1999
Gauteng Noise Control Regulations, 1999	Provincial	1999

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

<b>Legislation, policy of guideline</b>	<b>Description of compliance</b>
Constitution of the Republic of South Africa	The Constitution of the Republic of South Africa provides general and overarching support and is of major assistance in the effective implementation of the environmental management principles and structures of the Environment Conservation Act and NEMA. Section 24 of the Constitution obliges industries and organizations that are responsible for generating waste, to manage the waste in a way that will not cause pollution and thus negatively affect the health and wellbeing of humans.
National Environmental Management Act 107 as amended.	In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended in 08 December 2014) (NEMA), any person who undertakes an activity which is listed under GN 983,984,985 must apply for environmental authorisation from the local or national department depending on the activity that has been triggered.
National Water Act (No. 36 of 1998)	The activity also triggers “water use” listing activities under Section 21 (i,c) of the National Water Act: (21) (c) – impeding or diverting the flow of water in a watercourse; (21)(i) – altering the bed, banks, course or characteristics of a watercourse;
The National Environmental Management: Air Quality Act 39 of 2004	It reforms the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality

	measures. As the proposed project may result in the generation of dust during the construction phase and noise disturbances and offensive odors during the operational phase, this Act sets out the measures in respect of dust, noise and offensive odors.
National Environmental Management: Waste Management Act (No. 59 of 2008)	The purpose of this act is to reform the law regulating waste management in order to protect health in the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development. To provide the institutional arrangement and planning matters, to provide for national norms and standard for regulating the management of waste management activities, to provide for the remediation of contaminated land and to provide for the national waste management system and to provide for compliance and enforcement.
National Heritage Resources Act (No. 25 of 1999)	Preservation and protection of heritage resources and artefacts.
The National Environmental Management: Biodiversity Act, 2004 (Act No 10 of 2004)	To provide for the management and conservation of South Africa's biodiversity within framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters concerned therewith.
Occupational Health and Safety Act (No 85 of 1993)	Primarily aimed at ensuring the health and safety of persons at work and visitors. Specifies the basic systems that need to be in place and measures that need to be taken.

### 3. ALTERNATIVE

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

Provide a description of the alternatives considered;

No.	Alternative type, either alternative: site on property, properties, activity, design, technology, energy, operational or other (provide details of "other")	Description
1	Proposal	<p>Gauteng Department of Roads and Transport proposes to undertake the upgrade of Road K170/ N1-19 Interchange and K170 between K176 and K45 (P73-1/Golden Highway). The upgrade of the road will include the construction of a dual carriageway which follows a north-westerly route from Sebokeng (Westside Park area) in the east toward Westonaria. The section of K170 extends from 800m west of the intersection between existing roads 1017 (K176) and 1358 (K170) to approximately 200m after intersection with P73-1 (K45) (please refer to Appendix A1- Layout Plan and Appendix A2- Locality Map). The road upgrade will also include the upgrade of existing bridges and construction of new bridges along the Rietspruit River. The project study area has 2 existing bridges i.e. (21.1 m long x 2.5 high bridge (5 spans), 99.4m long x 5.6 high bridge (4 span crossing N1). The bridges to be upgraded and constructed are as follows:</p> <p>Bridge 1: 26°34'45.22"S 27°47'33.83"E (refurbishment of existing bridge)</p> <p>Bridge 2: 26°34'48.47"S 27°47'45.04"E (refurbishment of existing bridge)</p>

		Bridge 3: 26°34'46.55"S 27°47'38.32"E (new bridge) Bridge 4: 26°34'50.31"S 27°47'47.92"E (new bridge)
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In the event that no alternative(s) has/have been provided, a motivation must be included in the table below.

No alternatives have been proposed as the proposed upgrade of the existing bridges will occur at the existing footprint of the existing bridges. The construction of the new bridges will occur within the specified areas due to the engineering designs of the road therefore no alternatives have been assessed.

#### 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:

	<b>Size of the activity:</b>
Proposed activity ( <b><i>Total environmental (landscaping, parking, etc.) and the building footprint</i></b> )	<div style="border: 1px solid black; padding: 5px; width: 150px;">4000m<sup>2</sup></div>
<b>Alternatives:</b>	
Alternative 1 (if any)	<div style="border: 1px solid black; height: 20px; width: 150px;"></div>
Alternative 2 (if any)	<div style="border: 1px solid black; height: 20px; width: 150px;"></div>
	Ha/ m <sup>2</sup>

or, for linear activities:

	<b>Length of the activity:</b>
Proposed activity	<div style="border: 1px solid black; padding: 5px; width: 150px;">N/A</div>
<b>Alternatives:</b>	
Alternative 1 (if any)	<div style="border: 1px solid black; height: 20px; width: 150px;"></div>
Alternative 2 (if any)	<div style="border: 1px solid black; height: 20px; width: 150px;"></div>
	m/km

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

	<b>Size of the site/servitude:</b>
Proposed activity	<div style="border: 1px solid black; padding: 5px; width: 150px;">43000m<sup>2</sup></div>
<b>Alternatives:</b>	
Alternative 1 (if any)	<div style="border: 1px solid black; height: 20px; width: 150px;"></div>

Alternative 2 (if any)

[Redacted] Ha/m<sup>2</sup>

**5. SITE ACCESS**

**Proposal**

Does ready access to the site exist, or is access directly from an existing road?

YES [Redacted]  
[Redacted]

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

Describe the type of access road planned:

The K170 currently is a single carriageway facility with a 70 kph speed limit. There are several informal access points to the informal dwellings that exist between the N1 and the Golden Highway.

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?

[Redacted]

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

Describe the type of access road planned:

[Redacted]

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?

[Redacted]

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

Describe the type of access road planned:

[Redacted]

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).

