



agriculture & environmental affairs

Department:
Agriculture
& Environmental Affairs
PROVINCE OF KWAZULU-NATAL

(For official use only)

EIA File Reference Number:
NEAS Reference Number:
Waste Management Licence Number:
(if applicable)
Date Received:

DC/
KZN/EIA/

BASIC ASSESSMENT REPORT

Submitted in terms of the Environmental Impact Assessment Regulations, 2010 promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998)

This template may be used for the following applications:

- **Environmental Authorization** subject to basic assessment for an activity that is listed in Listing Notices 1 or 3, 2010 (Government Notices No. R 544 or No. R 546 dated 18 June 2010); or
- **Waste Management Licence** for an activity that is listed in terms of section 20(b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) for which a basic assessment process as stipulated in the EIA Regulations must be conducted as part of the application (refer to the schedule of waste management activities in Category A of Government Notice No. 718 dated 03 July 2009).

Kindly note that:

1. This **basic assessment report** meets the requirements of the EIA Regulations, 2010 and is meant to streamline applications. This report is the format prescribed by the KZN Department of Agriculture & Environmental Affairs. Please make sure that this is the latest version.
2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not 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 text.
3. Where required, place a cross in the box you select.
4. An incomplete report will 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 will result in the rejection of the application as provided for in the regulations.
6. No faxed or e-mailed reports will be accepted.
7. The report must be compiled by an independent environmental assessment practitioner ("EAP").
8. 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.

Basic Assessment Report

9. The KZN Department of Agriculture & Environmental Affairs may require that for specified types of activities in defined situations only parts of this report need to be completed.
10. The EAP must submit this basic assessment report for comment to all relevant State departments that administer a law relating to a matter affecting the environment. This provision is in accordance with Section 24 O (2) of the National Environmental Management Act 1998 (Act 107 of 1998) and such comments must be submitted within 40 days of such a request.
11. **Please note that this report must be handed in or posted to the District Office of the KZN Department of Agriculture & Environmental Affairs to which the application has been allocated (please refer to the details provided in the letter of acknowledgement for this application).**

DEPARTMENTAL REFERENCE NUMBER(S)

File reference number (EIA):	DC/0007/2014
File reference number (Waste Management Licence):	

SECTION A: DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER AND SPECIALISTS

1. NAME AND CONTACT DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Name and contact details of the EAP who prepared this report:

Business name of EAP:	JS Environmental Consultants (PTY) LTD		
Physical address:	26 Waterloo Crescent, Farningham Ridge, Pinetown		
Postal address:	26 Waterloo Crescent, Farningham Ridge, Pinetown		
Postal code:	3610	Cell:	078 357 6484
Telephone:	078 357 6484	Fax:	
E-mail:	jsencon@gmail.com		

2. NAMES AND EXPERTISE OF REPRESENTATIVES OF THE EAP

Names and details of the expertise of each representative of the EAP involved in the preparation of this report:

NAME OF REPRESENTATIVE OF THE EAP	EDUCATION QUALIFICATIONS	PROFESSIONAL AFFILIATIONS	EXPERIENCE AT ENVIRONMENTAL ASSESSMENTS (YRS)
Siphehile Nomvungu	BSc Geography & Environmental Management	IAIA	3

3. NAMES AND EXPERTISE OF SPECIALISTS: N/A

Names and details of the expertise of each specialist that has contributed to this report:

NAME OF SPECIALIST	EDUCATION QUALIFICATIONS	FIELD OF EXPERTISE	SECTION/ S CONTRIBUTED TO IN THIS BASIC ASSESSMENT REPORT	TITLE OF SPECIALIST REPORT/ S AS ATTACHED IN APPENDIX D

SECTION B: ACTIVITY INFORMATION

1. PROJECT TITLE

Describe the project title as provided on the application form for environmental authorization:

PROPOSED UPGRADING AND CONSTRUCTION OF GRIMTHORPE AVENUE BRIDGE, PIETERMARITZBURG

2. PROJECT DESCRIPTION

Provide a detailed description of the project:

The Msunduzi Municipality has appointed Makhaotse, Narasimulu and Associates to design and implement the upgrade of the river bridge at Grimthorpe Avenue in Lincoln Meade, Pietermaritzburg, located within the Msunduzi Municipality in the Province of Kwa-Zulu Natal.

