

**South African National Roads  
Agency (SOC) Limited  
(SANRAL)**



**Final Basic Assessment Report for the  
Rehabilitation of the N11 Section 10 from  
Middelburg to Loskop Dam and the  
Kranspoort Safety Improvement,  
Mpumalanga Province**



**DEA Reference Number:**  
12/12/20/2612

**NEAS Reference Number:**  
DEA/EIA/00002612/2011

**Date:**  
November 2012

**Lidwala Project Ref:**  
11028 K-N-K

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# SOUTH AFRICAN NATIONAL ROADS AGENCY (SOC) LIMITED (SANRAL)

## Final Basic Assessment Report for the rehabilitation of the N11 Section 10 from Middelburg to Loskop Dam and the Kranspoort safety improvement, Mpumalanga Province

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**1 PROJECT DETAILS**

|                               |   |   |
|-------------------------------|---|---|
| <b>DEA Reference</b>          | : | 12/12/20/2612   |
| <b>NEAS Reference Number:</b> |   | DEA/EIA/00002612/2011   |
| <b>Title</b>                  | : | Environmental Basic Assessment Process<br>Final Basic Assessment Report: Proposed rehabilitation of the N11 Section 10 from Middelburg to Loskop Dam and the Kranspoort Safety Improvement, Mpumalanga Province |
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| <b>Sub-consultants</b>        | : | Strategic Environmental Focus (PTY) LTD<br>J van Schalkwyk – Heritage Consultant  |
| <b>Report Status</b>          | : | Final Basic Assessment Report to DEA  |
| <b>Submission date</b>        | : | 07 November 2012  |

**When used as a reference this report should be cited as:** Lidwala Consulting Engineers (SA) (Pty) Ltd (2012) Final Basic Assessment Report: Proposed rehabilitation of the N11 Section 10 from Middelburg to Loskop Dam and the Kranspoort Safety Improvement, Mpumalanga Province.

## 2 SUMMARY AND OVERVIEW OF THE PROJECT

The South African National Roads Agency (SOC) Limited is proposing to rehabilitate and repair the National Route (N11) between Middelburg and Loskop Dam with the aim of increasing the safety aspect especially in the Kranspoort area. The proposed route is approximately 50 km in length and the rehabilitation includes the repair of the road surface; replacement, widening and upgrading of culverts; an additional lane through the Kranspoort pass and the widening of five existing bridges. The proposed development falls within the Mpumalanga Province. The following is proposed for the project:

### **Road works:**

1. Widening of the existing road to include surfaced shoulders;
2. Addition of a fourth lane and safety improvements to the Kranspoort Pass, resulting in a major cut widening;
3. Provision of climbing lanes / overtaking lanes where required;
4. Upgrading of existing and installation of new storm water culverts;
5. Widening of eight (8) major in-situ culverts (culvert 1 and 5 will be extended; culvert 4 new and culvert 2,3,6,7 and 8 only headwalls, adding parapets and block panels);
6. Vertical and horizontal realignment of the road at several points along the route;
7. Widening of the existing road reserve / land acquisition will be necessary due to the widening of the Kranspoort Pass;
8. Upgrading of existing intersections and rationalization of private road accesses; and
9. Relocation of utility services affected by the upgrading of the road.

### **Bridges:**

1. Widening and rehabilitation of five (5) existing bridges. Keerom Spruit (B0210) and Kranspoort River (B1682) bridges will be major. The other three bridges (B2126, B1749 and B3611) will only require minor upgrades (widening and barriers).

The proposed development falls within the Steve Tshwete Local Municipality.

### **Environmental Basic Assessment Process**

In terms of sections 24 and 24D of the National Environmental Management Act (Act No 107 of 1998), as read with Government Notices R543 (Regulations 21–25) and R544, a Basic Assessment process is required to be undertaken for:

Activity No. 11 as per regulation R.544: The construction of a bridge where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development.

Activity No. 18 as per regulation R.544: 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 or more than 5 cubic metres from a watercourse;

Activity No. 39 as per regulation R.544: The expansion of bridges within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, where such expansion will result in an increased development footprint but excluding where such expansion will occur behind the development setback line.

Activity No. 40 as per regulation R.544: The expansion of infrastructure by more than 50 square metres within a watercourse or within 32 metres of a watercourse measured from the edge of/ a watercourse, but excluding where such expansion will occur behind the development line.

Activity No. 47 as per regulation R.544: The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre where the existing reserve is wider than 13,5 meters.

Activity No. 12 as per regulation R.546: The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004 within critical biodiversity areas identified in bioregional plans.

Activity No. 19 as per regulation R.546: The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre outside urban areas, in:

- (aa) A protected area identified in terms of NEMPAA, excluding conservancies;
- (bb) areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for a conservation purpose.

Activity No. 24 as per regulation R.546: The expansion of infrastructure where the infrastructure will be expanded by 10 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line outside urban areas, in:

- (aa) A protected area identified in terms of NEMPAA, excluding conservancies;
- (bb) National Protected Area Expansion Strategy Focus areas;
- (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;
- (dd) Sites or areas identified in terms of an International Convention ;

(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;

(ff) Core areas in biodiversity reserves;

(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;

(hh) Areas, seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined.

Inside urban areas:

(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.

SANRAL therefore requires authorisation from the **National Department of Environmental Affairs (DEA)**, the competent authority, in conjunction with the **Mpumalanga Department of Economic Development Environment and Tourism (MEDET)**. This project has been registered with DEA under Application Reference Numbers **12/12/20/2612** and **DEA/EIA/00002612/2011**. Water Use License Application is required from the **Department of Water Affairs and Forestry** and permits in terms of the removal of indigenous trees and red data plants are required from the **Department of Agriculture, Forestry and Fishers** and **SANBI**.

In this regard, SANRAL has appointed Lidwala Consulting Engineers (SA) (Pty) Ltd, as an independent assessment practitioner, to undertake an environmental assessment in the form of a Basic Assessment to identify and assess all potential environmental impacts associated with the proposed project, as well as the relevant Public Participation process affording I&APs an opportunity to participate.

|  |
|--|
| <b>3 REVIEW OF THE DRAFT BASIC ASSESSMENT REPORT</b> |
|--|

This Draft Basic Assessment Report was made available for Public Review from **06 March 2012 to 05 April 2012** at the following locations:

|                         |
|-------------------------|
| Doornkop Public Library |
|-------------------------|

|                              |
|------------------------------|
| Middelburg Community Library |
|------------------------------|



# FINAL BASIC ASSESSMENT REPORT



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

(For official use only)

**File Reference Number:**

**Application Number:**

**Date Received:**

|  |
|--|
|  |
|  |
|  |

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

### Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. 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.
3. Where applicable **tick** the boxes that are applicable in the report.
4. An incomplete report may be returned to the applicant for revision.
5. 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 rejection of the application as provided for in the regulations.
6. This report must be handed in at offices of the relevant competent authority as determined by each authority.
7. No faxed or e-mailed reports will be accepted.
8. The report must be compiled by an independent environmental assessment practitioner.
9. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

**4 SECTION A: ACTIVITY INFORMATION**

Has a specialist been consulted to assist with the completion of this section?

YES



If YES, please complete the form entitled "Details of specialist and declaration of interest" for appointment of a specialist for each specialist thus appointed:

**All specialist reports are contained in Appendix D.**

**4.1 ACTIVITY DESCRIPTION**

Describe the activity, which is being applied for, in detail<sup>1</sup>:

The project section of the National Route 11 Section 10 traverses flat to rolling terrain of very shallow cut and fills over most of its length. There are two pass sections (km 33 to km 38 and km 47 to km 50) where there are deep cuts and fills. The N11 Section 10 route is designed to be constructed to class 2 standards with a 12.4m carriageway with, but is currently geometrically constrained especially through these two pass sections. The lanes are relatively narrow (3,5m) and have narrow gravel shoulders. The proposed carriageway consists of two 3.7m lanes, a 1m surfaced shoulder and a 1.5m gravel shoulder (surfaced on bridges). Sight distances on many of the vertical / horizontal curves are limited. There is limited climbing or auxiliary lanes in the pass sections and passing or stopping in the two pass sections is very dangerous.

The road section though the Kranspoort Pass (km 33 to km 38) has a very high accident rate due to the sharp bends located at the bottom of the pass. These bends are preceded by a sustained downgrade, resulting in runaway trucks not being able to negotiate the bends. Many lives have been lost on this pass. In addition, the pass has to be closed for long periods of time when the resulting wreckage needs to be cleared.

The South African National Roads Agency (SOC) Limited [SANRAL] has therefore carefully considered the above and has identified the need to rehabilitate the N11 Section 10. The proposed Scope of Work includes the following:

**Road works:**

1. Widening of the existing road to include surfaced shoulders;
2. Addition of a fourth lane and safety improvements to the Kranspoort Pass, resulting in a major cut widening;
3. Provision of climbing lanes / overtaking lanes where required;

<sup>1</sup> Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description.

4. Upgrading of existing and installation of new storm water culverts;
5. Widening of eight (8) major in-situ culverts (culvert 1 and 5 will be extended; culvert 4 new and culvert 2,3,6,7 and 8 only headwalls, adding parapets and block panels);
6. Vertical and horizontal realignment of the road at several points along the route;
7. Widening of the existing road reserve / land acquisition will be necessary due to the widening of the Kranspoort Pass;
8. Upgrading of existing intersections and rationalization of private road accesses; and
9. Relocation of utility services affected by the upgrading of the road.

**Bridges:**

1. Widening and rehabilitation of five (5) existing bridges. Keerom Spruit (B0210) and Kranspoort River (B1682) bridges will be major. The other three bridges (B2126, B1749 and B3611) will only require minor upgrades (widening and barriers).

Currently the N11 Section 10 is a single carriageway which links the towns of Middelburg and Groblersdal. SANRAL investigated a few solutions to compensate for the road degradation and safety aspect along the entire length of the N11 from Middelburg to Loskop Dam. First a patch and reseal solution was looked aimed at 5 to 10 years, however due to the road degradation, this was not seen as a feasible solution. The short term patch and reseal solution was rejected due to its volume and cost. Thereafter a combination of a medium term solution was investigated at Middelburg and Loskop Dam and a long term solution for Kranspoort (i.e 20 to 25 years) was investigated. However after consultation with SANRAL it was decided that the long term solution will be the best suited for the entire N11 road rehabilitation from km 3.4 to km 53.4.

In terms of traffic loading the existing road has a cross section of mainly two 3.5m lanes and 1.5 m un-surfaced shoulders which equates to a road class 4. The projected traffic loading scenario would place the pavement structure for the N11 as a requirement at a ES10 category (3,0 - 10,0 million E80's) for the long term structural period of up to 20 - 25 years. The N11 Section 10 route is designed to be constructed to class 2 standards with a 12.4m carriageway with, but is currently geometrically constrained especially through these two pass sections. The proposed carriageway consists of two 3.7m lanes, a 1m surfaced shoulder and a 1.5m gravel shoulder (surfaced on bridges).

The designed pavement structure is made up of: a double seal over the surfaced roadway, gravel wearing course over the gravel shoulders; new 150mm G1 base; 200mm G5 sub-base (to be stabilised with existing base), 150 mm G7 upper selected and fill G9 lower selected or better.

Most of the culverts are in good condition however; their headwalls have either not been provided or are damaged stone pitched headwalls. These headwalls will be replaced with concrete headwalls and wing walls. The pier will be extended for culvert 1, the pipes in culvert 4 shows signs of cracks and deformation and the culvert will be replaced with a box culvert and culvert 5 will be extended downstream.

Five (5) bridges are located along the N11 Section 10 on route. Three (3) of the bridges will require minor upgrades and general enhancements in terms of guard railings, replace existing steel parapet with F - shape parapet, etc. Major upgrades are required for two (2) bridges:

**Keerom Spruit (km 6.6):** The existing bridge is 19.6 m in length with a 4 span simply supported structure. The bridge was found to be narrow and have damaged wingwalls. The bridge will be demolished and reconstructed to accommodate 12.4m carriageway with and the new gradeline will be raised to improve hydraulics and visibility over the bridge. The current bridge caters for a 1:5 year flood and failed to meet the required the class 3 standards for an existing bridge. Due to this, it needs to be upgraded to a class 2 to accommodate the Q50 or 1:50 year flood.