**PLEASE NOTE: Points 6 to 8 of Section A must be duplicated where relevant for alternatives**

Section A 6-8 has been duplicated [NOT APPLICABLE] Number of times

(only complete when applicable)

**6. LAYOUT OR ROUTE PLAN**

A detailed site or route has been included as **Appendix A** 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);
- 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 following should serve as a guide for scale issues on the layout plan:
  - 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 kilometers, 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 have been attached under **Appendix B**. 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.

N/A
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## 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

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

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 proposed project is situated on Farm Rietspruit 535 IQ portions 6 and 26 in Sebokeng area under Emfuleni Local Municipality, within the jurisdiction of Sedibeng District Municipality, Gauteng Province.

The proposed road upgrade occurs in a conventional rural dual carriageway road which follows a north-westerly route from Sebokeng in the east toward Westonaria. The section of K170 extends from 800m west of the intersection between existing roads 1017 (K176) and 1358 (K170) to approximately 200m after intersection with P73-1 (K45). K170 has two existing bridges i.e. (21.1 m long x 2.5 high bridge (5 spans) and 99.4m long x 5.6 high bridge (4 span crossing N1). The bridges to be upgraded and constructed are as follows:

Bridge 1: 26°34'45.22"S 27°47'33.83"E (refurbishment of existing bridge)

Bridge 2: 26°34'48.47"S 27°47'45.04"E (refurbishment of existing bridge)

Bridge 3: 26°34'46.55"S 27°47'38.32"E (new bridge)

Bridge 4: 26°34'50.31"S 27°47'47.92"E (new bridge)

## 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.

### Proposal :

Bridge 1:

### Latitude (S):

26°34'45.22"S

### Longitude (E):

27°47'33.83"E

Bridge 2:

26°34'48.47"S

27°47'45.04"E

Bridge 3:

26°34'46.55"S

27°47'38.32"E

Bridge 4:

26°34'50.31"S

27°47'47.92"E

### In the case of linear activities:

#### Alternative:

#### Latitude (S):

#### Longitude (E):

- 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

Addendum of route alternatives attached

The 21-digit Surveyor General code of each cadastral land parcel

PROPOSAL	T	O	1	Q	0	0	0	0	0	0	0	0	0	5	3	5	0	0	0	2	6
	T	O	1	Q	0	0	0	0	0	0	0	0	0	5	3	5	0	0	0	0	6

### 3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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### 4. LOCATION IN LANDSCAPE

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

	Plain	
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### 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)
- Dolomite, sinkhole or doline areas

YES	
	NO

- Seasonally wet soils (often close to water bodies)
- Unstable rocky slopes or steep slopes with loose soil
- Dispersive soils (soils that dissolve in water)
- Soils with high clay content (clay fraction more than 40%)
- Any other unstable soil or geological feature
- An area sensitive to erosion

YES	
	NO
	NO
	NO
	NO
	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)

	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):**

**Longitude (E):**

--

c) Are any caves located within a 300m radius of the site(s)

	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):**

**Longitude (E):**

--

d) Are any sinkholes located within a 300m radius of the site(s)

	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):**

**Longitude (E):**

--

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)?

	NO
--	----

**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

Natural veld - good condition % = 35	Natural veld with scattered aliens % =40		
		Paved surface (hard landscaping) % = 10	Bare soil % = 15

**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?

	NO
--	----

If YES, specify and explain:

Not Applicable

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.

	NO
--	----

If YES, specify and explain:

Not Applicable

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

YES	
-----	--

If YES, specify and explain:

The proposed refurbishment and construction of bridges will be undertaken along the Rietspruit River.

Was a specialist consulted to assist with completing this section

	NO
--	----

If yes complete specialist details

Name of the specialist:			
Qualification(s) of the specialist:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	
Are any further specialist studies recommended by the specialist?			NO
If YES, specify:			
If YES, is such a report(s) attached?			NO
If YES list, the specialist reports attached below			

Signature of specialist: \_\_\_\_\_ Date: \_\_\_\_\_

**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

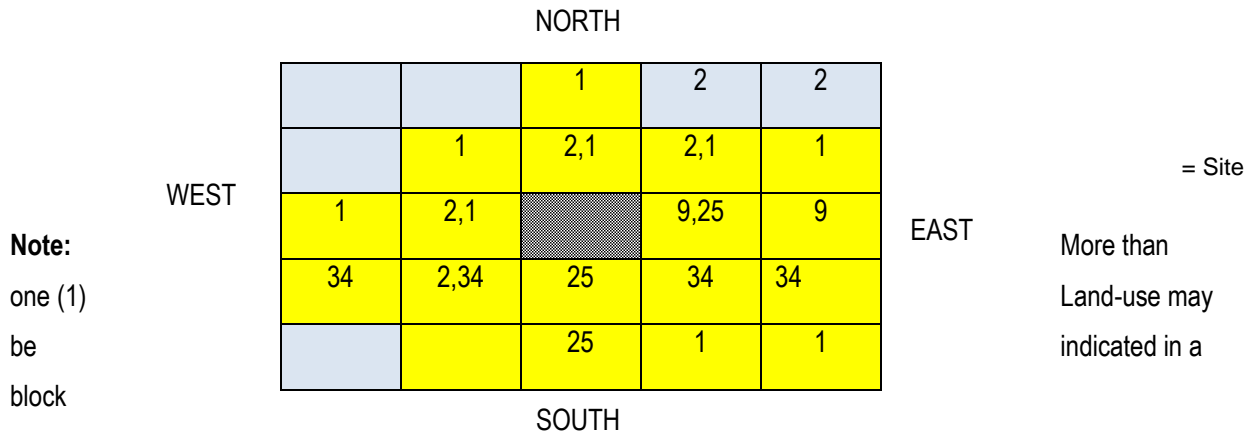
## 8. LAND USE CHARACTER OF SURROUNDING AREA