The project comprises the upgrading of the existing river bridge to accommodate for two way traffic with pedestrian walkways. The new vertical alignment of the bridge will also require the realignment on either side of Grimthorpe Avenue. The re-aligned roadway will be designed to approved surfaced standards. All existing services will require investigating and relocating and upgrading if required.

The project is located in Lincoln Meade, Pietermaritzburg and is situated within the jurisdiction of the Msunduzi Municipality in the Province of Kwa-zulu Natal. The area to be affected by construction is located from the Grimthorpe Avenue/Rodgers Avenue Intersection.

3. ACTIVITY DESCRIPTION

Describe each listed activity in Listing Notice 1 (GNR 544, 18 June 2010) or Listing Notice 3 (GNR 546, 18 June 2010) which is being applied for as per the project description:

Applicable legislation is as follows: Listing notice 1 & 3: List of Activities and Competent Authorities Identified in Terms of Section 24(2) and 24D of the National Environmental Management Act No. 107 of 1998, states that a Basic Assessment is required for:

GNR. 544, June 2010, Listing Notice 1: Activity 11 (iii)(xi): The bridge will be upgraded and over/within a watercourse, and the road realignment will occur within 32m of the watercourse. The sections of road disturbed by construction, on either side of the bridge, will be realigned, upgraded and rehabilitated, with storm water and drainage

controls being implemented.

GNR. 544, June 2010, Listing Notice 1: Activity 18 (i): It is possible that a fill platform (berm) may be created so that construction can occur.

GNR. 546, June 2010, Listing Notice 3: Activity 16 (ff): The site may be located within proximity to an area that may be required for conservation purposes/ open space system.

4. 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 report. 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.

(Preferred layout / design and activity alternative)

The horizontal alignment of the bridge (as reflected in the geometric layout plan attached as appendix A) is fixed due to the tie in to the existing approaches and is also dictated to by the services and property lines. The new alignment is slightly offset from the existing low lying bridge. Design options are limited due to the restricted space and existing features.

Site alternative:

No site alternative was proposed based on the need for the upgrade at the proposed location.

The proposed bridge will be upgraded to a stronger bridge which will be withstand flood events.

Notable and restricting features within proximity to the bridge site are a sewage treatment works and pump station, gate, services. There is also evidence of dumping at the river.

In terms of vegetation, the riparian area immediately surrounding the existing bridge comprises disturbed vegetation. A number of acacia are present near the right of the bridge site and there are few along the road sections that are to be upgraded. The species composition is mainly a limited number of acacia thorn veld, about six *Vanchelia abyssinica*, with extensive encroachment of alien invasive species such as balloon vine, bugweed, castor oil, syringa, gum, red, currant, fig, cassia, Indian shot,

elephant ear and guava. Indigenous reed observed on site include cyperus dives. A disturbed open space lies along Grimthorpe avenue (section of road to be upgraded). The eastern approach to be upgraded is marked by gum, red currant, fig, syringa, and various weed species and services.

Technology alternative

As far as possible, in terms of technology, resistant, sustainable and environmentally friendly material will be used for construction.

Operational aspects:

N/A

No go Option:

Should the bridge note be upgraded, there will be a continuous problem with crossing at this point during high water levels, when the bridge has to be closed. In addition, two way vehicular crossing and safe pedestrian crossing will not be possible. Given the increasing rainfall, the 'no go' option is not recommended.

Sections B 5 – 15 below should be completed for each alternative.

5. 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, minutes and seconds. List alternative sites were applicable.

Only site alternative (Location of bridge)

Alternative:

Alternative S1¹ (preferred or only site alternative):

Latitude (S):			Longitude (E):		
29°	37'	06"	30°	26'	50"

In the case of linear activities:

Alternative: (N/A)

Alternative S1

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

Latitude (S):			Longitude (E):		

¹ "Alternative S.." refer to site alternatives.

No alternative sites were identified as this project is located based on the need for a bridge upgrade at the proposed location.

Alternative S2 (if any): **(N/A)**-

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

o	€	€	o	€	€
o	€	€	o	€	€
o	€	€	o	€	€

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 500m along the route for each alternative alignment. (N/A)

6. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative: N/A

Alternative A1² (preferred activity alternative as per layout Appendix A)

Size of the activity:

m ²

Or, for linear activities:

Alternative:

Alternative A1

(Dimensions of bridge & length of road on either side to be upgraded and realigned)

Length of the activity:

<p><u>Approaches</u> Eastern Side : 240m Western Side : 60m Bridge : 120m</p>
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Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative: (N/A)

Alternative A1 (preferred activity alternative)

Size of the site:

N/A

Alternative A2 (if any): N/A

7. SITE ACCESS

Does ready access to the site exist?