**Kranspoort Bridge (km 44.5):** The bridge was found to be narrow with a road width of 7.8 m. It accommodates for the Q20 or 1:20 year reoccurring flood and meets the required class 3 standards for an existing bridge. The road will therefore be increased to accommodate a 12.4m carriageway.

#### 4.2 FEASIBLE AND REASONABLE ALTERNATIVES

“**alternatives**”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

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

Describe 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 in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether 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. 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.

No locality alternatives are being considered as the existing N11 Section links Middelburg with Groblersdal. Alternatives in terms of the bridges at Keerom Spruit and Kranspoort River and the culverts at the Klipriver tributary (culvert 1 and 4) and Furrow watercourse are being considered.

##### **Keerom Spruit (B0210)**

###### **a. Alternative 1:**

**No-Go Alternative:** Entails leaving the bridge conditions the same. The existing bridge sits in a sub-standard vertical curve, thereby having an impact on sight distances at the design speed. Raising the bridge will improve: the vertical alignment, improve visibility over the bridge and improve the hydraulics of the bridge. However; should this alternative be considered none of these changes will be made and the bridge will remain substandard in both its geometric alignment as well as its hydraulic standards.

###### **b. Alternative 2:**

**Widening of the bridge (on the one side) toward east and maintaining the western**

wall. This entails shifting of the existing centre line (by approximately 5,5 m) toward the east to accommodate the required 12.4m cross section. The bridge height will remain unchanged and hence fail the class 2 hydraulic requirement.

c. Alternative 3:

Raising the bridge to meet the Class 2 hydraulics and widening of the road about the centre line (i.e on both sides) to 12.4m. This alternative entails keeping the same horizontal alignment and raising the bridge by 3.5m to meet hydraulic requirements and improve visibility over the bridge. This alternative is considered the best solution to improve the bridge. (Preferred)

*Kranspoort River (B1682):*

a. Alternative 1:

No-Go Alternative: Leave the bridge as is. No construction or disturbance to the existing infrastructure. Unnecessary passing and high accidental risks remain the same, especially drivers getting frustration from sitting behind heavy motor vehicles.

b. Alternative 2:

Widen the existing bridge to accommodate widened roadway and paved shoulders. This is especially important as this alternative will avoid unnecessary passing and driver frustration in terms of heavy motor vehicles in Kranspoort. (Preferred)

*B2136 Klip Tributary, B1749 Irrigation Canal and B3611 Olifants River*

a. Alternative 1:

No-Go Alternative: Leave the bridges as is. No construction or disturbance to the existing infrastructure. Unnecessary passing and high accidental risks remain the same, especially drivers getting frustration from sitting behind heavy motor vehicles.

b. Alternative 2:

Widen the existing bridges to accommodate widened roadway and paved shoulders. This is especially important as this alternative will avoid unnecessary passing and driver frustration in terms of heavy motor vehicles. (Preferred)

*Culverts:*

No-Go Alternative: Leave the culverts as is. No construction or disturbance to the existing infrastructure. Unnecessary passing and high accidental risks remain the same, especially drivers getting frustration from sitting behind heavy motor vehicles.

*Klipriver tributary (culvert 1):*

Extending the pier of the culvert. This extension is necessary to accommodate the N11 dual carriage which will improve the safety on the road. (Preferred)

*Klipriver tributary (culvert 4):*

Replacing the existing culvert with pipes with a new box culvert. The pipes in the existing culvert show signs of cracking and deformation and are elliptical in shape. The replacement of this culvert is necessary as it will improve the drainage and to accommodate the N11 dual carriage which will improve the safety on the road. (Preferred)

**Furrow (culvert 5):**

Extending the culvert downstream. The extension of this culvert is necessary to accommodate the N11 dual carriage which will improve the safety on the road. (Preferred)

**Culvert 2 Klip River Tributary, 3 Klip River Tributary , 6 Kranspoort Spruit Tributary ,7 Kranspoort Spruit Tributary and 8 Olifants Tributary:**

Widening these culverts (new headwalls, adding parapets and block panels). The widening of these culverts is necessary to accommodate the N11 dual carriage which will improve the safety on the road. (Preferred)

Paragraphs 3 – 13 below should be completed for each alternative.

**4.3 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 degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection. List alternative sites, if applicable.

**Alternative:**

Alternative S1<sup>2</sup> (preferred or only site alternative)

Alternative S2 (if any)

Alternative S3 (if any)

**Latitude (S):**

**Longitude (E):**

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**In the case of linear activities:**

**Alternative:**

Alternative S1 (preferred or only route alternative)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

**Latitude (S):**

**Longitude (E):**

|     |        |     |        |
|-----|--------|-----|--------|
| 25° | 44,17' | 29° | 27,77' |
| 25° | 35,21' | 29° | 27,30' |
| 25° | 25,43' | 29° | 24,42' |

Alternative S2 (if any)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Alternative S3 (if any)

- Starting point of the activity
- Middle/Additional point of the activity

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|  |  |  |  |

<sup>2</sup> "Alternative S.." refer to site alternatives.

## FINAL BASIC ASSESSMENT REPORT

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- End point of the activity



For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

**4.4 PHYSICAL SIZE OF THE ACTIVITY**

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

**Alternative:**

Alternative A1<sup>3</sup> (preferred activity alternative)  
 Alternative A2 (if any)  
 Alternative A3 (if any)  
 or, for linear activities:

**Size of the activity:**

|  |
|--|
|  |
|--|

**Alternative:**

Alternative A1 (preferred activity alternative)  
 Alternative A2 (if any)  
 Alternative A3 (if any)

**Length of the activity:**

|          |
|----------|
| 50 000 m |
|          |

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

**Alternative:**

Alternative A1 (preferred activity alternative)  
 Alternative A2 (if any)  
 Alternative A3 (if any)

**Size of the site/servitude:**

|                          |
|--------------------------|
| 1 920 000 m <sup>2</sup> |
|                          |

**4.5 SITE ACCESS**

Does ready access to the site exist?

|          |  |
|----------|--|
| YES<br>✓ |  |
|----------|--|

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

Describe the type of access road planned:

**The N11 Section 10 between Middelburg and Loskop Dam will be upgraded to a widened carriage way, therefore no access to the site is required as the existing road will be utilized.**

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

**4.6 SITE OR ROUTE PLAN**

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

\_\_\_\_\_

<sup>3</sup> "Alternative A.." refer to activity, process, technology or other alternatives.



- 6.1 the scale of the plan which must be at least a scale of 1:500;
- 6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
- 6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 6.4 the exact position of each element of the application as well as any other structures on the site;
- 6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 6.6 all trees and shrubs taller than 1.8 metres;
- 6.7 walls and fencing including details of the height and construction material;
- 6.8 servitudes indicating the purpose of the servitude;
- 6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
  - rivers;
  - the 1:100 year flood line (where available or where it is required by DWA);
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation (even if it is degraded or invested with alien species);
- 6.10 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- 6.11 the positions from where photographs of the site were taken.

**Refer to Appendix A**

**4.7 SITE PHOTOGRAPHS**

Colour photographs from the centre 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 Appendix B to this form. It must be supplemented with additional photographs of relevant features on the site, if applicable.

**Refer to Appendix B**

**4.8 FACILITY ILLUSTRATION**

A detailed illustration of the activity must be provided at a scale of 1:200 as Appendix C 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.

**Refer to Appendix C**

**4.9 ACTIVITY MOTIVATION**

**1.2.1 9(a) Socio-economic value of the activity**

What is the expected capital value of the activity on completion?

|         |     |
|---------|-----|
| R       | 230 |
| million |     |

What is the expected yearly income that will be generated by or as a result of the activity?

|     |
|-----|
| N/A |
|-----|

Will the activity contribute to service infrastructure?

|     |  |
|-----|--|
| YES |  |
| ✓   |  |

**FINAL BASIC ASSESSMENT REPORT**

|   |                     |  |
|---|---------------------|--|
| Is the activity a public amenity?   | <b>YES</b><br>✓     |  |
| How many new employment opportunities will be created in the development phase of the activity?               | <b>80 to 100</b>    |  |
| What is the expected value of the employment opportunities during the development phase?                      | <b>R 35 million</b> |  |
| What percentage of this will accrue to previously disadvantaged individuals?                                  | <b>20 %</b>         |  |
| How many permanent new employment opportunities will be created during the operational phase of the activity? | <b>N/A</b>          |  |
| What is the expected current value of the employment opportunities during the first 10 years?                 | <b>N/A</b>          |  |
| What percentage of this will accrue to previously disadvantaged individuals?                                  | <b>N/A</b>          |  |

**1.2.2 9(b) Need and desirability of the activity**

Motivate and explain the need and desirability of the activity (including demand for the activity):

|              |  |                 |
|--------------|--|-----------------|
| <b>NEED:</b> |  |                 |
| 1.           | Was the relevant provincial planning department involved in the application?                     | <b>YES</b><br>✓ |
| 2.           | Does the proposed land use fall within the relevant provincial planning framework?               | <b>YES</b><br>✓ |
| 3.           | If the answer to questions 1 and / or 2 was NO, please provide further motivation / explanation: |                 |
|              |  |                 |

|                      |  |                 |
|----------------------|--|-----------------|
| <b>DESIRABILITY:</b> |  |                 |
| 1.                   | Does the proposed land use / development fit the surrounding area?   | <b>YES</b><br>✓ |
| 2.                   | Does the proposed land use / development conform to the relevant structure plans, SDF and planning visions for the area? | <b>YES</b><br>✓ |
| 3.                   | Will the benefits of the proposed land use / development outweigh the negative impacts of it?                            | <b>YES</b><br>✓ |
| 4.                   | If the answer to any of the questions 1-3 was NO, please provide further motivation / explanation:                       |                 |
|                      |  |                 |
| 5.                   | Will the proposed land use / development impact on the sense of place?   | <b>NO</b><br>✓  |
| 6.                   | Will the proposed land use / development set a precedent?  | <b>NO</b><br>✓  |
| 7.                   | Will any person's rights be affected by the proposed land use / development?   | <b>NO</b><br>✓  |
| 8.                   | Will the proposed land use / development compromise the "urban edge"?  | <b>NO</b><br>✓  |
| 9.                   | If the answer to any of the question 5-8 was YES, please provide further motivation / explanation.                       |                 |
|                      |  |                 |



| <b>BENEFITS:</b> |  |          |
|------------------|--|----------|
| 1.               | Will the land use / development have any benefits for society in general?  | YES<br>✓ |
| 2.               | Explain:<br>Improved road and bridge infrastructure will benefit the public at large, specifically the industrial and economic activities (including the agriculture, retail and tourism industries) in and around Middelburg and Loskop Dam. This will stimulate local economic development in the area as well as increase the safety aspect along the entire route.   |          |
| 3.               | Will the land use / development have any benefits for the local communities where it will be located?  | YES<br>✓ |
| 4.               | Explain:<br>The project will not result in a major increased direct and indirect employment or training opportunities; however, it will result in an improved standard of living and safety of the N11. It is recommended that where practical (skills permitting), labour should be sourced locally as far possible. The number of people to be employed on the road and bridge upgrade project will be determined by the contractor (still to be appointed by SANRAL). |          |

**4.10 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, if applicable:

| Title of legislation, policy or guideline:                               | Administering authority:                     | Date: |
|--|--|-------|
| Constitution of South Africa, 1996 (Act No. 108 of 1996)                 | National Government                          | 1996  |
| Environment Conservation Act, 1989 (Act No. 73 of 1989)                  | National Department of Environmental Affairs | 1989  |
| National Environmental Management Act, 1998 (Act No. 107 of 1998)        | National Department of Environmental Affairs | 1998  |
| Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)            | Department of Health                         | 1993  |
| National Water Act, 1998 (Act No.36 of 1998)                             | Department of Water Affairs                  | 1998  |
| Water Service Act, 1997 (Act No 108 of 1997)                             | Department of Water Affairs                  | 1997  |
| National Environmental Management Amendment Act, 2004 (Act No 8 of 2004) | National Department of Environmental Affairs | 2004  |
| South African National Roads Agency Limited                              | National Department of                       | 1998  |

|   |   |      |
|---|---|------|
| and National Roads Act, 1998 (Act No. 7 of 1998)                              | Roads and Transport                               |      |
| National Heritage Resources, 1999 (Act No 25 of 1999)                         | South African Heritage Resources Agency           | 1999 |
| National Forests Act, 1998 (Act No. 84 of 1998)                               | Department of Agriculture, Forestry and Fisheries | 1998 |
| National Environmental Management: Biodiversity Act, 2004 (Act No 10 of 2004) | SANBI   | 2004 |