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

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial

16. Heavy industrial	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport	23. Train station or shunting yard	24. Railway line	25. Major road (4 lanes or more)
26. Sewage treatment plant	27. Landfill or waste treatment site	28. Historical building	29. Graveyard	30. Archaeological site
31. Open cast mine	32. Underground mine	33. Spoil heap or slimes dam	34. Small Holdings	
Other land uses (describe):				

**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**



**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  
If yes indicate the type of reports below

YES	
-----	--

Traffic Impact Study
----------------------

## 9. SOCIO-ECONOMIC CONTEXT

The Sebokeng and Umfuleni Spatial Development Frameworks (SDF's) reflect that there is a considerable amount of affordable housing to be developed in the study area, especially the Boitumelo, Johandeo and Golden Garden suburbs, where a total of approximately 5,000 homes will be built by 2026. These SDF's are also compatible with the Gauteng 25 Integrated Transport Masterplan which envisages a new Vaal Logistics Freight Hub to be constructed in the area in the south west corner of the K170 / N1 Freeway intersection. The master plan suggests that the freight hub should cater for 0.5 million TEU's per annum by the year 2026. The heavy industries in Vereeniging, Sasolburg and Vanderbijl Park results in many heavy vehicles on the road network, including in the peak periods. In addition, the high number of residents in the study area with low car ownership also results in a high proportion of taxis making up the traffic mix. The existing Randfontein Road interchange has sufficient capacity to absorb the current and near future traffic demand, however, when the traffic associated with the Vaal Logistics, the anticipated new housing development and the anticipated heavy vehicle and car traffic volume are considered the demand for the K170 interchange increases substantially, and justifies the need for the road upgrade.

The road upgrade project therefore takes into account present and future uses of the transportation system to ensure the delivery of a safe and efficient transport network system. The proposed project will also benefit the residents of West Side Park area and the surrounding environs of Sebokeng through the creation of short term employment opportunities, skills transfers and economic development for local businesses.

## 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 categorized 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 m<sup>2</sup> 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;

authority;

(d) the re-zoning of a site exceeding 10 000 m<sup>2</sup> 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?

	NO
--	----

If YES, explain:

[Redacted]

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:

N/A

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

YES	
YES	

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

**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.

1(a) Fix a site notice at a conspicuous place, on the boundary of a property where it is intended to undertake the activity which states that an application will be submitted to the competent authority in terms of these regulations and which provides information on the proposed nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations on the application may be made:

The Public Participation Process has been undertaken in accordance with the EIA Regulations of 2014 and all appendices have been included as Appendix E of this Draft BAR.

1 (b) Inform landowners and occupiers of adjacent land of the applicant's intention to submit an application to the competent authority.

1 (c) Inform landowners and occupiers of land within 100 metres of the boundary of the property where it is proposed to undertake the activity and whom may be directly affected by the proposed activity of the applicant's intention to submit an application to the competent authority. (Refer to Appendix E4)

1 (d) Inform the ward councillor and any organisation that represents the community in the area of the applicant's intention to submit an application to the competent authority.

1(e) Inform the Municipality which has jurisdiction over the area in which the proposed activity will undertake of the applicant's intention to submit an application to the competent authority.

1(f) Inform any organ of state that may have jurisdiction over any aspect of the activity of the applicant's intention to submit an application to the competent authority.

1(g) Place an advertisement in one local newspaper and any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of these regulations.

## 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?

YES	
-----	--

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

	NO
--	----

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

N/A
-----

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

All comments received will be included in the Final BAR.
--

### 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?

	NO
--	----

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

Communication to and from stakeholders has been included as Appendix E4.
--

If "NO" briefly explain why no comments have been received

No comments have been received as yet, however any comments received will be included in the Final Basic Assessment Report.
---

### 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 rate payers 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 Authorization 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

Appendix 2 – Written notices issued as required in terms of the regulations

Appendix 3 – Proof of newspaper advertisements

Appendix 4 – Communications to and from interested and affected parties

Appendix 5 – Minutes of any public and/or stakeholder meetings

Appendix 6 - Comments and Responses Report

Appendix 7 –Comments from I&APs on Basic Assessment (BA) Report

Appendix 8 –Comments from I&APs on amendments to the BA Report

Appendix 9 – Copy of the register of I&APs

## 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.

"insert alternative number"

(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	<input checked="" type="checkbox"/>
-----	-------------------------------------

If yes, what estimated quantity will be produced per month?

Not known at this stage.
--------------------------

How will the construction solid waste be disposed of (describe)?

All solid waste will be collected at a central location and will be stored temporarily on site in weather proof and vermin proof bins until it is disposed of at a registered landfill site.

Where will the construction solid waste be disposed of (describe)?

All solid waste resulting from construction activities will be disposed at a registered landfill site.

Will the activity produce solid waste during its operational phase?

<input checked="" type="checkbox"/>	NO
-------------------------------------	----

If yes, what estimated quantity will be produced per month?

N/A
-----

How will the solid waste be disposed of (describe)?

Solid waste will be 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?

<input checked="" type="checkbox"/>	NO
-------------------------------------	----

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

Solid waste will be disposed of at a registered landfill site.

**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?

<input checked="" type="checkbox"/>	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?

<input checked="" type="checkbox"/>	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:

It is proposed that all waste construction materials be sorted into recyclable and non-recyclable materials at source. The recyclable materials should be re-used wherever possible or collected off site by an appointed contractor.

**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?

	NO
--	----

If yes, what estimated quantity will be produced per month?

N/A
-----

If yes, has the municipality confirmed that sufficient capacity exists for treating / disposing of the liquid effluent to be generated by this activity(ies)?

	NO
--	----

Will the activity produce any effluent that will be treated and/or disposed of on-site?

	NO
--	----

If yes, what estimated quantity will be produced per month?

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

NOT APPLICABLE

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?

	NO
--	----

If yes, provide the particulars of the facility:

Facility name:

Contact person:

Postal address:

Postal code:

Telephone:

E-mail:

--

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

There is no waste water anticipated to be generated by the proposed development.