YES	<input checked="" type="checkbox"/>	<input type="checkbox"/>
N/A		

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

Describe the type of access road planned:

N/A

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.

8. SITE OR ROUTE PLAN (ATTACHED AS APPENDIX A-LAYOUT PLAN)

² "Alternative A.." refer to activity, process, technology or other alternatives.

Basic Assessment Report

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 report.

The site or route plans must indicate the following:

- 8.1. the scale of the plan which must be at least a scale of 1:500;
- 8.2. the property boundaries and numbers/ erf/ farm numbers of all adjoining properties of the site;
- 8.3. the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 8.4. the exact position of each element of the application as well as any other structures on the site;
- 8.5. 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;
- 8.6. walls and fencing including details of the height and construction material;
- 8.7. servitudes indicating the purpose of the servitude;
- 8.8. sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
 - rivers, streams, drainage lines or wetlands;
 - the 1:100 year flood line (where available or where it is required by DWA);
 - ridges;
 - cultural and historical features;
 - areas with indigenous vegetation including protected plant species (even if it is degraded or infested with alien species);
- 8.9. 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
- 8.10. the positions from where photographs of the site were taken.

9. SITE PHOTOGRAPHS (ATTACHED AS APPENDIX B)

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 report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

10. FACILITY ILLUSTRATION (N/A)

A detailed illustration of the facility must be provided at a scale of 1:200 and attached to this report as **Appendix C**. The illustrations must be to scale and must represent a realistic image of the planned activity/ies.

11. ACTIVITY MOTIVATION

11.1. Socio-economic value of the activity

- What is the expected capital value of the activity on completion?
- What is the expected yearly income that will be generated by or as a result of the activity?
- Will the activity contribute to service infrastructure?
- Is the activity a public amenity?
- How many new employment opportunities will be created in the development phase of the activity?
- What is the expected value of the employment opportunities during the development phase?

R 20,000,000.00
N/A
YES
YES
Approximately 20 Persons
Approximately R800,000.00

Basic Assessment Report

What percentage of this will accrue to previously disadvantaged individuals?	100%
How many permanent new employment opportunities will be created during the operational phase of the activity?	4
What is the expected current value of the employment opportunities during the first 10 years?	R0.00
What percentage of this will accrue to previously disadvantaged individuals?	N/A

11.2. Need and desirability of the activity

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

The Msunduzi Municipality has appointed Makhaotse, Narasimulu and Associates to design and implement the upgrade of the river bridge at Grimthorpe Avenue in Lincoln Meade, Pietermaritzburg, located within the Msunduzi Municipality.

The bridge that is to be upgraded crosses the Msunduzi River. The proposed project will allow safe crossing at the river during high water levels. The river becomes problematic during periods of high water levels. The upgrade will allow a two way traffic flow with pedestrian walkways unlike the existing bridge thus improving overall safety of individuals crossing the bridge on foot and motor vehicles. The proposed bridge upgrade is therefore desirable.

The site is zoned as bridge and road, road reserve; surrounding use is open space, residential, water treatment works.

The project will also create some employment opportunities during the construction phase.

Indicate any benefits that the activity will have for society in general:

This project augments improved mobility for all its beneficiaries. The proposed project will also provide opportunities for local SMME's, entrepreneurial and HDI companies to participate in the provision of construction services.

The proposed project will create a number of temporary jobs during the construction phase. The proposed project will have a significant positive impact, in further enhancing mobility and reducing risk factors affecting both people and vehicles that need to cross the river.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

This project augments improved mobility for all its beneficiaries. The proposed project will also provide opportunities for local SMME's, entrepreneurial and HDI companies to participate in the provision of construction services.

The proposed project will create a number of temporary jobs during the construction phase. The proposed project will have a significant positive impact, in further enhancing mobility and reducing risk factors affecting both people and vehicles that need to cross the river.

12. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Title of legislation, policy or guideline:	Administering authority:	Date:
<i>Environmental Impact Assessment Regulations 2010</i>	<i>Department of Water and Environmental Affairs</i>	<i>18 June 2010</i>
<i>Section 24 of the National Environmental Management Act, (Act No. 107) of 1998.</i>	<i>Department of Environmental Affairs and Tourism</i>	<i>21 April 2006</i>
<i>National Environmental Management Act, 2008(Act No. 62 of 2008).</i>	<i>KZN Agriculture, Environmental Affairs & Rural Development</i>	<i>01 May 2009</i>
<i>Section 19 of the National Water Act, (Act No. 36) of 1998.</i>	<i>Department of Water Affairs</i>	<i>1998</i>
<i>Occupational Health and Safety Act, (Act No. 85) of 1993</i>		<i>1993</i>
<i>The National Heritage Resources Act, No.25 of 1999</i>	<i>SAHRA</i>	<i>1999</i>
<i>National Environmental Management Biodiversity Act, Act 10 of 2004.</i>	<i>Department of Environmental Affairs</i>	<i>2004</i>

13. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

13.1. SOLID WASTE MANAGEMENT

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

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

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

<i>Approx. 30m³</i>

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

Loaded onto tipper trucks and transported

Where will the construction solid waste be disposed of? (provide details of landfill site)

Hauled to the New England Road Municipal Landfill site

Will the activity produce solid waste during its operational phase?

<input checked="" type="checkbox"/>	NO
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Basic Assessment Report

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

How will the solid waste be disposed of? (provide details of landfill site)

N/A

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

N/A

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 the further requirements of the application.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation? NO

If yes, contact the KZN Department of Agriculture, Environmental Affairs and Rural Development to obtain clarity regarding the process requirements for your application.

Is the activity that is being applied for a solid waste handling or treatment facility? NO

If yes, contact the KZN Department of Agriculture, Environmental Affairs and Rural Development to obtain clarity regarding the process requirements for your application. (N/A)

13.2. 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? N/A

Will the activity produce any effluent that will be treated and/or disposed of on site? NO

If yes, contact the KZN Department of Agriculture, Environmental Affairs and Rural Development to obtain clarity regarding the process requirements for your application.

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: N/A

Facility name:	N/A		
Contact person:	N/A		
Postal address:	N/A		
Postal code:	N/A		
Telephone:	N/A	Cell:	N/A
E-mail:	N/A	Fax:	N/A

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

⇒ ***Water used in the construction phase of the proposed development will be released into the municipal sewer systems where applicable. The water will then be transported to the municipal water works, treated and released, and reused.***

13.3. EMISSIONS INTO THE ATMOSPHERE

Will the activity release emissions into the atmosphere? YES

If yes, is it controlled by any legislation of any sphere of government? NO

If yes, contact the KZN Department of Agriculture, Environmental Affairs and Rural Development to obtain clarity regarding the process requirements for your application.

If no, describe the emissions in terms of type and concentration:

During construction, CO2 emissions from construction vehicles will occur. Dust entrainment from construction vehicles and activities is likely. The concentration will be low-moderate, and will be temporary and limited to the construction work area, for the duration of the construction phase.

13.4. GENERATION OF NOISE

Will the activity generate noise?

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

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

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

If no, describe the noise in terms of type and level:

Low level noise will result from construction vehicles and machinery, and is not expected to exceed the occupational health and safety levels. Noise generated at the sites as a result of construction activity will be temporary.

14. WATER USE

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

Municipal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	river, stream, dam or lake	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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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:

Approx. 40kl	
<input checked="" type="checkbox"/>	NO

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

If YES, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this report.

15. ENERGY EFFICIENCY

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

- *Energy efficient lighting should be used at the campsite.*
- *Environmental Education and Awareness should be taught to the construction workers before the commencement of construction.*
- *The utilization of energy during construction, in a responsible manner should also be included within this program*
- *The use of biodegradable products wherever possible shall be encouraged.*
- *Reduce the amount of solid waste from the proposed development by buying in bulk; buying products with less packaging, using a minimum of throw away products.*
- *When buying building materials, try to source products made from natural materials.*
- *When looking for building materials, buying locally instead of ordering from afar has many advantages for the local community and the environment, this will be contributing to lowering carbon emission levels and saving resources by reducing the carbon km involved in transporting the goods and this should also save on packaging.*
- *Waste paper and cardboard products used in the proposed project should be stored separately and taken to a waste paper depot where it will be recycled to form new paper products resulting in large savings in raw materials*

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

Alternative energy sources that can be applied to this particular project include: Green building materials which are composed of renewable, rather than non-renewable resources. Green materials are environmentally responsible because impacts are considered over the life of the product.