**4.11 WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT**

**1.2.3 11(a) Solid waste management**

Will the activity produce solid construction waste during the construction/initiation phase?

|                              |
|------------------------------|
| <b>YES</b><br>✓              |
| <b>Unknown at this stage</b> |

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

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

**All general waste produced on site will be removed weekly and disposed in line Local Municipality's waste disposal by-laws and EMPr (Refer to Appendix F). Alternatively all general waste produced during construction phase will be collected in waste bins and disposed weekly to the relevant registered municipal waste disposal site.**

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

**The general waste produced will be disposed and the relevant registered Municipal waste facility. In the unlikely event that hazardous wastes are produced these will be collected by a competent waste handling contractor and disposed of at Middelburg Rietfontein Waste site which is the closest to the site.**

Will the activity produce solid waste during its operational phase?

|                |
|----------------|
| <b>NO</b><br>✓ |
|----------------|

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

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

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

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, then 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?

|                |
|----------------|
| <b>NO</b><br>✓ |
|----------------|

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?

|                |
|----------------|
| <b>NO</b><br>✓ |
|----------------|

If yes, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

**1.2.4 11(b) Liquid effluent**

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? m<sup>3</sup>

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

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: [Redacted]  
 Contact person: [Redacted]  
 Postal address: [Redacted]  
 Postal code: [Redacted]  
 Telephone: [Redacted] Cell: [Redacted]  
 E-mail: [Redacted] Fax: [Redacted]

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

**The proposed bridge upgrades will NOT produce any liquid effluent. Toilet facilities will be provided by the contractor in the way of chemical toilets. Disposal of sewage from the chemical toilet will be done by the sub-contractor who provides these facilities.**

**1.2.5 11(c) Emissions into the atmosphere**

Will the activity release emissions into the atmosphere?  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 N11 between Middelburg and Loskop Dam is a surfaced road. The road has deteriorated over time with potholes having formed and the surface rutting being noted in certain areas. In addition to this; the N11 also has sections with cracks in the surface, surface break up, severe edge breaking and accident scarring to the road surface. No dust is thus generated from the use of this National road.

Some dust may be generated during the construction operations for the new Keerom Spruit bridge due to the use of heavy earth moving machinery, vehicles and possible rock blasting where the cuttings will be made in the pass. This dust impact is anticipated to be of low significance and only over the short-term applicable during the construction phase. Dust levels are anticipated to be higher during dry winter and autumn months. There is also a risk of dust from utilizing the shoulder of the road when Stop-and-Go is utilized on the N11 Section 10.

Dust generation can be mitigated by either water spraying and / or dust suppressants. The speed of construction vehicles and other vehicles should be strictly controlled to avoid excessive dust generation.

**1.2.6 11(d) Generation of noise**

Will the activity generate noise?

|          |         |
|----------|---------|
| YES<br>✓ |         |
|          | NO<br>✓ |

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 noise in terms of type and level:

The ambient noise levels in the area are determined by a combination of natural (birds, livestock, wind etc.) and anthropogenic sounds. The proposed project is not anticipated to change the existing noise levels significantly. The movement of construction vehicles, earthmoving equipment and possible rock blasting where cuttings will be made in the pass will create some noise. It is recommended that construction activities be limited to normal working hours, from 07:00 to 17:00 in order to limit the amount of noise that may create disturbance. Blasting activities are very sophisticated and are strictly legislated. Contrary, perhaps to the uninitiated, blasting of rock can take place with little emission of airborne sound and of ground vibration. Legislation controlling noise in the local authority is Notice 414 of Town Council of Middelburg but not specifically for the activities associated with the project.

**4.12 WATER USE**

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

|                          |                            |                          |
|--------------------------|----------------------------|--------------------------|
| <input type="checkbox"/> | river, stream, dam or lake | <input type="checkbox"/> |
|--------------------------|----------------------------|--------------------------|

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:

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

|          |  |
|----------|--|
| Minimal  |  |
| YES<br>✓ |  |

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

**A Water Use License application in terms of the National Water Act, 1998 (Act no 36 of 1998) has being prepared for the Department of Water Affairs. Please find attached proof thereof.**

#### **4.13 ENERGY EFFICIENCY**

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

**The project involves the upgrade and expansion project of the N11 Section between Middelburg and Loskop Dam which is a major linkage to Groblersdal; energy efficiency measures are not applicable.**

**In terms of energy efficiency, the proposed reseal and upgrading to the N11 should be undertaken during normal working hours and not during the night to be as energy efficient as possible. The contractors will make use of generators and fuels i.e. petrol and diesel during construction.**

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

**Construction activities to be undertaken during the day to minimise usage of generators and lighting at night to be as energy efficient as possible.**

**5 SECTION B: SITE/AREA/PROPERTY DESCRIPTION**

**Important notes:**

1. For linear activities (pipelines, etc.) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No.   
(e.g. A):

2. Paragraphs 1 - 6 below must be completed for each alternative.

**Section B was only complete once as all bridge construction and upgrades are located within the existing SANRAL N11 Section 10 road reserve.**

3. Has a specialist been consulted to assist with the completion of this section?

YES



If YES, please complete the form entitled "Details of specialist and declaration of interest"  
for each specialist thus appointed:

**All specialist reports are contained in Appendix D.**

- Heritage
- Aquatic Assessment
- Wetland Assessment



Property description/physical address:

The proposed N11 Section 10 road rehabilitation and bridge upgrade project falls within the existing SANRAL Road Reserve. The following farm portions are located adjacent to the existing SANRAL N11 Section 10 road reserve:

Portion 53 Loskop Suid 53 JS  
Portion 76 Laagersdrift 76 JS  
Portion 78 Rietvallei 78 JS  
Portion 80 Vergelegen 80 JS  
Portion 81 Loskop 81 JS  
Portion 83 Weltevreden 83 JS  
Portion 84 Parys 84 JS  
Portion 105 Hartebeestplaat 105 JS  
Portion 106 Tweefontein 106 JS  
Portion 109 Waterval 109 JS  
Portion 113 De Voetpadkloof  
Portion 115 Zeekoegat 115 JS  
Portion 118 polfontein 118 JS  
Portion 240 Driefontein 240 JS  
Portion 242 Mooiplaats 242 JS  
Portion 244 Goedehoop 244 JS  
Portion 246 Doornkop 246 JS  
Portion 266 Groenfontein 266 JS  
Portion 267 Leeuw Poortje 267 JS  
Portion 290 Middelburg Town and Townlands 290 JS  
Portion 320 Toe Vlucht 269 JS  
Portion 374 Keerom 374 JS  
Portion 241 Hartbeestfontein 241 JS  
Portion 341 Kliprivier 341 JS  
Portion 780 780 JS  
Portion 79 79 JS  
Portion 122 122 JS

The property affected by the Keerom Spruit Bridge upgrade is: Middelburg Town and Townlands 290 Portion 160 and Toevlugt 320 JS Portion 1, however the upgrade will fall within the existing SANRAL N11 road reserve.

The properties affected by the widening of the Kranspoort River Bridge are: Rietvallei 78 JS Portion 45, however the upgrade will fall within the existing SANRAL N11 road reserve.

The properties affected by the extension of culvert 1 at the Klipriver tributary are: Mooiplaats 242 JS Portion 17 and Mooiplaats 242 JS Portion 35, however the upgrade will fall within the existing SANRAL N11 road reserve.

The properties affected by the replacement of culvert 4 at the Klipriver tributary are: 122 JS Portion R and Polfontein 118 JS Portion R, however the upgrade will fall within the existing SANRAL N11 road reserve.

The properties affected by the extension of culvert 5 at the Furrow are: Zeekoegat 115 JS Portion 3 and Zeekoegat 115 JS Portion 1, however the upgrade will fall within the existing SANRAL N11 road reserve.

# FINAL BASIC ASSESSMENT REPORT

(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application.

In instances where there is more than one town or district involved, please attach a list of towns or districts to this application.

Current land-use zoning:

**SANRAL Road Servitude, Agriculture and Loskop Nature Reserve**

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required?

|          |         |
|----------|---------|
|          | NO<br>✓ |
| YES<br>✓ |         |

Must a building plan be submitted to the local authority?

Locality map:

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (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 map must indicate the following:

- an indication of the project site position as well as the positions of the alternative sites, if any;
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection)

## Refer to Appendix A

### 5.1 GRADIENT OF THE SITE

Indicate the general gradient of the site.

**Alternative S1 (Rehabilitation will start from km 3.4 and end at km 53.4):**

|      |  |                |  |                     |
|------|--|----------------|--|---------------------|
| Flat |  | 1:20 –<br>1:15 |  | Steeper than<br>1:5 |
|------|--|----------------|--|---------------------|

**Alternative S2 (if any):**

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  |  |
|--|--|--|--|--|

**Alternative S3 (if any):**

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  |  |
|--|--|--|--|--|

### 5.2 LOCATION IN LANDSCAPE

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

2.1 Ridgeline

2.2 Plateau

2.3 Side slope of hill / mountain

2.4 Closed valley

2.5 Open valley

2.6 Plain

**2.7 Undulating plain / low hills**

2.8 Dune

2.9 Seafront

**5.3 GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE**

Is the site(s) located on any of the following (tick the appropriate boxes)?

|  | <b>Alternative S1:</b> |                | <b>Alternative S2</b><br>(if any): | <b>Alternative S3</b><br>(if any): |
|--|------------------------|----------------|------------------------------------|------------------------------------|
| Shallow water table (less than 1.5m deep)                  | <b>YES</b><br>✓        | NO             |                                    |                                    |
| Dolomite, sinkhole or dolerite areas                       | YES                    | <b>NO</b><br>✓ |                                    |                                    |
| Seasonally wet soils (often close to water bodies)         | <b>YES</b><br>✓        | NO             |                                    |                                    |
| Unstable rocky slopes or steep slopes with loose soil      | <b>YES</b><br>✓        | NO             |                                    |                                    |
| Dispersive soils (soils that dissolve in water)            | YES                    | <b>NO</b><br>✓ |                                    |                                    |
| Soils with high clay content (clay fraction more than 40%) | YES                    | <b>NO</b><br>✓ |                                    |                                    |
| Any other unstable soil or geological feature              | <b>YES</b><br>✓        | NO             |                                    |                                    |
| An area sensitive to erosion                               | YES                    | <b>NO</b><br>✓ |                                    |                                    |

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

**5.4 GROUNDCOVER**

Indicate the types of groundcover present on the site:

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

|  |   |  |  |  |  |
|--|---|--|--|--|--|
|  | <b>Natural veld with scattered aliens</b> |  |  |  |  |
|--|---|--|--|--|--|

|  | Cultivated land | Paved surface | Building or other structure (i.e. bridge and road) |  |
|--|-----------------|---------------|--|--|
|--|-----------------|---------------|--|--|

If any of the boxes marked with an “E” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn’t have the necessary expertise.