### Liquid effluent (domestic sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?

<input type="checkbox"/>	<input type="checkbox"/>	NO
--------------------------	--------------------------	----

If yes, what estimated quantity will be produced per month?

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity (ies)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	NO

Will the activity produce any effluent that will be treated and/or disposed of on-site?

<input type="checkbox"/>	<input type="checkbox"/>	NO
--------------------------	--------------------------	----

If yes describe how it will be treated and disposed of.

--

### Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

<input type="checkbox"/>	<input type="checkbox"/>	NO
--------------------------	--------------------------	----

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:

The proposed development will not generate any emissions.

## 2. WATER USE

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

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Municipal	Directly from water board	groundwater	river, stream, dam or lake	other	the activity will not use water

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: \_\_\_\_\_

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?

YES	<input type="checkbox"/>
-----	--------------------------

If yes, list the permits required

Water Use Licence is required.

If yes, have you applied for the water use permit(s)?

YES	<input type="checkbox"/>
-----	--------------------------

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

	NO
--	----

### 3. POWER SUPPLY

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

Power supply where required will be sourced from the Municipality and/or generators

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

Not Applicable

### 4. ENERGY EFFICIENCY

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

The proposed development will generally not require energy however it is recommended that where applicable generators be used.

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

Where possible generators will be used to minimize usage of electricity.

## 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.

The community has generally welcomed the project (refer to Appendix E5- Minutes of the meeting).

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):

The Comments and Response Report will be attached with the Final BAR.

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

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

### Impact Prediction

The impact assessment stage comprises a number of steps that collectively assess the manner in which the proposed activity will interact with elements of the physical, biological, cultural or human environment to produce impacts to resources/receptors. Tshikovha Environmental and Communication Consulting have developed a clearly defined impact assessment methodology that is used by our offices. This methodology is aligned with the requirements of NEMA and the EIA Regulations, has been employed on many EIAs in South Africa, and has been accepted by the national and provincial authorities. It is our belief that the impact assessment methodology is sound and adequate to assess the potential impacts and opportunities associated with the proposed road upgrade. The methodology used to assess the potential impacts is outlined below.

**Construction Phase:** All the construction activities on site until the contractor leaves the site

**Operational Phase:** All activities, including the operation and maintenance of the proposed development.

1. Site Visit – Site investigations were carried out in order to understand the site setting and the biophysical and social context of the site and identify sensitive receptors on and around the site.

2. Impact/ Opportunity Identification –

Potential impacts and benefits/ opportunities associated with the proposed construction activity were identified during site investigations and based on previous experience.

3. Impact Assessment - The impact assessment methodology as outlined below was used to assess the significance of the potential impacts identified.

4. Identification of Mitigation Measures – Measures will be taken to avoid or minimize any potential adverse effects on the biophysical and social environment and to enhance potential opportunities that have been identified. These mitigation measures have been included in the Environmental Management Programme (EMPr) attached as Appendix H.

Factors that should be taken into account in impact prediction include:

**Nature:** A brief written statement of the environmental aspect being impacted upon by a particular action or activity;

**Extent:** The area over which the impact will be expressed;

**Duration:** Indicates what the lifetime of the impact will be;

**Intensity:** Describes whether an impact is destructive or benign;

**Probability:** Describes the likelihood of an impact actually occurring;

CRITERIA	DESCRIPTION			
<b>EXTENT</b>	<b>National (4)</b>  The whole of South Africa	<b>Regional (3)</b>  Provincial and parts of neighbouring provinces	<b>Local (2)</b>  Within a radius of 2 km of the construction site	<b>Site (1)</b>  Within the construction site
<b>DURATION</b>	<b>Permanent (4)</b>  Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient	<b>Long-term (3)</b>  The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory	<b>Medium-term (2)</b>  The impact will last for the period of the construction phase, where after it will be entirely negated	<b>Short-term (1)</b>  The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase

<b>INTENSITY</b>	<b>Very High (4)</b> Natural, cultural and social functions and processes are altered to extent that they permanently cease.	<b>High (3)</b> Natural, cultural and social functions and processes are altered to extent that they temporarily cease.	<b>Moderate (2)</b> Affected environment is altered, but natural, cultural and social functions and processes continue in a modified way.	<b>Low (1)</b> Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected.
	<b>PROBABILITY OF OCCURANCE</b>	<b>Definite (4)</b> Impact will certainly occur.	<b>Highly Probable (3)</b> Most likely that the impact will occur.	<b>Possible (2)</b> The impact may occur.

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

$$SIGNIFICANCE = EXTENT + DURATION + INTENSITY \times PROBABILITY (S = E + D + I * P)$$

Table 1 Significance ratings of impacts

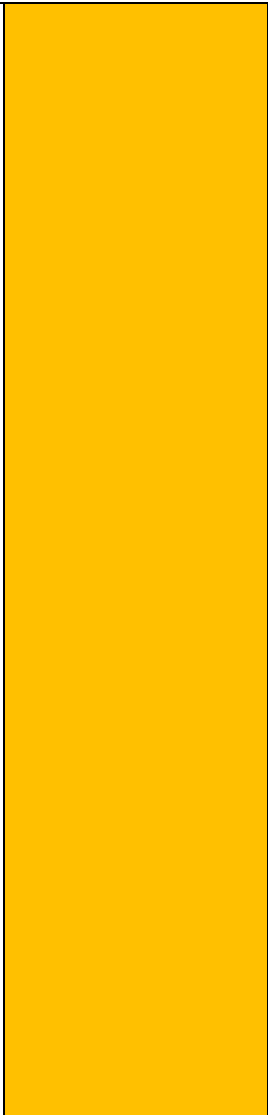
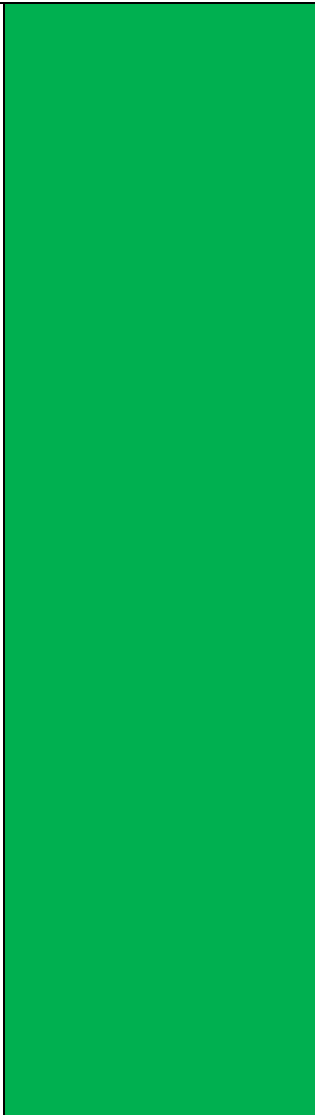
<b>Low Impact (3-10 points)</b>	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
<b>Medium Impact (11-20)</b>	Mitigation is possible with additional design and construction inputs.