Some aspects that will be taken into consideration will include resource efficiency, energy efficiency, water conservation and affordability. This is discussed further in the Environmental Management Programme Report (EMPr).

SECTION C: SITE/ AREA/ PROPERTY DESCRIPTION

Important notes:

- 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):

- Subsections 1 - 6 below must be completed for each alternative.

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

	1:50 1:20	-					
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2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site (Please cross the appropriate box).

Alternative S1 (preferred site):

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Undulating plain/low hills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Has a specialist been consulted for the completion of this section? YES NO

If YES, please complete the following: *N/A*

Name of the specialist:			
Qualification(s) of the specialist:			
Postal address:			
Postal code:			
Telephone:	Tel:	Cell:	
E-mail:		Fax:	

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites? YES NO

If YES, specify and explain:
No red data species were observed on the proposed site.

Are there any special or sensitive habitats or other natural features present on any of the alternative sites? YES NO

If YES, specify and explain:
The river and riparian area over which the existing bridge is located must be treated as a sensitive habitat. The river and the associated riparian area, although degraded, provide a functional habitat for micro and macro fauna, such as avian species.

It is likely a few mature trees, will be removed to accommodate construction, and to provide a base for the site camp. It must be noted all vegetation must be cleared with prior approval of an appointed ECO or vegetation specialist, and the location of the camp site must be finalised in conjunction with an appointed ECO, and must be located at least 32m away from the riparian areas. It is further advised that trees be pruned where possible rather than removed entirely to accommodate construction purposes. All mature indigenous trees (or protected trees) removed must be replaced at a ratio of 1:3. Permits from DAFF and EKZNW will be required to remove or relocate plants or trees of conservation value or within a forest. Vegetation to be removed for the road upgrade must be limited to only that which is necessary for construction to occur.

However, the construction of the bridge is not expected to pose impacts that cannot be mitigated. The EMPr has been formulated to protect the natural environment; should there be any chance findings of red data species or protected trees/trees in a forest, permits will be acquired prior to disturbance with offsets being applied.

Are any further specialist studies recommended by the specialist? YES NO

If YES, specify:
N/A

If YES, is such a report(s) attached in **Appendix D**? *N/A* YES NO

Basic Assessment Report

Signature of specialist: _____

Date:

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

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

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).

A Geotechnical report is attached as Appendix D

'The site is underlain by fill, pedogenic material, colluvium, alluvium, residual soils and tillite of the Dwyka Group.

The tillite bedrock underlying the bridge site is suitable for founding the structure. Spread footings are recommended and allowable bearing pressures of 100 MN/m² may be used.

The footings should be keyed and dowelled into the underlying substrate to resist shear and uplift forces during times of flooding.

It is considered that soft excavation in terms of SABS 1200 can be anticipated to at least the depths of the field tests carried out. Nonetheless, it is recommended that a contingency amount be allowed for intermediate and hard rock/boulder excavation.

The gravel wearing course and underlying subgrade comprises good quality material of G5 to G7 quality which may be used as selected layer, subgrade and where of high enough specification as road subbase.

Finally, the ground conditions described in this report refer specifically to those encountered at the test positions on the site. It is therefore possible that conditions at variance with those discussed above may be encountered elsewhere on the area in question. It is therefore important that GeoZone GeoServices be appointed to carry out a strict quality assurance program during construction'.

4. GROUND COVER

Has a specialist been consulted for the completion of this section?

<input checked="" type="checkbox"/>	NO
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Basic Assessment Report

If YES, please complete the following: **N/A**

Name of the specialist:			
Qualification(s) of the specialist:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites? YES NO

If YES, specify and explain:

The riparian area is marked by a species composition of alien and indigenous vegetation. Some Acacia occur on site, with various weeds such as balloon vine and Cassia.
The approaches are marked by mainly weed species such as syringa, guava, balloon vine and some acacia.
A specialist or the ECO must inspect the sites prior to construction commencing and must apply for permits from DAFF or EKZNW as required, with offsets being applied (replaced ratio of 1:3)

Are there any special or sensitive habitats or other natural features present on any of the alternative sites? YES NO

If YES, specify and explain:

River and associated riparian area, as well as approaches, should be considered as a sensitive habitat.