**5.5 LAND USE CHARACTER OF SURROUNDING AREA**

Indicate land uses and/or prominent features that does currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

**5.1 Natural area**

- 5.2 Low density residential
- 5.3 Medium density residential
- 5.4 High density residential
- 5.5 Informal residential<sup>A</sup>
- 5.6 Retail commercial & warehousing
- 5.7 Light industrial
- 5.8 Medium industrial<sup>AN</sup>
- 5.9 Heavy industrial<sup>AN</sup>
- 5.10 Power station
- 5.11 Office/consulting room
- 5.12 Military or police base/station/compound
- 5.13 Spoil heap or slimes dam<sup>A</sup>
- 5.14 Quarry, sand or borrow pit

**5.15 Dam or reservoir**

- 5.16 Hospital/medical centre

**5.17 School**

- 5.18 Tertiary education facility
- 5.19 Church
- 5.20 Old age home
- 5.21 Sewage treatment plant<sup>A</sup>
- 5.22 Train station or shunting yard<sup>N</sup>
- 5.23 Railway line<sup>N</sup>

**5.24 Major road (4 lanes or more)<sup>N</sup> – only 2 lanes but the road is a national route – the N11**

- 5.25 Airport<sup>N</sup>
- 5.26 Harbour
- 5.27 Sport facilities
- 5.28 Golf course
- 5.29 Polo fields

**5.30 Filling station<sup>H</sup>**

- 5.31 Landfill or waste treatment site
- 5.32 Plantation

**5.33 Agriculture**

**5.34 River, stream or wetland**

**5.35 Nature conservation area**

**5.36 Mountain, koppie or ridge**

5.37 Museum

5.38 Historical building

**5.39 Protected Area**

5.40 Graveyard

5.41 Archaeological site

5.42 Other land uses (describe)

If any of the boxes marked with an "N" are ticked, how will this impact / be impacted upon by the proposed activity?

If YES, specify and explain:

If YES, specify:

**The upgrading of the road and bridges will positively impact on the state of the N11 road as it has deteriorated over time due to extensive use and will maximise the current state of safety of road users of the road.**

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity?

If YES, specify and explain:

If YES, specify:

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity.

If YES, specify and explain:

If YES, specify:

**The upgrading of the road and bridges will positively impact on the state of the N11 road as it has deteriorated over time due to extensive use and will maximise the current state of safety for road users of the road. The safety aspects in terms of access management; the filling station in the Loskop Valley will be addressed and as well as general access control in both the Doornkop and Loskop Valley areas.**

**5.6 CULTURAL/HISTORICAL FEATURES**

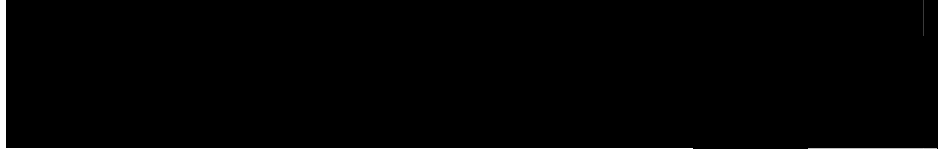
Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or palaeontological sites, on or close (within 20m) to the site?

If YES, explain:

If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.

|  |                |
|--|----------------|
|  | <b>NO</b><br>✓ |
|--|----------------|

Briefly explain the findings of the specialist:



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

NO  
✓

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

NO  
✓

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

**6 SECTION C: PUBLIC PARTICIPATION**

**6.1 ADVERTISEMENT**

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
  - (i) the site where the activity to which the application relates is or is to be undertaken; and
  - (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
  - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  - (v) the municipality which has jurisdiction in the area;
  - (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
  - (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
  - (i) one local newspaper; or
  - (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
  - (i) illiteracy;
  - (ii) disability; or
  - (iii) any other disadvantage.

**Refer to Appendix E**

**6.2 CONTENT OF ADVERTISEMENTS AND NOTICES**

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—

- (i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
- (ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
- (iii) the nature and location of the activity to which the application relates;
- (iv) where further information on the application or activity can be obtained; and
- (iv) the manner in which and the person to whom representations in respect of the application may be made.

**Refer to Appendix E**

**6.3 PLACEMENT OF ADVERTISEMENTS AND NOTICES**

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

**Refer to Appendix E for Advertisements and Onsite Notices**

**6.4 DETERMINATION OF APPROPRIATE MEASURES**

The practitioner must ensure that the public participation 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, ratepayers associations and traditional authorities where appropriate. 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 inadequate.

**6.5 COMMENTS AND RESPONSE REPORT**

The practitioner must record all comments and respond to each comment of the public before the application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to this application. The comments and response report must be attached under Appendix E.

**Refer to Appendix E**



**6.6 AUTHORITY PARTICIPATION**

Please note that a complete list of all organs of state and or any other applicable authority with their contact details must be appended to the basic assessment report or scoping report, whichever is applicable.

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.

List of authorities informed:

- Dept. of Health and Social Services
- Dept. of Safety & Security
- Dept. of Agric Conservation & Environment- Region
- Dept. of Provincial Local Govt. & Housing
- Dept. of Public Works, Roads, & Transport
- Dept. of Roads & Transport- Province
- Dept. of Agriculture
- Dept. of Agriculture, Conservation, Environment and Land Administration
- Dept. of Economic Development, Environment and Tourism
- Dept. of Environmental Affairs
- Dept. of Labour
- Dept. of Land Affairs
- Dept. of Local Government and Housing
- Dept. of Mineral Resources
- Dept. of Public Works
- Dept. of Transport
- Dept. of Water Affairs
- Department of Agriculture, Forestry and Fisheries
- MDEDET
- Mpumalanga Heritage Resources Authority
- Mpumalanga Povincial Government
- Mpumalanaga Tourism & Parks Agency
- National Department of Health
- Nkangala District Municipality
- Provincial Roads Adminastration
- SAHRA: Head Office
- SAHRA: Mpumalanga
- Steve Tshwete Local Municipality
- WESSA
- Wetland Rehabilitation and Erosion Control (Pty) Ltd

Refer to Appendix E for detailed list of authorities notified and contacted.

List of authorities from whom comments have been received:

**Dept. of Agriculture, Forestry and Fisheries  
Dept. of Water Affairs**

**6.7 CONSULTATION WITH OTHER STAKEHOLDERS**

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority. Proof of any such agreement must be provided, where applicable.

Has any comment been received from stakeholders?

|                 |                                     |
|-----------------|-------------------------------------|
| <b>Yes</b><br>✓ | <input checked="" type="checkbox"/> |
|-----------------|-------------------------------------|

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

**Issues raised by Interested and affected parties during the public review period and the public open day have been included in a Comment and Response Report which has been included in the Appendix E.**

## 7 SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, 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.

### 7.1 ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

- Duration of the project
- Safety improvement
- Affecting of property fences
- Affecting of powerlines
- Employment opportunities

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report as Annexure E):

**Responses to all issues raised have been included in the Comments and Response Report attached in Appendix E.**

### 7.2 IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed.

### 7.3 METHODOLOGY FOR THE ASSESSMENT OF POTENTIAL IMPACTS

Direct, indirect and cumulative impacts of the above issues, as well as all other issues identified will be assessed in terms of the following criteria:

- The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
- The **duration**, wherein it will be indicated whether:
  - the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
  - the lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;
  - medium-term (5–15 years) – assigned a score of 3;

- long term (> 15 years) - assigned a score of 4; or
- permanent - assigned a score of 5;
- The **intensity** of the impact is considered by examining whether the impact is destructive or benign, whether it destroys the impacted environment, alters its functioning, or slightly alters the environment itself. The intensity is rated as: low, medium or high.
- The **probability of occurrence**, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1–5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- **Mitigation:** The impacts that are generated by the development can be minimised if measures are implemented in order to reduce the impacts. The mitigation measures ensure that the development considers the environment and the predicted impacts in order to minimise impacts and achieve sustainable development.
- **Determination of Significance – Without Mitigation:** Significance is determined through a synthesis of impact characteristics as described in the above paragraphs. It provides an indication of the importance of the impact in terms of both tangible and intangible characteristics. The significance of the impact “without mitigation” is the prime determinant of the nature and degree of mitigation required. Where the impact is positive, significance is noted as “positive”. Significance is rated on the following scale:
  - No significance
  - The impact is not substantial and does not require any mitigation action.
  - Low
  - The impact is of little importance, but may require limited mitigation.
  - Medium
  - The impact is of importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.
  - High

The impact is of major importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.
- **Determination of Significance – With Mitigation:** Determination of significance refers to the foreseeable significance of the impact after the successful implementation of the necessary mitigation measures. Significance with mitigation is rated on the following scale:
  - No significance
  - The impact will be mitigated to the point where it is regarded as insubstantial.
  - Low
  - The impact will be mitigated to the point where it is of limited importance.
  - Low to medium
  - The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels.
  - Medium

- Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw.
  - Medium to high
  - The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels.
  - High
  - The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.
- **Identifying the Potential Impacts Without Mitigation Measures (WOM):** Following the assignment of the necessary weights to the respective aspects, criteria are summed and multiplied by their assigned weightings, resulting in a value for each impact (prior to the implementation of mitigation measures).

Equation 1:

$$\text{Significance Rating (WOM)} = (\text{Extent} + \text{Intensity} + \text{Duration} + \text{Probability}) \times \text{Weighting Factor}$$

- **Identifying the Potential Impacts With Mitigation Measures (WM):** In order to gain a comprehensive understanding of the overall significance of the impact, after implementation of the mitigation measures, it was necessary to re-evaluate the impact.
- **Mitigation Efficiency (ME):** The most effective means of deriving a quantitative value of mitigated impacts is to assign each with a mitigation effectiveness (ME) rating. The allocation of such a rating is a measure of the efficiency and effectiveness, as identified through professional experience and empirical evidence of how effectively the proposed mitigation measures will manage the impact. Thus, the lower the assigned value the greater the effectiveness of the proposed mitigation measures and subsequently, the lower the impacts with mitigation.

Equation 2:

$$\text{Significance Rating (WM)} = \text{Significance Rating (WOM)} \times \text{Mitigation Efficiency}$$

Or

$$\text{WM} = \text{WOM} \times \text{ME}$$

▪ **Significance Following Mitigation (SFM)**

The significance of the impact after the mitigation measures are taken into consideration. The efficiency of the mitigation measure determines the significance of the impact. The level of impact is therefore seen in its entirety with all considerations taken into account.

| Extent             | Duration             | Intensity           | Probability        | Weighing Factor (WF) | Significance Rating (SR) | Mitigation Efficiency (ME) | Significance Following Mitigation (SFM) |
|--------------------|----------------------|---------------------|--------------------|----------------------|--------------------------|----------------------------|---|
| Footprint<br>1     | Short term<br>1      | Low<br>1            | Probable<br>1      | Low<br>1             | Low<br>0-19              | High<br>0.2                | Low<br>0-19                             |
| Site<br>2          | Short to Medium<br>2 | Low to Medium<br>2  | Possible<br>2      | Low to Medium<br>2   | Low to Medium<br>20-39   | Medium to High<br>0.4      | Low to medium<br>20-39                  |
| Regional<br>3      | Medium term<br>3     | Medium<br>3         | Likely<br>3        | Medium<br>3          | Medium<br>40-59          | Medium<br>0.6              | Medium<br>40-59                         |
| National<br>4      | Long term<br>4       | Medium to High<br>4 | Highly likely<br>4 | Medium to High<br>4  | Medium to High<br>60-79  | Low to Medium<br>0.8       | Medium to High<br>60-79                 |
| International<br>5 | Permanent<br>5       | High<br>5           | Definite<br>5      | High<br>5            | High<br>80-100           | Low<br>1.0                 | High<br>80-100                          |

**7.4 IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE**

Alternative (preferred alternative – no additional alternatives in terms of locality have been investigated).

No impacts are anticipated during the planning or initiating phase for the proposed N11 Rehabilitation and Road Upgrade as well as the bridges

**7.5 IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE**

Alternative (preferred alternative – no additional alternatives in terms of locality have been investigated).