<b>High Impact</b> (21-30)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
<b>Very High Impact</b> (31-48 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a “very high impact” is likely to be a fatal flaw.
<b>Status</b>	Denotes the perceived effect of the impact on the affected area.
<b>Positive (+)</b>	Beneficial Impact.
<b>Negative (-)</b>	Deleterious or adverse Impact.
<b>Neutral (/)</b>	Impact is neither beneficial nor adverse.

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.

## Proposal

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation measures:	Significance rating of impacts after mitigation:	Risk of the impact after mitigation being implemented:
<b>CONSTRUCTION PHASE</b>				
<p><b>Geology and Soils</b></p> <ul style="list-style-type: none"> <li>• Potential for soil erosion, degradation and loss of topsoil due to construction activities as well as storm water runoff</li> <li>• Destabilization of surface geology and soils structure as a result of excavations and borrow pit activities.</li> <li>• Potential soil contamination of fuel from construction vehicles.</li> </ul>	-10	<ul style="list-style-type: none"> <li>• Erosion control measures must be implemented.</li> </ul>	-5	<ul style="list-style-type: none"> <li>• Low risk</li> </ul>
<p><b>Surface and ground water</b></p> <ul style="list-style-type: none"> <li>• Sedimentation of the river</li> <li>• Contamination of surface and groundwater due to spillage,</li> </ul>	-12	<ul style="list-style-type: none"> <li>• A buffer zone of 32m from the watercourse must be maintained and this will be</li> </ul>	-6	<ul style="list-style-type: none"> <li>• Low risk</li> </ul>

<p>leakage, incorrect storage and handling of chemicals, oils, lubricants, cement, fuel and other hazardous materials</p>		<p>designated as a “no-go” area for any other activities besides the actual construction of the bridge. No machinery or any other equipment will be allowed in this area outside of the operational period.</p> <ul style="list-style-type: none"> <li>• The amount of heavy machinery and equipment needed to work within the river course should be restricted. Only the equipment that is absolutely necessary should be allowed in the river course. Strict controls and environmental education should be employed for all the construction workers that are working within the water course. Construction</li> </ul>		
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		<p>should preferably take place during the dry season.</p> <ul style="list-style-type: none"><li>• Site disturbances must be limited to areas where structures will be constructed.</li><li>• Dip trays must be placed under vehicles awaiting maintenance</li><li>• Cleared areas to be effectively stabilized to prevent and control erosion. Excess rocks and boulders can be used for erosion protection work on site.</li><li>• All hazardous substances must be stored on an impervious surface in a designated bunded area (at the camp site) able to contain 100% of the total volume of materials stored.</li></ul>		
--	--	--	--	--

		<ul style="list-style-type: none"> <li>• All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. No repairs may be undertaken beyond the contractor laydown areas.</li> <li>• Uncontaminated storm water runoff should be directed around the contained storm water system and released to the local natural drainage system</li> </ul>		
<p><b>Flora and Fauna – Destruction/ disturbance of riparian flora and fauna</b></p> <ul style="list-style-type: none"> <li>• Fragmentation/ Loss of species diversity and habitat.</li> <li>• Spread of alien and invasive species.</li> </ul>	-15	<ul style="list-style-type: none"> <li>• In all areas where the contractor intends to, or is required to clear the natural vegetation and soil, a plan of action shall first be submitted to the engineer for his approval.</li> </ul>	-10	Low risk