Are any further specialist studies recommended by the specialist? YES NO

If YES, specify:

N/A

If YES, is such a report(s) attached in **Appendix D**? **N/A** YES NO

Signature of specialist: _____ Date: _____

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

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Veld dominated by alien species ^E	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Paved surface	Building or other structure	<input checked="" type="checkbox"/>

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. LAND USE CHARACTER OF SURROUNDING AREA

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

Land use character			Description
Natural area	YES	<input checked="" type="checkbox"/>	The proposed site is currently classified

Basic Assessment Report

			as open space, road reserve and river crossing
Low density residential	<input type="checkbox"/>	NO	
Medium density residential	<input type="checkbox"/>	NO	
High density residential	YES	<input type="checkbox"/>	
Informal residential	<input type="checkbox"/>	NO	
Retail commercial & warehousing	<input type="checkbox"/>	NO	
Light industrial	<input type="checkbox"/>	NO	
Medium industrial	<input type="checkbox"/>	NO	
Heavy industrial	<input type="checkbox"/>	NO	
Power station	<input type="checkbox"/>	NO	
Office/consulting room	<input type="checkbox"/>	NO	
Military or police base/station/compound	<input type="checkbox"/>	NO	
Spoil heap or slimes dam	<input type="checkbox"/>	NO	
Quarry, sand or borrow pit	<input type="checkbox"/>	NO	
Dam or reservoir	<input type="checkbox"/>	NO	
Hospital/medical centre	<input type="checkbox"/>	NO	
School/ creche	<input type="checkbox"/>	NO	
Tertiary education facility	<input type="checkbox"/>	NO	
Church	<input type="checkbox"/>	NO	
Old age home	<input type="checkbox"/>	NO	
Sewage treatment plant	YES	<input type="checkbox"/>	There is water treatment works situated approximately 100m from the existing bridge.
Train station or shunting yard	<input type="checkbox"/>	NO	
Railway line	<input type="checkbox"/>	NO	
Major road (4 lanes or more)	<input type="checkbox"/>	NO	
Airport	<input type="checkbox"/>	NO	
Harbour	<input type="checkbox"/>	NO	
Sport facilities	<input type="checkbox"/>	NO	
Golf course	<input type="checkbox"/>	NO	
Polo fields	<input type="checkbox"/>	NO	
Filling station	<input type="checkbox"/>	NO	
Landfill or waste treatment site	<input type="checkbox"/>	NO	
Plantation	<input type="checkbox"/>	NO	
Agriculture	<input type="checkbox"/>	NO	
River, stream or wetland	YES	<input type="checkbox"/>	The proposed bridge upgrade will be constructed across a river.
Nature conservation area	<input type="checkbox"/>	NO	
Mountain, hill or ridge	<input type="checkbox"/>	NO	
Museum	<input type="checkbox"/>	NO	
Historical building	<input type="checkbox"/>	NO	
Protected Area	<input type="checkbox"/>	NO	
Graveyard	<input type="checkbox"/>	NO	
Archaeological site	<input type="checkbox"/>	NO	
Other land uses (describe)	<input type="checkbox"/>	NO	

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 within 20m of the site?

<input type="checkbox"/>	NO
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Basic Assessment Report

If YES, contact a specialist recommended by AMAFA to conduct a heritage impact assessment. The heritage impact assessment must be attached as an appendix to this report.

Briefly explain the recommendations of the specialist:

■■■■

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

■■■■	NO
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Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

■■■■	NO
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If YES, please submit the necessary application to AMAFA and attach proof thereof to this report.

SECTION D: PUBLIC PARTICIPATION (ATTACHED AS APPENDIX E)

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 local and district municipality which has jurisdiction in the area;
 - (vi) any organ of state having jurisdiction in respect of any aspect of the activity (as identified in the application form for the environmental authorization of this project); 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 district 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 desires of but unable to participate in the process due to—
 - (i) illiteracy;

Basic Assessment Report

- (ii) disability; or
- (iii) any other disadvantage.

Public participation process undertaken for proposed project include the ffg. Activities: (Appendix E)

Placement of Advertisements and On-Site Notices:

- An information package containing a description of the project and planned scope of work was compiled and distributed to relevant Authorities and Interested Parties that were identified at the project outset. The background information document contained a description of the project, explained the aims and objectives of the environmental assessment and invited comment on the proposed development. This BID was submitted on the 11 March 2014.
- The proposed development was advertised in the Mercury (legals) on the 28/02/2014.
- Four on-site notices in English were displayed for public viewing and comment in March 2014, two on either approach to the existing bridge at the project site, one on a light pole near the Grimthorpe/Rodgers avenue intersection outside the entrance to a pub, and one at the Pick n Pay notice board at the shopping centre.