**Direct impacts:**

1. Visual Impacts
2. Ecological Impacts
3. Health Impacts

**Indirect impacts:**

1. Social Impacts

**Cumulative impacts:**

1. None

**FINAL BASIC ASSESSMENT REPORT**

| <b>Potential impacts:</b>   | <b>Significance rating of impacts(Low, Medium, Medium-High, High, Very High):</b> | <b>Proposed mitigation:</b> | <b>Significance rating of impacts after mitigation(Low, Medium, Medium-High, High, Very High):</b> |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
|---|---|-----------------------------|--|----------|----------|-------------|-----------|--------|-------------|---------------|-----------------|--------|--------------|----------------|------------------------------|---------------|----------------|--|---------------|
| 1. Visual Impacts:  |   |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| <p>Management of the construction camp</p> <table border="1" data-bbox="245 510 525 864"> <tr><td>Status</td><td>-</td></tr> <tr><td>Extent</td><td>Site</td></tr> <tr><td>Duration</td><td>Medium term</td></tr> <tr><td>Intensity</td><td>Medium</td></tr> <tr><td>Probability</td><td>Highly Likely</td></tr> <tr><td>Weighing Factor</td><td>High</td></tr> <tr><td>Significance</td><td>Medium to High</td></tr> <tr><td>Significance with mitigation</td><td>Low to Medium</td></tr> </table> | Status  | -                           | Extent   | Site     | Duration | Medium term | Intensity | Medium | Probability | Highly Likely | Weighing Factor | High   | Significance | Medium to High | Significance with mitigation | Low to Medium | Medium to High | <ol style="list-style-type: none"> <li>1. All incidences of spillage of chemicals or other pollution to be reported on and addressed immediately, and where an independent or specialist company is used, the local authority should be informed.</li> <li>2. Fires are permitted on site.</li> </ol>                                    | Low to Medium |
| Status  | -   |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Extent  | Site  |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Duration  | Medium term   |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Intensity   | Medium  |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Probability   | Highly Likely   |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Weighing Factor   | High  |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Significance  | Medium to High  |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Significance with mitigation  | Low to Medium   |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| <p>Inadequate waste management</p> <table border="1" data-bbox="245 940 525 1245"> <tr><td>Status</td><td>-</td></tr> <tr><td>Extent</td><td>Site</td></tr> <tr><td>Duration</td><td>Short term</td></tr> <tr><td>Intensity</td><td>Medium</td></tr> <tr><td>Probability</td><td>Possible</td></tr> <tr><td>Weighing Factor</td><td>Medium</td></tr> <tr><td>Significance</td><td>Low to Medium</td></tr> <tr><td>Significance with mitigation</td><td>Low</td></tr> </table>                       | Status  | -                           | Extent   | Site     | Duration | Short term  | Intensity | Medium | Probability | Possible      | Weighing Factor | Medium | Significance | Low to Medium  | Significance with mitigation | Low           | Low to Medium  | <ol style="list-style-type: none"> <li>1. Littering on site and the surrounding areas is prohibited.</li> <li>2. Clearly marked litterbins must be provided on site.</li> <li>3. All bins must be cleaned of litter regularly.</li> <li>4. The contractor must install and maintain mobile chemical toilets at the work site.</li> </ol> | Low           |
| Status  | -   |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Extent  | Site  |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Duration  | Short term  |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Intensity   | Medium  |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Probability   | Possible  |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Weighing Factor   | Medium  |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Significance  | Low to Medium   |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Significance with mitigation  | Low   |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| <p>Rehabilitation on completion of construction</p> <table border="1" data-bbox="245 1532 525 1836"> <tr><td>Status</td><td>-</td></tr> <tr><td>Extent</td><td>Regional</td></tr> <tr><td>Duration</td><td>Medium term</td></tr> <tr><td>Intensity</td><td>High</td></tr> <tr><td>Probability</td><td>Definite</td></tr> <tr><td>Weighing Factor</td><td>High</td></tr> <tr><td>Significance</td><td>High</td></tr> <tr><td>Significance with mitigation</td><td>Medium</td></tr> </table>          | Status  | -                           | Extent   | Regional | Duration | Medium term | Intensity | High   | Probability | Definite      | Weighing Factor | High   | Significance | High           | Significance with mitigation | Medium        | High           | <ol style="list-style-type: none"> <li>1. After the completion of the construction activities along the N11 Section 10 especially the cuttings near Kranspoort, the area should be restored, as a minimum, to its original state. This includes landscaping and rehabilitation of the cut slopes.</li> </ol>                             | Medium        |
| Status  | -   |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Extent  | Regional  |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Duration  | Medium term   |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Intensity   | High  |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Probability   | Definite  |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Weighing Factor   | High  |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Significance  | High  |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |
| Significance with mitigation  | Medium  |                             |  |          |          |             |           |        |             |               |                 |        |              |                |                              |               |                |  |               |

**FINAL BASIC ASSESSMENT REPORT**

| 2. Health Impacts:   |                |        |   |        |          |          |             |           |      |             |        |                 |                |              |        |                              |               |        |   |               |
|--|----------------|--------|---|--------|----------|----------|-------------|-----------|------|-------------|--------|-----------------|----------------|--------------|--------|------------------------------|---------------|--------|---|---------------|
| <p align="center">Sanitation</p> <table border="1"> <tr><td>Status</td><td>-</td></tr> <tr><td>Extent</td><td>Regional</td></tr> <tr><td>Duration</td><td>Medium term</td></tr> <tr><td>Intensity</td><td>High</td></tr> <tr><td>Probability</td><td>Likely</td></tr> <tr><td>Weighing Factor</td><td>Medium to High</td></tr> <tr><td>Significance</td><td>Medium</td></tr> <tr><td>Significance with mitigation</td><td>Low to Medium</td></tr> </table> |                | Status | - | Extent | Regional | Duration | Medium term | Intensity | High | Probability | Likely | Weighing Factor | Medium to High | Significance | Medium | Significance with mitigation | Low to Medium | Medium | <ol style="list-style-type: none"> <li>Only existing or temporary facilities provided for the duration of the contract should be used for ablutions.</li> <li>Temporary toilet facilities and sanitation facilities should be serviced weekly and locked from casual access by the local communities and general public.</li> </ol> | Low to Medium |
| Status   | -              |        |   |        |          |          |             |           |      |             |        |                 |                |              |        |                              |               |        |   |               |
| Extent   | Regional       |        |   |        |          |          |             |           |      |             |        |                 |                |              |        |                              |               |        |   |               |
| Duration   | Medium term    |        |   |        |          |          |             |           |      |             |        |                 |                |              |        |                              |               |        |   |               |
| Intensity  | High           |        |   |        |          |          |             |           |      |             |        |                 |                |              |        |                              |               |        |   |               |
| Probability  | Likely         |        |   |        |          |          |             |           |      |             |        |                 |                |              |        |                              |               |        |   |               |
| Weighing Factor  | Medium to High |        |   |        |          |          |             |           |      |             |        |                 |                |              |        |                              |               |        |   |               |
| Significance   | Medium         |        |   |        |          |          |             |           |      |             |        |                 |                |              |        |                              |               |        |   |               |
| Significance with mitigation   | Low to Medium  |        |   |        |          |          |             |           |      |             |        |                 |                |              |        |                              |               |        |   |               |

| 3. Ecological Impacts:  |                 |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
|---|-----------------|--------|---|--------|----------|----------|-----------------|-----------|--------|-------------|---------------|-----------------|----------------|--------------|--------|------------------------------|---------------|--------|--|---------------|
| <p align="center">Soil contamination</p> <table border="1"> <tr><td>Status</td><td>-</td></tr> <tr><td>Extent</td><td>Regional</td></tr> <tr><td>Duration</td><td>Short to medium</td></tr> <tr><td>Intensity</td><td>Medium</td></tr> <tr><td>Probability</td><td>Highly likely</td></tr> <tr><td>Weighing Factor</td><td>Medium to high</td></tr> <tr><td>Significance</td><td>Medium</td></tr> <tr><td>Significance with mitigation</td><td>Low to medium</td></tr> </table> |                 | Status | -   | Extent | Regional | Duration | Short to medium | Intensity | Medium | Probability | Highly likely | Weighing Factor | Medium to high | Significance | Medium | Significance with mitigation | Low to medium | Medium | <ol style="list-style-type: none"> <li>Equipment should be well maintained to prevent any form of leaks.</li> <li>Where spillages have occurred, contaminated soil must be cleaned.</li> <li>Soil must be properly reinstated.</li> <li>Institute wind and water erosion-control measures.</li> <li>Removal of vegetation must be restricted to the works area.</li> <li>Waste to be managed. Suitable waste receptacles (e.g. bins, skips) to be provided.</li> <li>Sufficient chemical toilets to be provided – 1 toilet per 30 workers. Chemical toilets to be serviced once per week.</li> </ol>   | Low to Medium |
| Status  | -               |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Extent  | Regional        |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Duration  | Short to medium |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Intensity   | Medium          |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Probability   | Highly likely   |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Weighing Factor   | Medium to high  |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Significance  | Medium          |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Significance with mitigation  | Low to medium   |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| <p align="center">Soil erosion</p> <table border="1"> <tr><td>Status</td><td>-</td></tr> <tr><td>Extent</td><td>Site</td></tr> <tr><td>Duration</td><td>Short term</td></tr> <tr><td>Intensity</td><td>Medium</td></tr> <tr><td>Probability</td><td>Definite</td></tr> <tr><td>Weighing Factor</td><td>High</td></tr> <tr><td>Significance</td><td>Medium</td></tr> <tr><td>Significance with mitigation</td><td>Low to medium</td></tr> </table>                               |                 | Status | -   | Extent | Site     | Duration | Short term      | Intensity | Medium | Probability | Definite      | Weighing Factor | High           | Significance | Medium | Significance with mitigation | Low to medium | Medium | <ol style="list-style-type: none"> <li>All unstable rock faces and geological features should be maintained and rehabilitated.</li> <li>Unused soil should be used for landscaping around the proposed N11 Section 10 rehabilitation.</li> </ol>   | Low to Medium |
| Status  | -               |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Extent  | Site            |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Duration  | Short term      |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Intensity   | Medium          |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Probability   | Definite        |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Weighing Factor   | High            |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Significance  | Medium          |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Significance with mitigation  | Low to medium   |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| <p align="center">Pollution of water resources</p> <table border="1"> <tr><td>Status</td><td>-</td></tr> <tr><td>Extent</td><td>Regional</td></tr> <tr><td>Duration</td><td>Long term</td></tr> <tr><td>Intensity</td><td>High</td></tr> <tr><td>Probability</td><td>Highly Likely</td></tr> <tr><td>Weighing Factor</td><td>High</td></tr> <tr><td>Significance</td><td>High</td></tr> <tr><td>Significance with mitigation</td><td>Low</td></tr> </table>                     |                 | Status | -   | Extent | Regional | Duration | Long term       | Intensity | High   | Probability | Highly Likely | Weighing Factor | High           | Significance | High   | Significance with mitigation | Low           | High   | <ol style="list-style-type: none"> <li>No sewage may enter any surface waters (storm water system or culverts).</li> <li>Temporary toilet facilities should be used and appropriately maintained.</li> <li>Install appropriate erosion control measures to ensure that runoff entering and leaving the site is minimised.</li> <li>No soil should be discarded into the storm water system or drainage lines.</li> <li>Topsoil should be neatly stacked and stored to prevent loss.</li> <li>Separation of clean and dirty water must take place.</li> <li>No construction rubble or any other sanitary water to be dumped into the storm water system.</li> <li>All water resources including Kranspoort River and Keerom Spruit where the bridges are proposed to be upgraded should be done in such a manner as to minimise any pollution of these water resources.</li> <li>A Water Use License should form part of this Environmental Process and should be applied for from the Department of Water Affairs</li> </ol> | Low           |
| Status  | -               |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Extent  | Regional        |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Duration  | Long term       |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Intensity   | High            |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Probability   | Highly Likely   |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Weighing Factor   | High            |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Significance  | High            |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| Significance with mitigation  | Low             |        |   |        |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |
| <p align="center">Effects on Floral habitat</p>   |                 | High   | <ol style="list-style-type: none"> <li>Sufficient care must be taken during the construction phase to ensure that areas outside of the development footprint will not be disturbed</li> </ol> | Medium |          |          |                 |           |        |             |               |                 |                |              |        |                              |               |        |  |               |