		<ul style="list-style-type: none"><li>• The plan shall contain a photographic record and change /land reference of the areas to be disturbed. This shall be submitted to the engineer for his records before any disturbance/stockpiling may occur. The record shall be comprehensive and clear, allowing for easy identification during subsequent inspections.</li><li>• A search and rescue for any protected and/or red data species should be undertaken by a suitably qualified ECO before the commencement of the construction phase. Should any endemic, protected and/or red data species be encountered prior to or</li></ul>		
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		<p>during the construction phase of the proposed development, these should be relocated to adjacent natural areas within the vicinity of the site.</p> <ul style="list-style-type: none"><li>• The contractor must ensure that no faunal species are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.</li><li>• The Contractor shall be responsible for the re-establishment of grass or re-vegetation all areas disturbed during road construction. This</li></ul>		
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		<p>responsibility shall extend until expiry of the defects notification period.</p> <ul style="list-style-type: none"><li>• Vegetation clearing of natural vegetation should be kept to a minimum and restricted to the proposed development footprint only.</li><li>• No vehicles or plant should be parked within the river course when not actively working on the construction. Limit the construction footprint to an area that is no larger than what is required to complete the construction.</li><li>• Where possible, the vegetation must be cut to ground level, rather than removing completely, leaving root systems in tact to encourage rapid re-</li></ul>		
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		<p>colonisation. All alien plant species must be removed and should be replaced with indigenous vegetation.</p> <ul style="list-style-type: none"><li>• Areas that requires natural vegetation to be cleared should be clearly illustrated, demarcating no go areas to avoid clearing vegetation unnecessarily.</li><li>• Dumping of builders' rubble and other waste in the areas earmarked for exclusion must be prevented, through fencing or other management measures. These areas must be properly managed throughout the lifespan of the project in terms of fire, eradication of exotics etc. to ensure continuous biodiversity.</li></ul>		
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<p><b>Noise and dust generation</b></p> <ul style="list-style-type: none"> <li>• Potential for generation of dust due to movement of construction vehicles</li> <li>• Potential for increased noise levels during construction working hours</li> </ul>	-10	<ul style="list-style-type: none"> <li>• All adjacent landowners should be notified about the project prior to commencement of construction and adequate signage should be put in place to inform residents and motorists about the commencement of construction work.</li> <li>• Construction activities must be restricted to working hours of 08:00hrs and 17:00hrs on weekdays, 08:00hrs and 13:00hrs on Saturdays with operations being prohibited on Sundays and Public Holidays.</li> </ul>	-5	Low risk
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		<ul style="list-style-type: none"> <li>• All construction vehicles must adhere to site speed limits.</li> <li>• Exposed soils must be made wet to lessen the soil blown by wind</li> <li>• Stockpiles must be covered more so especially during very windy conditions.</li> <li>• All vehicles transporting materials that can be blown away (e.g. soil and rubble) must be covered by tarpaulin and speed limits of 20km/h should be adhered to.</li> <li>• All onsite equipment must be kept in good working order.</li> </ul>		
<b>Traffic and access</b>  Traffic disruptions due to creation of alternative routes during the construction phase.	-12	<ul style="list-style-type: none"> <li>• Adjacent residents and land owners must be notified of the commencement of the</li> </ul>	-6	<ul style="list-style-type: none"> <li>• Medium- Low risk</li> </ul>

		<p>construction activities at least 6 weeks before the actual start of activities.</p> <ul style="list-style-type: none"><li>• The contractor must ensure that measure are in place to direct both vehicles and pedestrians from the sectioned off construction zone. This may entail detouring and construction warning signs at all points of access of the informal road that leads to the sites of the proposed bridges.</li><li>• Adequate signage should be erected indicating construction works during the construction phase.</li><li>• Adequate flagmen to be employed to assist in directing traffic especially during peak hours.</li></ul> <p>Adequate barriers and</p>		
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		demarcation tapes/material to be placed in and around bridge construction areas especially for excavated areas.		
<b>Health and Safety</b> Potential for accidents and injuries to workers.	-10	<ul style="list-style-type: none"> <li>All employees should be given adequate Personal Protective Equipment (PPE) including dust masks</li> <li>Environmental and safety awareness trainings to be held frequently with workers.</li> </ul>	-6	<ul style="list-style-type: none"> <li>Low risk</li> </ul>
<b>Waste Management</b> Waste generated during the construction phase including general waste, hazardous waste, solid waste and liquid waste.	-15	<ul style="list-style-type: none"> <li>Good housekeeping must be practiced at all times to ensure that the construction site is kept neat and tidy.</li> <li>An adequate number of bins should be placed around the site to control waste.</li> <li>All waste generated on site will be collected and</li> </ul>	-6	Low risk



		<p>transported to the nearest registered landfill site.</p> <ul style="list-style-type: none"> <li>Waste will be sorted at site so as to sort the recyclable and non-recyclable waste.</li> </ul>		
<p>Socio-economic Job creation</p>	+5	<ul style="list-style-type: none"> <li>The creation of temporary jobs should be considered in as far as possible and where possible unemployed locals and youth should be given preference for opportunities for employment. Local businesses should also be considered for the supply of services and goods in as far as possible.</li> </ul>	+15	<ul style="list-style-type: none"> <li>Medium –low risk</li> </ul>

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact after mitigation being implemented
<b>OPERATIONAL PHASE</b>				
<p><b>Flora and fauna</b></p> <ul style="list-style-type: none"> <li>• Destruction of natural and riparian vegetation</li> <li>• Migration of fauna</li> <li>• Proliferation of alien invasive species</li> </ul>	-8	<ul style="list-style-type: none"> <li>• Vegetation clearing of natural and riparian should be kept to a minimum.</li> <li>• The contractor shall be responsible for re-vegetation of all the disturbed areas before commencement of the operational phase.</li> <li>• Vegetation endemic to the area should be transplanted and used for the rehabilitation purposes. A rehabilitation plan should be drawn up before the commencement of the operational phase and such plan should be strictly adhered</li> </ul>	-5	Low risk

		<p>to. Continual monitoring should be undertaken to ensure that rehabilitation occurs of the disturbed areas is progressive.</p> <ul style="list-style-type: none"> <li>• All alien invasive species and declared weeds in terms of the Conservation of Agricultural Resources Act (Act 43 of 1983), are to be systematically removed (manually) until the end of the contractor's contractual liability period.</li> </ul>		
<p><b>Surface water flow</b> Increased sedimentation of the Rietspruit River</p>	-8	<ul style="list-style-type: none"> <li>• Dumping of construction rubble and other waste in and around the watercourse is strictly prohibited. Continual monitoring must be undertaken by the proponent to ensure that the river is not inundated with any post construction waste and material.</li> </ul>	-6	<ul style="list-style-type: none"> <li>• Low risk</li> </ul>

<p><b>Traffic Impacts:</b></p> <ul style="list-style-type: none"> <li>Increase in traffic flow and potential or traffic congestion</li> </ul>	-11	<ul style="list-style-type: none"> <li>There are no geometric design fatal flaws associated with the K170 upgrade.</li> <li>An analysis of the current traffic flows and patterns shows that there are no significant hurdles to be overcome with the current proposed K170 upgrades and interchange layouts, however adequate signage and traffic control measures such as traffic lights should be in place to ensure safety.</li> </ul>	-7	<ul style="list-style-type: none"> <li>Low risk</li> </ul>
<ul style="list-style-type: none"> <li><b>Socio-Economic Impacts:</b> The project will result in the creation of employment opportunities therefore the impacts are deemed positive.</li> </ul>	+4	<ul style="list-style-type: none"> <li>Where feasible and practical locals and local service providers should be given preference for employment and business opportunities.</li> </ul>	+8	<ul style="list-style-type: none"> <li>Low risk</li> </ul>