The IAP's include:

- Ezemvelo KZN Wildlife;
- KZN Department of Water Affairs;
- Department of Transport
- Dept. of Agriculture, Fisheries and Forestry
- Umgungundlovu District Municipality

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 an application for environmental authorization has been submitted to the KZN Department of Agriculture, Environmental Affairs and Rural Development in terms of the EIA Regulations, 2010;(ii)
 - (iii) a brief project description that includes the nature and location of the activity to which the application relates;
 - (iv) where further information on the application can be obtained; and
 - (iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES (ATTACHED AS APPENDIX E)

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.

Basic Assessment Report

Advertisements and notices must make provision for all alternatives.

4. DETERMINATION OF APPROPRIATE PROCESS (ATTACHED AS APPENDIX E)

The EAP must ensure that the public participation process is according to that prescribed in regulation 54 of the EIA Regulations, 2010, but may deviate from the requirements of subregulation 54(2) in the manner agreed by the KZN Department of Agriculture, Environmental Affairs and Rural Development as appropriate for this application. 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.

5. COMMENTS AND RESPONSE REPORT (ATTACHED AS APPENDIX E)

The practitioner must record all comments and respond to each comment of the public before this application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations (regulation 57 in the EIA Regulations, 2010) and be attached as **Appendix E** to this report.

6. PARTICIPATION BY DISTRICT, LOCAL AND TRADITIONAL AUTHORITIES (ATTACHED AS APPENDIX E)

District, local and traditional authorities (where applicable) are all key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of this application and provided with an opportunity to comment.

Has any comment been received from the district municipality? NO

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

Reminders were sent for comments on the BID

Has any comment been received from the local municipality? NO

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

N/A: Local Municipality is the applicant.

Has any comment been received from a traditional authority? NO

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

N/A: Traditional authority not affected.

7. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders? NO

Basic Assessment Report

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

N/A

SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the 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.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

COMMENTS ON BACKGROUND INFORMATION DOCUMENT (BID):

Ezemvelo KZN Wildlife:

-No comments received. Reminders sent. Comment may be delayed.

Department of Water Affairs:

No comments received. Reminders sent.

Department of Transport:

-You are advised that the application is in the process of being investigated and that you will be advised accordingly of this Department's comments.

Department of Agriculture, Fisheries and forestry:

-Await the draft BAR and specialist studies in order to comment.

Umgungundlovu District Municipality:

-No comments received. Reminders sent.

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 as **Appendix E** to this report):

All comments and responses can be viewed as per **Appendix E**.

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

2.1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE

a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the planning and design phase:

Alternative S1 (preferred alternative)

Direct impacts:

⇒ Storage areas

Basic Assessment Report

- ⇒ Vegetation
- ⇒ Access routes/haulage routes
- ⇒ Noise/Dust attenuation
- ⇒ Construction camp and ablutions
- ⇒ Social impacts
- ⇒ Socio-economic
- ⇒ Surface water and groundwater pollution.

Indirect impacts:

- ⇒ None at this stage

Cumulative impacts:

- ⇒ None at this stage

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1 (PLEASE REFER TO EMPR FOR FULL MITIGATION MEASURES)

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Storage areas	Medium	<ul style="list-style-type: none"> ⇒ Prevalent winds and on-site topography need to be considered when determining storage areas. ⇒ The construction site/storage area should not be accessible to criminals, vagrants or children, and should be fenced if necessary. ⇒ Harmful substances to be stored separately, using impermeable lining, and is to be properly signed. ⇒ Fire control facilities are to be on hand at all times. ⇒ Storage areas to be situated away from wet areas. 	Low
Vegetation	Medium	<ul style="list-style-type: none"> ⇒ The area must be assessed prior to construction commencing for any red data species or protected trees. Perits must be obtained from DAFF and EKZNW prior to removal or relocation of any protected tree (or trees in a forest) or plants of conservation value. 	Low
Access routes	Low	<ul style="list-style-type: none"> ⇒ Choice of access routes should be of minimum disturbance to residents/businesses, and haulage activity to be preferably restricted to times of off peak traffic. (Existing access is in place, and will be used). 	Low