**FINAL BASIC ASSESSMENT REPORT**

|  |   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
|--|---|--------|---|--------|----------|----------|-----------|-----------|------|-------------|----------|-----------------|------|------------------------------|----------------|------------------------------|---------------------------|--|--------------------------------------|--|---------------------------|
|  | <table border="1"> <tr><td>Status</td><td>-</td></tr> <tr><td>Extent</td><td>Site</td></tr> <tr><td>Duration</td><td>Permanent</td></tr> <tr><td>Intensity</td><td>High</td></tr> <tr><td>Probability</td><td>Definite</td></tr> <tr><td>Weighing Factor</td><td>High</td></tr> <tr><td>Significance</td><td>High</td></tr> <tr><td>Significance with mitigation</td><td>Medium</td></tr> </table>      | Status | - | Extent | Site     | Duration | Permanent | Intensity | High | Probability | Definite | Weighing Factor | High | Significance                 | High           | Significance with mitigation | Medium                    |  |                                      | <p>through trampling.</p> <ol style="list-style-type: none"> <li>Waste to be managed. Suitable waste receptacles (e.g. bins, skips) to be provided.</li> <li>Sufficient chemical toilet facilities should be provided, as the bush may under no circumstances be used.</li> <li>Licenses in terms of the removal of indigenous trees and Red Data plants along the route and cutting areas should be applied for from the Department of Agriculture, Forestry and Fisheries as well as the South African National Biodiversity Institute (SANBI).</li> </ol> |                           |
| Status   | -   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Extent   | Site  |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Duration   | Permanent   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Intensity  | High  |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Probability  | Definite  |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Weighing Factor                                      | High  |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Significance   | High  |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Significance with mitigation                         | Medium  |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| <p align="center">Effects on Fauna</p>               | <table border="1"> <tr><td>Status</td><td>-</td></tr> <tr><td>Extent</td><td>Site</td></tr> <tr><td>Duration</td><td>Long term</td></tr> <tr><td>Intensity</td><td>High</td></tr> <tr><td>Probability</td><td>Likely</td></tr> <tr><td>Weighing Factor</td><td>High</td></tr> <tr><td>Significance</td><td>Medium to High</td></tr> <tr><td>Significance with mitigation</td><td>Low</td></tr> </table> | Status | - | Extent | Site     | Duration | Long term | Intensity | High | Probability | Likely   | Weighing Factor | High | Significance                 | Medium to High | Significance with mitigation | Low                       |  | <p align="center">Medium to High</p> | <ol style="list-style-type: none"> <li>All labourers to remain inside construction footprint.</li> <li>No animal if any may be snared, captured or wilfully damaged or killed, if it may be the case.</li> </ol>   | <p align="center">Low</p> |
| Status   | -   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Extent   | Site  |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Duration   | Long term   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Intensity  | High  |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Probability  | Likely  |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Weighing Factor                                      | High  |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Significance   | Medium to High  |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Significance with mitigation                         | Low   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| <b>Aquatic Habitat Impacts</b>                       |   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| <p align="center">Increased sediment input</p>       | <table border="1"> <tr><td>Status</td><td>-</td></tr> <tr><td>Extent</td><td>Regional</td></tr> <tr><td>Duration</td><td>Short</td></tr> <tr><td>Intensity</td><td>Low</td></tr> <tr><td>Probability</td><td>Probable</td></tr> <tr><td>Significance</td><td>Low</td></tr> <tr><td>Significance with mitigation</td><td>Low</td></tr> </table>  | Status | - | Extent | Regional | Duration | Short     | Intensity | Low  | Probability | Probable | Significance    | Low  | Significance with mitigation | Low            |                              | <p align="center">Low</p> | <ol style="list-style-type: none"> <li>Borrow pits are not to be located within the 1-100year floodline of any watercourses; Erect silt curtains on the downslope sides of all construction areas in close proximity to water resources, including wetlands;</li> <li>The temporary storage of topsoil, inert spoil, fill, etc. should be above the 20 year floodline or at least 20m from the top of the bank of any drainage lines, whichever is the maximum or as agreed with the Environmental Control Officer (ECO);</li> <li>To prevent erosion of material that is stockpiled for long periods, the material must be retained in a bermed area;</li> <li>Mulch, roughen or sterile grass seeding can be used on any batter or topsoil stockpile that is to be maintained for longer than 28 days;</li> <li>Construct an earth bank around the upslope portion of any stockpiles in order to redirect runoff and prevent scouring of stockpiles;</li> <li>Erect a silt fence around any stockpiles in order to trap sediment and prevent stockpile sediment loss;</li> <li>Stockpiles should not be higher than 2m to avoid compaction, and single handling is recommended; and</li> <li>Dust suppression is necessary for stockpiles older than a month – with either water or a biodegradable chemical binding agent.</li> </ol> | <p align="center">Low</p>            |  |                           |
| Status   | -   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Extent   | Regional  |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Duration   | Short   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Intensity  | Low   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Probability  | Probable  |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Significance   | Low   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Significance with mitigation                         | Low   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| <p align="center">Obstruction of migratory fauna</p> | <table border="1"> <tr><td>Status</td><td>-</td></tr> <tr><td>Extent</td><td>Local</td></tr> <tr><td>Duration</td><td>Short</td></tr> <tr><td>Intensity</td><td>Low</td></tr> <tr><td>Probability</td><td>Unlikely</td></tr> <tr><td>Significance</td><td>Low</td></tr> <tr><td>Significance with mitigation</td><td>Low</td></tr> </table>   | Status | - | Extent | Local    | Duration | Short     | Intensity | Low  | Probability | Unlikely | Significance    | Low  | Significance with mitigation | Low            |                              | <p align="center">Low</p> | <ol style="list-style-type: none"> <li>A precautionary approach to ensure that no barriers to the migration of aquatic biota are created when conducting work at the bridge site, and if possible, conduct the proposed activities during times when biota are not likely to utilise migratory routes (i.e. during winter).</li> </ol>   | <p align="center">Low</p>            |  |                           |
| Status   | -   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Extent   | Local   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Duration   | Short   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Intensity  | Low   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Probability  | Unlikely  |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Significance   | Low   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |
| Significance with mitigation                         | Low   |        |   |        |          |          |           |           |      |             |          |                 |      |                              |                |                              |                           |  |                                      |  |                           |

# FINAL BASIC ASSESSMENT REPORT

|  |          |   |        |          |          |       |           |     |             |          |              |     |                              |     |     |   |     |
|--|----------|---|--------|----------|----------|-------|-----------|-----|-------------|----------|--------------|-----|------------------------------|-----|-----|---|-----|
| <p style="text-align: center;">Surface water pollution</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 20%;">Status</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Extent</td> <td style="text-align: center;">Regional</td> </tr> <tr> <td>Duration</td> <td style="text-align: center;">Short</td> </tr> <tr> <td>Intensity</td> <td style="text-align: center;">Low</td> </tr> <tr> <td>Probability</td> <td style="text-align: center;">Probable</td> </tr> <tr> <td>Significance</td> <td style="text-align: center;">Low</td> </tr> <tr> <td>Significance with mitigation</td> <td style="text-align: center;">Low</td> </tr> </table> | Status   | - | Extent | Regional | Duration | Short | Intensity | Low | Probability | Probable | Significance | Low | Significance with mitigation | Low | Low | <ol style="list-style-type: none"> <li>1. Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants;</li> <li>2. A walled concrete platform, dedicated store with adequate flooring or bermed area should be used to accommodate chemicals such as fuel, oil, paint, herbicide and insecticides, as appropriate, in well-ventilated areas;</li> <li>3. Storage of potentially hazardous materials should be above any 100-year flood line, or as agreed with the ECO. These materials include fuel, oil, cement, bitumen etc.;</li> <li>4. Sufficient care must be taken when handling these materials to prevent pollution;</li> <li>5. Surface water draining off contaminated areas containing oil and petrol would need to be channelled towards a sump which will separate these chemicals and oils;</li> <li>6. Oil residue shall be treated with oil absorbent such as Drizit or similar and this material removed to an approved waste site;</li> <li>7. Concrete, if used, is to be mixed on mixing trays only, not on exposed soil;</li> <li>8. Concrete and tar shall be mixed only in areas which have been specially demarcated for this purpose;</li> <li>9. All concrete and tar that is spilled outside these areas shall be promptly removed by the Contractor and taken to an approved dumpsite;</li> <li>10. After all the concrete / tar mixing is complete all waste concrete / tar shall be removed from the batching area and disposed of at an approved dumpsite;</li> <li>11. Storm water shall not be allowed to flow through the batching area. Cement sediment shall be removed from time to time and disposed of in a manner as instructed by the Consulting Engineer;</li> <li>12. All construction materials liable to spillage are to be stored in appropriate structures with impermeable flooring;</li> <li>13. Portable septic toilets are to be provided and maintained for construction crews. Maintenance must include their removal without sewage spillage;</li> <li>14. Portable septic toilets are to be located outside of the 1-100year floodline; Under no circumstances may ablutions occur outside of the provided facilities;</li> <li>15. At all times care should be taken not to contaminate surface water resources;</li> <li>16. No uncontrolled discharges from the construction crew camps to any surface water resources shall be permitted. Any discharge points need to be approved by the relevant authority;</li> <li>17. In the case of pollution of any surface or groundwater, the Regional Representative of the Department of Water Affairs (DWA) must be informed immediately;</li> <li>18. Where construction in close proximity to sewer lines is unavoidable then excavations must be done by hand while at all times ensuring that the soil beneath the sewer lines is not destabilised;</li> <li>19. Store all litter carefully so it cannot be washed or blown into any of the water courses within the study area;</li> <li>20. Provide bins for construction workers and staff at appropriate locations, particularly where food is consumed;</li> <li>21. The construction site should be cleaned daily and litter removed;</li> <li>22. Conduct on-going staff awareness programs so as to reinforce the need to avoid littering;</li> <li>23. Backfill must be compacted to form a stabilised and durable blanket; and the current load above the sewer lines must at no time be exceeded.</li> </ol> | Low |
| Status   | -        |   |        |          |          |       |           |     |             |          |              |     |                              |     |     |   |     |
| Extent   | Regional |   |        |          |          |       |           |     |             |          |              |     |                              |     |     |   |     |
| Duration   | Short    |   |        |          |          |       |           |     |             |          |              |     |                              |     |     |   |     |
| Intensity  | Low      |   |        |          |          |       |           |     |             |          |              |     |                              |     |     |   |     |
| Probability  | Probable |   |        |          |          |       |           |     |             |          |              |     |                              |     |     |   |     |
| Significance   | Low      |   |        |          |          |       |           |     |             |          |              |     |                              |     |     |   |     |
| Significance with mitigation   | Low      |   |        |          |          |       |           |     |             |          |              |     |                              |     |     |   |     |

**FINAL BASIC ASSESSMENT REPORT**

| <u>Wetlands</u>  |               |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
|--|---------------|---|--------|----------|----------|------------|-----------|------|-------------|----------|-----------------|---------------|------------------------------|---------------|------------------------------|--|---------------|--|-----|
| <p>Destruction of wetland habitat through road widening activities</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Status</td><td style="background-color: black; color: white;">-</td></tr> <tr><td>Extent</td><td>Regional</td></tr> <tr><td>Duration</td><td>Permanent</td></tr> <tr><td>Intensity</td><td>High</td></tr> <tr><td>Probability</td><td>Probable</td></tr> <tr><td>Significance</td><td>Medium</td></tr> <tr><td>Significance with mitigation</td><td>Low to Medium</td></tr> </table>     | Status        | - | Extent | Regional | Duration | Permanent  | Intensity | High | Probability | Probable | Significance    | Medium        | Significance with mitigation | Low to Medium | Medium                       | <ol style="list-style-type: none"> <li>1. Alternate widening on either side of the road to achieve protection of specific HGM units. Where the road supports wetlands of equal importance on both sides of the existing road, the road footprint should be kept to a minimum and strictly stay within the existing road reserve;</li> <li>2. Re-vegetation of disturbed areas must be undertaken with site indigenous species and in accordance with the instructions issued by the ECO. Refer to specialist wetland assessment for species list.</li> <li>3. The establishment and use of Borrow-pit areas are not permitted within wetland areas or within wetland buffer zone areas. The borrow-pit areas should also not impact on the hydrology of wetland areas through increased run-off or dissection of geo-hydrological pathways feeding the wetlands. Effective rehabilitation of the borrow-pit areas must be implemented as soon as they are finished</li> <li>4. After completion of the construction phase, a wetland monitoring program must be initiated that ensure that all wetland protection infrastructure and storm-water systems are properly installed and that all affected wetland areas are adequately rehabilitated.</li> </ol> | Low to Medium |  |     |
| Status   | -             |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
| Extent   | Regional      |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
| Duration   | Permanent     |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
| Intensity  | High          |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
| Probability  | Probable      |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
| Significance   | Medium        |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
| Significance with mitigation   | Low to Medium |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
| <b>4. Social Impacts:</b>  |               |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
| <p>Heritage Resources</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Status</td><td style="background-color: black; color: white;">-</td></tr> <tr><td>Extent</td><td>Site</td></tr> <tr><td>Duration</td><td>Short term</td></tr> <tr><td>Intensity</td><td>Low</td></tr> <tr><td>Probability</td><td>Possible</td></tr> <tr><td>Weighing Factor</td><td>Low to Medium</td></tr> <tr><td>Significance</td><td>Low to Medium</td></tr> <tr><td>Significance with mitigation</td><td>Low</td></tr> </table> | Status        | - | Extent | Site     | Duration | Short term | Intensity | Low  | Probability | Possible | Weighing Factor | Low to Medium | Significance                 | Low to Medium | Significance with mitigation | Low  | Low to Medium | <ol style="list-style-type: none"> <li>1. All finds of human remains or historical artefacts should be left untouched when discovered. The police should be notified if human remains are discovered. Notify the South African Heritage Resources Agency (SAHRA) when any heritage resource or artefact is discovered or unearthed during the construction phase.</li> </ol> | Low |
| Status   | -             |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
| Extent   | Site          |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
| Duration   | Short term    |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
| Intensity  | Low           |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
| Probability  | Possible      |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
| Weighing Factor  | Low to Medium |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
| Significance   | Low to Medium |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |
| Significance with mitigation   | Low           |   |        |          |          |            |           |      |             |          |                 |               |                              |               |                              |  |               |  |     |