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

Traffic Impact Study (included as Appendix G1)

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

- The EAP does not accept any responsibility in the event that additional information comes to light at a later stage of the process.
- All information provided by the EAP was correct and valid at the time it was provided.
- All data from unpublished research is valid and accurate.
- The scope of this investigation is limited to assessing the potential environmental impacts associated with the proposed development

**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.

**Proposal**

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact after mitigation being implemented
<ul style="list-style-type: none"> <li>Visual and aesthetic impacts</li> </ul>	-14	<ul style="list-style-type: none"> <li>Visual screening / fencing of works</li> <li>Proper location of equipment and machinery on site</li> <li>No stockpiling of demolition wastes along roads</li> </ul>	-6	Demolishing waste stockpiled next to the road <ul style="list-style-type: none"> <li>Low risk</li> </ul>
<ul style="list-style-type: none"> <li>Loss of top soil during demolishing activities</li> <li>Disturbance of the soil structure and of land uses potential due to the location site and associated infrastructure.</li> </ul>	-12	<ul style="list-style-type: none"> <li>Ensure proper drainage on the demolishing site to prevent water run-offs, standing water and soil erosion</li> </ul>	-8	<ul style="list-style-type: none"> <li>Low risk</li> </ul>

Noise nuisance and vibrations	-10	<ul style="list-style-type: none"> <li>• Noise mitigation measures should be provided to reduce the noise impacts to the surrounding</li> <li>• The mitigation measures should include the adoption of good site practice, use of quieter plant, use of movable noise enclosure or barriers and use of noise insulating fabric.</li> <li>• Demolishing and other noise generating activities should be restricted to working hours of 08:00hrs and 17:00hrs on weekdays, 08:00hrs and 13:00hrs on Saturdays with operations being prohibited on Sundays and Public Holidays.</li> <li>• All noise-making equipment shall be turned off when not in use.</li> <li>• Nearby residents must be notified about demolishing activities.</li> <li>• All demolishing vehicles and equipment are to be kept in good repair and must be fitted with standard silencers prior to demolishing.</li> </ul>	-5	<ul style="list-style-type: none"> <li>• Low risk</li> </ul>
Contamination of surface water	-8	<ul style="list-style-type: none"> <li>• Adverse water quality impacts from the demolishing activities have to be prevented</li> </ul>	-3	<ul style="list-style-type: none"> <li>• Low risk</li> </ul>

<ul style="list-style-type: none"> <li>• Surface water pollution from spills or leaks of fuel, oil and demolishing materials</li> </ul>		<p>by implementation of good site practice and appropriate mitigation measures.</p> <ul style="list-style-type: none"> <li>• Good site practice should be implemented in accordance with the Practice Note for Professional Persons on Construction Site Drainage.</li> </ul>		
<ul style="list-style-type: none"> <li>• Dust generation due to demolition activities</li> </ul>	-9	<ul style="list-style-type: none"> <li>• Stockpiling site(s) should be lined with impermeable sheeting and bundled</li> <li>• Stockpiles should be fully covered by impermeable sheeting to reduce dust and other air pollutants emission.</li> <li>• Misting for the dusty material should be carried out before being loaded into the vehicle.</li> <li>• Any vehicle with an open load carrying area should have properly fitted side and tail boards.</li> </ul>	-3	<ul style="list-style-type: none"> <li>• Low risk</li> </ul>
<ul style="list-style-type: none"> <li>• Generation of demolition wastes.</li> </ul>	-8	<ul style="list-style-type: none"> <li>• Hazardous waste should be disposed separately from general waste.</li> </ul>	-5	<ul style="list-style-type: none"> <li>• Low risk</li> </ul>



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|  |  | <ul style="list-style-type: none"><li>• All demolishing waste must be stored and disposed of at a registered waste disposal site</li><li>• The demolishing materials generated should be collected, sorted, reused/ recycled or disposed of properly.</li></ul> |  |  |
|--|--|---|--|--|

#### 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:

Should the proposed development be approved, anticipated cumulative impacts will include the following:

- Increased potential for increased traffic flow – this impact is deemed to be low after implementation of mitigation measures as recommended in the Traffic Impact Study Report.
- Increased potential for fragmentation of riparian vegetation and migration of fauna - this impact is deemed to be medium to low if mitigation measures outlined are adhered to.
- Positive socio economic opportunities for residents through the creation of a more efficient transport network, inclusive of future developments associated with the proposed Vaal Logistics Freight Hub and housing developments such as especially the Boitumelo, Johandeo and Golden Garden suburbs
- Positive economic opportunities and spin offs for locals and local business owners - this impact is deemed to be medium to low due to the nature of the development.

Subsequently, the above mentioned cumulative impacts can be mitigated if activities are correctly planned and measures are implemented to manage activities which could cause any negative cumulative impacts.

#### 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**

The proposed road upgrade project and associated infrastructure will have medium-low impact on the environment. Environmental impacts would be largely limited to the construction phase of the project, and will therefore be of a temporary nature. The Rietspruit River is classified as Class D: Largely modified and non-perennial river, therefore it is anticipated that if most of the activities are undertaken within the dry season the impacts will be minimal. Most of the study area has already been largely transformed by cultivation (agricultural holdings to the north west and south west of the study area), urban sprawl and infrastructure such as residential areas i.e. West Side Park area and roads i.e. existing K170 Road.

Impacts caused as a result of the construction phase of the proposed road upgrade and associated infrastructure can be minimized to an acceptable level, provided that the mitigation and rehabilitation measures included in this BAR and the EMP are strictly adhered to.

### No-go (compulsory)

The primary objective of Sedibeng District Municipality through its developmental program Batho Pele is to advance service orientation and delivery so as to enhance the areas within its District Municipality as well as to accelerate growth and generate employment opportunities.

The No-Go alternative would result in the Road K170 / N1-19 Interchange and K170 between Road K176 and K45 (P73-1/Golden Highway) being left in its current dilapidated state. This would therefore mean that the current road users and future road users, inclusive of the potential traffic increase anticipated through future developments associated with the proposed Vaal Logistics Freight Hub and housing developments such as the Boitumelo, Johandeo and Golden Garden suburbs, would be exposed to potential traffic congestion and increased likelihood of occurrence of accidents. The positive socio-economic impacts in terms of short term and long term employment opportunities and business opportunities anticipated from the proposed project will also not be realised if this option is implemented.

## 6. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

For proposal:

Project phase	Activity	Identified impacts	Impact significance Before mitigation	Impact significance After mitigation
Planning phase	Construction and operation activities of the proposed project	Environmental impact	18	8
	Employment opportunities and provision of infrastructure	Socio-economic impact	+5	15
	Not complying with the legal requirements	Policy and legal Impacts	14	7
Construction phase	Vegetation clearance	Destruction/ disturbance of riparian flora and fauna	15	8

		Destruction of flora and faunal habitat	15	8
		Soil erosion, degradation and loss of topsoil	10	5
	Movement of construction vehicles, equipment and machinery	Potential for traffic congestion and accidents	12	6
		Spillages, leakages and contamination of water and soil resources	12	6
		Dust generation	10	5
	Vibrations and emissions from vehicles movements	Dust and gas emissions	7	3
	Construction activities requiring labour force	Job Creation	10	6
	Operation of machinery, vehicles and equipment	Potential for accidents and injuries	10	6
	Earthworks / excavation	Visual Impact	18	7
		Dust generation	9	6
	Dumping of construction rubble and waste in undesignated areas	-Visual impact -Proliferation of vermin and rodents resulting in negative health effects. -Sedimentation of the river and wetland areas	15	6
	Construction related activities	Creation of employment opportunities for locals and local businesses	+5	+15

Operational phase	Movement of vehicles and potential traffic congestion during the operational phase of the project	-Destruction of natural and riparian vegetation -Migration of fauna -Proliferation of alien invasive species	8	5
		Increase in traffic flow and potential or traffic congestion	11	7
	Dumping of residual construction waste	Increased sedimentation of the Rietspruit River	8	6
	Socio-economic opportunities	Creation of employment opportunities and/or business opportunities for locals.	+4	+8

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.

-The proposed project will be undertaken in areas that are not largely considered pristine as they have been largely fragmented, no red- data or threatened species were identified on site.

-The proposed site occurs in area that has already been severely affected by development therefore it is not anticipated that major impacts will be incurred during the operational phase.

-The Rietspruit River is classified as Class D: Largely modified and non- perennial river, therefore it is anticipated that if most of the activities are undertaken within the dry season the impacts will be minimal. Most of the study area has already been largely transformed by cultivation (agricultural holdings to the north west and south west of the study area), urban sprawl and infrastructure such as residential areas i.e. West Side Park area and roads i.e. existing K170 Road.

Impacts caused as a result of the construction phase of the proposed road upgrade and associated infrastructure can be minimized to an acceptable level, provided that the mitigation and rehabilitation measures included in this BAR and the EMPr are strictly adhered to. Impacts anticipated during the operational phase are anticipated to be very minimal.

[Redacted]


## 7. SPATIAL DEVELOPMENT TOOLS

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

N/A

## 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).

YES	
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If "NO", indicate the aspects that require further assessment before a decision can be made (list the aspects that require further assessment):

N/A

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:

- All construction activities should be undertaken in accordance with all applicable Municipal By- laws
- The provisions of the EMPr and any other conditions as specified by any other organs of state (where applicable) and specialist reports should be adhered to.

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

The Sebokeng and Umfuleni Spatial Development Frameworks (SDF's) reflect that there is a considerable amount of affordable housing to be developed in the study area, especially the Boitumelo, Johandeo and Golden Garden suburbs, where a total of approximately 5,000 homes will be built by 2026. These SDF's are also compatible with the Gauteng 25 Integrated Transport Masterplan which envisages a new Vaal

Logistics Freight Hub to be constructed in the area in the south west corner of the K170 / N1 Freeway intersection. The master plan suggests that the freight hub should cater for 0.5 million TEU's per annum by the year 2026. The heavy industries in Vereeniging, Sasolburg and Vanderbijl Park results in many heavy vehicles on the road network, including in the peak periods. In addition, the high number of residents in the study area with low car ownership also results in a high proportion of taxis making up the traffic mix. The existing Randfontein Road interchange has sufficient capacity to absorb the current and near future traffic demand, however, when the traffic associated with the Vaal Logistics, the anticipated new housing development and the anticipated heavy vehicle and car traffic volume are considered the demand for the K170 interchange increases substantially, and justifies the need for the road upgrade.

The road upgrade project therefore takes into account present and future uses of the transportation system to ensure the delivery of a safe and efficient transport network system. The proposed project will also benefit the residents of West Side Park area and the surrounding environs of Sebokeng through the creation of short term employment opportunities, skills transfers and economic development for local businesses.

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

Throughout the lifespan of the project, approximately ten or more years.

**11. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) (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

EMPr 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

Appendix C: Facility illustration(s)

Appendix D: Route position information

Appendix E: Public participation information

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

Appendix G: Specialist reports

Appendix H: EMPr

## **CHECKLIST**

To ensure that all information that the Department needs to be able to process this application, please check that:

- Where requested, supporting documentation has been attached;
- All relevant sections of the form have been complete.