**7.6 IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE**

|  |
|--|
| <p><b><u>Direct impacts</u></b></p> <ol style="list-style-type: none"> <li>1. Visual impacts</li> <li>2. Ecological Impacts</li> </ol> <p><b><u>Indirect impacts</u></b></p> <p align="center">None</p> <p><b><u>Cumulative impacts</u></b></p> <p align="center">None</p> |
|--|

Alternative (preferred alternative – no additional alternatives in terms of locality have been investigated).

**FINAL BASIC ASSESSMENT REPORT**

| Potential impacts:  | Significance rating of impacts(Low, Medium, Medium-High, High, Very High): | Proposed mitigation: | Significance rating of impacts after mitigation(Low, Medium, Medium-High, High, Very High): |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
|---|--|----------------------|---|----------|----------|------------|-----------|--------|-------------|------------|-----------------|---------------|------------------------------|---------------|------------------------------|--|---------------|---|-----|
| <b>1. Visual Impacts:</b>   |  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| <p>Visual impacts in terms of illegal dumping along the N11 Section 10</p> <table border="1" data-bbox="264 479 544 786"> <tr><td>Status</td><td>-</td></tr> <tr><td>Extent</td><td>Site</td></tr> <tr><td>Duration</td><td>Permanent</td></tr> <tr><td>Intensity</td><td>Medium</td></tr> <tr><td>Probability</td><td>Possible</td></tr> <tr><td>Weighing Factor</td><td>Medium</td></tr> <tr><td>Significance</td><td>Low to Medium</td></tr> <tr><td>Significance with mitigation</td><td>Low</td></tr> </table> | Status   | -                    | Extent  | Site     | Duration | Permanent  | Intensity | Medium | Probability | Possible   | Weighing Factor | Medium        | Significance                 | Low to Medium | Significance with mitigation | Low  | Low to Medium | <ol style="list-style-type: none"> <li>1. Ensure that the area around the N11 route is kept neat and clean</li> <li>2. Supply enough signage around the route thereby informing the public of illegal littering and fires.</li> </ol>   | Low |
| Status  | -  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Extent  | Site   |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Duration  | Permanent  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Intensity   | Medium   |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Probability   | Possible   |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Weighing Factor   | Medium   |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Significance  | Low to Medium  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Significance with mitigation  | Low  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| <b>2. Ecological Impacts:</b>   |  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| <p>Routine road maintenance along the N11 Section 10</p> <table border="1" data-bbox="264 882 544 1189"> <tr><td>Status</td><td>-</td></tr> <tr><td>Extent</td><td>Site</td></tr> <tr><td>Duration</td><td>Short term</td></tr> <tr><td>Intensity</td><td>Low</td></tr> <tr><td>Probability</td><td>Probable</td></tr> <tr><td>Weighing Factor</td><td>Low to Medium</td></tr> <tr><td>Significance</td><td>Low</td></tr> <tr><td>Significance with mitigation</td><td>Low</td></tr> </table>                       | Status   | -                    | Extent  | Site     | Duration | Short term | Intensity | Low    | Probability | Probable   | Weighing Factor | Low to Medium | Significance                 | Low           | Significance with mitigation | Low  | Low           | <ol style="list-style-type: none"> <li>1. Sufficient care must be taken during routine maintenance to ensure that areas outside of the development footprint will not be disturbed.</li> <li>2. The introduction of alien plant species should be avoided at all times through routine maintenance activities.</li> </ol> | Low |
| Status  | -  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Extent  | Site   |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Duration  | Short term   |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Intensity   | Low  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Probability   | Probable   |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Weighing Factor   | Low to Medium  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Significance  | Low  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Significance with mitigation  | Low  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| <b>Aquatic Habitat Impacts</b>  |  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| <p>Increased stormwater input</p> <table border="1" data-bbox="264 1263 544 1496"> <tr><td>Status</td><td>-</td></tr> <tr><td>Extent</td><td>Regional</td></tr> <tr><td>Duration</td><td>Permanenet</td></tr> <tr><td>Intensity</td><td>Low</td></tr> <tr><td>Probability</td><td>Probable</td></tr> <tr><td>Significance</td><td>Low</td></tr> <tr><td>Significance with mitigation</td><td>Low</td></tr> </table>   | Status   | -                    | Extent  | Regional | Duration | Permanenet | Intensity | Low    | Probability | Probable   | Significance    | Low           | Significance with mitigation | Low           | Low                          | <ol style="list-style-type: none"> <li>1. While the occurrence of the listed impact is not likely to exceed current conditions, a precautionary approach should be followed. An ecologically-sensitive stormwater management plan should be developed that does not allow concentrated stormwater to enter into the watercourse, but instead makes use of flow diffusers and retention areas.</li> </ol> | Low           |   |     |
| Status  | -  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Extent  | Regional   |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Duration  | Permanenet   |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Intensity   | Low  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Probability   | Probable   |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Significance  | Low  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Significance with mitigation  | Low  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| <p>Obstruction of migratory aquatic fauna</p> <table border="1" data-bbox="264 1666 544 1899"> <tr><td>Status</td><td>-</td></tr> <tr><td>Extent</td><td>Local</td></tr> <tr><td>Duration</td><td>Permanenet</td></tr> <tr><td>Intensity</td><td>Low</td></tr> <tr><td>Probability</td><td>Unlikekely</td></tr> <tr><td>Significance</td><td>Low</td></tr> <tr><td>Significance with mitigation</td><td>Low</td></tr> </table>  | Status   | -                    | Extent  | Local    | Duration | Permanenet | Intensity | Low    | Probability | Unlikekely | Significance    | Low           | Significance with mitigation | Low           | Low                          | <ol style="list-style-type: none"> <li>1. A precautionary approach to ensure that no barriers to the migration of aquatic biota are created when conducting work at the bridge site, and if possible, conduct the proposed activities during times when biota are not likely to utilise migratory routes (i.e. during winter).</li> </ol>  | Low           |   |     |
| Status  | -  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Extent  | Local  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Duration  | Permanenet   |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Intensity   | Low  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Probability   | Unlikekely   |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Significance  | Low  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |
| Significance with mitigation  | Low  |                      |   |          |          |            |           |        |             |            |                 |               |                              |               |                              |  |               |   |     |

|  |           | Wetlands |        |          |          |           |           |        |             |          |              |      |                              |     |             |   |            |
|--|-----------|----------|--------|----------|----------|-----------|-----------|--------|-------------|----------|--------------|------|------------------------------|-----|-------------|---|------------|
| <p>Increased erosion</p> <table border="1"> <tr> <td>Status</td> <td>-</td> </tr> <tr> <td>Extent</td> <td>Regional</td> </tr> <tr> <td>Duration</td> <td>Permanent</td> </tr> <tr> <td>Intensity</td> <td>Medium</td> </tr> <tr> <td>Probability</td> <td>Possible</td> </tr> <tr> <td>Significance</td> <td>High</td> </tr> <tr> <td>Significance with mitigation</td> <td>Low</td> </tr> </table> | Status    | -        | Extent | Regional | Duration | Permanent | Intensity | Medium | Probability | Possible | Significance | High | Significance with mitigation | Low | <p>High</p> | <ol style="list-style-type: none"> <li>1. Should any work be conducted on the culverts present, box culverts are to be used;</li> <li>2. The base of the box culverts should be at least 1m below the bed of the river channel so as to prevent the formation of plunge pools on the downstream side of the bridge;</li> <li>3. The bed of the river channel should be rehabilitated to the correct height following culvert installation; and</li> <li>4. An ecologically-sensitive stormwater management plan should be developed that does not allow concentrated stormwater to enter into a wetland or watercourse directly, but instead makes use of flow diffusers and retention areas (such as artificial wetland areas, swales, baffles and gabion structures).</li> <li>5. Areas in need of rehabilitation intervention include:</li> <li>6. The area at HGM 6 to the east of the crossing. Gully erosion is moving eastwards scouring away wetland habitat and is likely to increase with an increase in runoff velocities). It is recommended that appropriate gabion structures are designed and installed in the appropriate localities in order to halt the current erosion processes and re-establish the wetlands water table to pre-disturbance levels.</li> <li>7. HGM 23, the portion of the Keerom Spruit on the eastern side of the road crossing has been degraded through gully erosion. A weir wall as should be constructed upstream of the road which will stabilise erosion processes within the wetland.</li> <li>8. HGM 8 and HGM 9 achieved the highest functional score during the field assessment and fall within the NFEPA Phase2 FEPA area. This largely channelled valley bottom system has been impacted by the existing road due to an increase in surface runoff. Appropriate initiatives should be designed and implemented including velocity breaking structures such as baffles, to prevent future degradation through the widening of the crossing</li> </ol> | <p>Low</p> |
| Status   | -         |          |        |          |          |           |           |        |             |          |              |      |                              |     |             |   |            |
| Extent   | Regional  |          |        |          |          |           |           |        |             |          |              |      |                              |     |             |   |            |
| Duration   | Permanent |          |        |          |          |           |           |        |             |          |              |      |                              |     |             |   |            |
| Intensity  | Medium    |          |        |          |          |           |           |        |             |          |              |      |                              |     |             |   |            |
| Probability  | Possible  |          |        |          |          |           |           |        |             |          |              |      |                              |     |             |   |            |
| Significance   | High      |          |        |          |          |           |           |        |             |          |              |      |                              |     |             |   |            |
| Significance with mitigation   | Low       |          |        |          |          |           |           |        |             |          |              |      |                              |     |             |   |            |

**7.7 IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING AND CLOSURE PHASE**

Decommissioning is not anticipated as the proposed development is a long term solution and upgrade of the existing deterioration and state of the N11 road between Middelburg and Loskop Dam.

**7.8 ENVIRONMENTAL IMPACT STATEMENT**

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity 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.

From an environmental perspective the proposed development is deemed necessary as the road condition has deteriorated significantly. Road safety and motor vehicle accidents along the N11 between Middelburg and Loskop Dam have increased significantly and unstable rock falling occurs especially in the Kranspoort Pass area. Rutting and pavement deterioration has occurred on the N11 and bridge structures including the Keerom Spruit and Kranspoort River have deteriorated over the years of usage and require a significant upgrade. Culverts along the N11 are in a bad state and some are blocked.

1. In terms of ecology the following is applicable:

The first section (km 3.4 to km 25.0) of the N11 falls within the Rand Highveld Grassland. This vegetation feature is a highly variable landscape with extensive sloping plains and a series of ridges slightly elevated over undulating surrounding plains. This vegetation is species-rich, wiry, sour grassland alternating with low, sour, shrubland on rocky outcrops and steeper slopes. The most common grasses on the plains are from the genera *Themeda*, *Eragrotis*, *Heteropogon* and *Elionurus*. A high diversity of herbs, mainly of the family of Asteraceae, is also typical of this feature. The rocky hills and ridges are home to sparse woodlands with *Protea caffra* subsp. *caffra*, *P. welwitschii*, *Acacia caffra* and *Celtis africana*, together with a rich suite of shrubs among which the genus *Rhus magalismonata* is the most prominent.

The second section (km 25.0 to km 48.0) of the N11 falls within the Loskop Mountain Bushveld. This vegetation occurs on low mountains and ridges with open tree savanna on lower-lying areas dominated by *Burkea africana* and a denser broad-leaved tree savanna on lower slopes and midslopes with prominent *Diplorhynchus condylocarpon*, *Combretum apiculatum* and *Acacia caffra*. An herbaceous grass layer is present.

The last section (km 48.0 to km 53.4) of the N11 at Loskop Dam falls within the Loskop Thornveld. This vegetation feature occurs in valleys and plains of parts of the upper Olifants River Catchment. The general area is open, deciduous to semi-deciduous, with tall thorny woodland and dominated by *Acacia* species.



Cape baboons were observed along the route at Kranspoort pass and the local community of Doornkop have grazing cattle. Agricultural practices are occurring near Middelburg, while the final section of the N11 at Loskop Dam runs through the Loskop Nature Reserve.

Due to the proposed cuttings at Kranspoort of approximately 25m, a permit in terms of the removal of indigenous trees and Red Data Plants will have to be applied for from the Department of Agriculture, Forestry and Fisheries (DAFF) and last mentioned from the South African National Biodiversity Institute (SANBI) in order to remove plants within the Kranspoort pass cuttings.



2. In terms of Hydrology the proposed development falls within the Olifants River Basin. Two tributaries of the Olifants River, the Keerom Spruit and Kranspoort River bridges will be upgraded to accommodate the new road reserve of the N11. The existing Keerom Spruit Bridge will be demolished and a new widened bridge structure will be built at the current location and elevated from the existing position. The footprint of the new bridge will be expanded and new pier structures will be introduced at the bridge. The construction of the new bridge at the Keerom Spruit will also require a temporary by-pass during construction.



The Aquatic Assessment concluded the following: The Keerom Spruit system proved to provide excellent diversity in available aquatic habitat, whilst the resident macroinvertebrate community also showed a moderately healthy diversity and abundance. As a result, the Keerom Spruit system is a system that maintains an intact functionality, whereby only the turbidity and the higher electrical conductivity, and associated Total Dissolved Solids (TDS), may be deterring intolerable aquatic biota. The Kranspoort Spruit system has a poor diversity in available habitats, and as such, a poor occurrence of macroinvertebrate taxa present. Although, within the collected sample, some moderately sensitive taxa were collected such as Ecnomidae (Caddisflies) and two separate species of Beatidae (Mayflies), indicating the presence of some preferred niche habitats. According to resident knowledge, the system had only recently begun to flow again, which would explain the low abundances, whereby a period of at least six weeks is usually required before a macroinvertebrate community can properly establish itself in a specific reach of river.

The Wetland Assessment concluded the following: Three different types of wetlands were classified within the study area and were categorised into hydro-geomorphic (HGM) units. These include valley bottom wetlands with a channel, valley bottom floodplain with a riparian channel, and hillslope seepage wetlands feeding a watercourse. A total of 27 Hydro-geomorphic units were delineated and classified within the study area. The largest majority of wetlands consisted of channelled wetlands with seasonal and temporary zonation, dominated by a graminoid layer.

From a functional perspective, wetlands within the study area serves to improve habitat within and downstream of the study area through the provision of various ecosystem services such as streamflow regulation, flood attenuation, groundwater recharge, nitrogen removal, phosphate removal, toxicant removal, particle assimilation and provision of natural resources.

The impact assessment identified destruction of wetland habitat and surface water pollution as the two major potential impacts during the construction period while the highest rated potential impact during the operational phase is increased erosion as a result of the higher surface runoff from increased impermeable surface areas.



3. In terms of heritage no significant impact was recorded along the N11 road between Middelburg and Loskop Dam. It is suggested that should any graves or archaeological finds be encountered at the proposed Kranspoort cuttings area, the local Police Station be contacted as well as the South African Heritage Resources Agency (SAHRA).
4. From a social perspective the proposed road upgrade is deemed necessary as it will improve the overall safety of road users and the community. Rutting, potholes and road degradation has been observed to have contributed to the need for this proposed road and bridge upgrade as well as the demand from the community and road users for enhanced and bettered safety along the N11.

The existing 3.5m lane with varying gravel shoulders will be improved by a 3.7m lane with 1.0m surfaced shoulder and 1.5m gravel shoulder in each direction. The drainage along the road will be improved as well as road markings and signs. Generally the intersections will be improved geometrically to improve sight distances and entry onto the N11. In terms of access management: illegal road access found in the Doornkop Township and in the Loskop Valley area will be reconciled and geometrically improved. Thus reducing the risk of accidents due to poor access control. Illegal access will be closed off by means of a formalised sidewalk, from km 1.62 to km 2.10.

The current speed along the N11 has been reduced from 120km/hr to 100km/hr in rural sections with a further reduction to 80km/hr at major intersections and 60km/hr around the Doornkop and Loskop Valley Townships, as well as at the School.

The existing guard rails will also be removed and installed at the correct height and position in relation to the edge of the road.

The two bridges of concern are the Kranspoort and Keerom Spruit bridges. The Keerom Spruit Bridge is currently situated in a sub-standard vertical curve and reduces visibility of road users. It will be raised and widened to improve visibility and safety over the bridge. Kranspoort Bridge will be widened for the same reasons.

The safety of the road users along the proposed cutting area (Kranspoort Pass) is currently very high as rock falling occurs often due to the instability of the current cuttings into the rock face. The route also carries a relatively high percentage of heavy motor vehicles and with limited passing opportunities the need of passing lane is essential to limit driver frustration. Nearing the Kranspoort River Bridge motor vehicle accidents; especially heavy motor vehicles; often occur due to vehicles not being able reduce speed (by applying brakes) when descending from the Kranspoort Pass.



**This project is deemed a necessity as the current road has deteriorated substantially and the risk for pedestrians and road users have increased. The widening of the existing N11, bridges and culverts will ease the current pressure for safety especially in the Kranspoort and Keerom area. Mitigation measures as suggested in the Impact Assessment above as well as the EMPr contained in Appendix F should be adhered to and followed. Full rehabilitation should be undertaken once the proposed development has ended. Indigenous trees and grasses should be planted where the cuttings took place and frequent maintenance should be undertaken along the road to minimise any exotic grasses and trees from establishing.**

**Alternative A (preferred alternative)**



The N11 between Middelburg and Loskop Dam has two preferred alternatives in terms of the bridge structures. A preferred alternative for the Keerom Spruit Bridge is:

1. Widen the bridge to allow the 12.4m cross section over the roadway on the upstream side;
2. Concrete F-shape parapet complete with endblocks and guardrails;
3. Full width deck surfacing
4. Drill Scupper pipes to 100 mm diameter to allow more effective drainage
5. Clear waterway of vegetation, particularly of the large tree stump situated approximately 5 meter upstream;
6. Replace the 4 expansion joints with asphaltic plug type joints;
7. Replace the pipe brackets which carry the existing pipes along the length of the bridge;
8. Provide a patch repair on the damaged pier; and
9. Extend and raise the sub-structure for the widened deck.



The preferred alternative for the Kranspoort River Bridge is:

1. Widen the bridge to allow the 12.4m cross section over the roadway;
2. Concrete F-shape parapet complete with endblocks and guardrails;
3. 4 new endblocks;
4. Re-drill scupper pipes to 100 mm diameter;
5. Replace the 5 expansion joints with asphaltic plug type joints;
6. Replace the pipe brackets which carry the existing pipes along the length of the bridge;
7. Repair minor honeycombing on the south abutment;
8. Extend the sub-structure for widened deck.

**No-go alternative (compulsory)**

If the proposed N11 Section 10 is not constructed, no impacts of any significance will result on the biophysical and/or social environments. The road will remain unchanged and no additional lanes or crawler lanes will be introduced. The five (5) bridges located along the route from Middelburg to Loskop Dam will remain in a bad state and condition and the safety risk in terms of accidents and deaths along the entire route will remain the same and may increase. The Keerom Spruit and Kranspoort River Bridges will disintegrate further and may collapse with time. Pedestrian safety will remain unchanged and pedestrian safety along the N11 especially Doornkop will remain high. Illegal road access onto the N11 at Doornkop will contribute to the safety aspect faced on the N11. Potential for an arrestor bed may be required for heavy motor vehicles descending from Loskop Dam towards Kranspoort River. The environment will remain unchanged and no cuttings into the rock face near the Kranspoort Pass will be required. All culverts will remain in a bad state and will disintegrate further.

**8 SECTION E. RECOMMENDATION OF 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)?

|                 |  |
|-----------------|--|
| <b>YES</b><br>✓ |  |
|-----------------|--|

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment):

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:

**The following mitigation and management measures should be implemented during the construction and operation phases of the proposed development in order to minimise potential environmental impacts:**

- **Adopt responsible construction practices aimed at containing the construction activities to specifically demarcated areas thereby reducing the removal of natural vegetation to a minimum. The removal of natural vegetation should be limited to the bare minimum and should not be undertaken without proper planning and delineation.**
- **Limit access to the proposed site (during both construction and operational phases) along existing access roads.**
- **Any soil must be exposed for the minimum time possible once cleared of vegetation to avoid prolonged exposure to wind and water erosion and to minimise dust generation.**
- **Excavation of soil at the proposed site should be undertaken in such a manner that wind and water erosion of this soil is prevented.**
- **The site clearing must be reduced to areas of immediate work to prevent the spread of weeds. The identified site should be fenced off from the natural open space before construction commences.**
- **All litter and site debris must be removed from the site immediately, if applicable and disposed at a registered landfill site.**
- **All bare patches around the site should be properly rehabilitated with topsoil removed at the proposed site.**
- **Dust suppression mechanisms should be put in place as to reduce and minimise the dust pollution.**
- **Indigenous vegetation should be utilised in the rehabilitation once construction is complete, especially the Kranspoort cuttings area.**
- **An alien eradication plan should be developed and implemented.**
- **A stormwater management plan should be implemented as to prevent pollution and runoff into the stormwater system.**
- **Avoidance of wetland habitat through appropriate road design, e.g. keeping the new road footprint to a minimum and strictly being contained within the existing road reserve.**
- **Velocity breaking structures such as baffles should be placed on the downstream side of all culverts and piping.**
- **Other erosion interventions such as gabion mattresses and weir walls should also be constructed where erosion potential have been identified.**
- **After completion of the construction phase, a wetland monitoring program must be**

initiated that ensure that all wetland protection infrastructure and storm-water systems are properly installed and that all affected wetland areas are adequately rehabilitated. The wetland monitoring program should continue during the operational phase in order to identify any new erosion processes that are developing and initiate cost effective rehabilitation plans timeously.

- It is recommended that mitigation measures be taken to reduce the erosion process, and care should be taken so as to leave the channels of the watercourses undisturbed during the construction process so as to limit further disturbances.
- Appropriate signage should be used around the site notifying the public of illegal dumping and dangers of the electricity infrastructure.
- The EMPr should be utilised onsite and kept with the contractor for the duration of the contract.
- Appoint an Environmental Control Officer (ECO) during the construction phase.

Is an EMPr attached?

YES



The EMPr must be attached as Appendix F.

**9 SECTION F: APPENDIXES**

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E1: Advert

Appendix E2: Executive Summary

Appendix E3: Stakeholder Letter

Appendix E4: Comments and Response Report

Appendix E5: Project Database

Appendix E6: Correspondence with Organs of State

Appendix E7: Meeting Minutes and Registers

Appendix E8: Landowner consultation

Appendix E9: Comments Received

Appendix F: Environmental Management Programme (EMPr)

Appendix G1: CV's

Appendix G2: DEA Correspondence

## BASIC ASSESSMENT REPORT

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