Basic Assessment Report

Noise/Dust attenuation	Medium	<ul style="list-style-type: none"> ⇒ Attenuation methods need to be investigated during this stage. ⇒ Dust amelioration methods need to be considered and implemented, where significant quantities of dust are anticipated, methods may be wetting of surfaces or wind screening. ⇒ In any instance noise levels are not to exceed SABS 0130 specified noise thresholds. ⇒ Construction vehicles to adhere to speed limits, fitted with silencers if required. 	Low
Construction camp/ablution	Medium	<ul style="list-style-type: none"> ⇒ The choice of site for construction camps, if any, have to be approved by the Engineer, and needs to recognise residences, ecologically sensitive areas and unstable zones. ⇒ Provide temporary chemical toilets. It is forbidden to use the natural environment as a toilet facility. These toilets are to be serviced once a week. ⇒ Bins/skips shall be provided for waste disposal within the construction areas. Bins should have liner bags for efficient control and safe waste disposal. Ensure that these can be closed to prevent waste removal by the elements; these would also need to be emptied at a suitable waste/landfill site/or by municipal waste collectors on a daily basis. ⇒ Provisions for removal and safe disposal of spoil to be made prior to Contractor occupying site. 	Low
Social impacts	High	<ul style="list-style-type: none"> ⇒ Construction staff to be exposed to environmental awareness programs and given environmental training prior to construction. ⇒ The general public needs to be notified of all activities pertaining to the project. The work times and possible disruptions to services need to be clearly stated here. ⇒ There should be a complaints 	Low

Basic Assessment Report

		<p>register on hand, of which the residents need to be informed of, to forward queries and complaints.</p> <ul style="list-style-type: none"> ⇒ The handling of equipment should be supervised to prevent injury. ⇒ Children should not be allowed entry onto the boundary of the works. ⇒ No work force may stay on site during the night. ⇒ Access to the construction crew camp only for work personnel. ⇒ Personnel to be given environmental education and specifications on the way work is to be carried out. ⇒ Fire control implements to be at hand at all times. 	
Socio-economic	High (negative)	<ul style="list-style-type: none"> ⇒ The proposed project will allow easier crossing at the river during high water levels. ⇒ The upgrade will allow a two way traffic flow with pedestrian walkways unlike the existing bridge thus improving overall safety of individuals crossing the bridge on foot and motor vehicles. The proposed bridge upgrade is therefore desirable. ⇒ The proposed project will also provide opportunities for local SMME's, entrepreneurial and HDI companies to participate in the provision of construction services. ⇒ The proposed project will create a number of temporary jobs during the construction phase. The proposed project will have a significant positive impact, in further enhancing mobility and reducing risk factors affecting both people and vehicles that need to cross the river. 	High (Positive)
Surface and groundwater	High	<ul style="list-style-type: none"> ⇒ The need for subsoil drainage will have to be assessed on 	Low

Basic Assessment Report

pollution		site during construction. ⇒ Extreme caution to be exercised when handling hazardous materials, as to ensure they do not pollute water bodies. Hazardous materials should be stored in impermeable, bunded areas.
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b. Process, technology, layout or other alternatives

List the impacts associated with any process, technology, layout or other alternatives that are likely to occur during the planning and design phase (please list impacts associated with each alternative separately):

Alternative A1 (PREFERRED LAYOUT- Refer to layout Plan, Annexure A)

<p><u>Direct impacts:</u></p> <ul style="list-style-type: none"> ⇒ Access ⇒ Storm water control ⇒ Social ⇒ Surface water <p><u>Indirect impacts:</u></p> <ul style="list-style-type: none"> ⇒ None at this stage <p><u>Cumulative impacts:</u></p> <ul style="list-style-type: none"> ⇒ None at this stage
<p>Alternative A2 (if any): N/A</p> <p><u>Direct impacts:</u></p> <ul style="list-style-type: none"> - N/A <p><u>Indirect impacts:</u></p> <ul style="list-style-type: none"> - N/A <p><u>Cumulative impacts:</u></p> <ul style="list-style-type: none"> - N/A

No-go alternative (compulsory)

<p><u>Direct impacts:</u></p> <p>Should this project be denied the following benefits will be forgone:</p> <ul style="list-style-type: none"> ⇒ The proposed project will allow safe crossing at the river during high water levels. ⇒ The upgrade will allow a two way traffic flow with pedestrian walkways unlike the existing bridge thus improving overall safety of individuals crossing the bridge on foot and motor vehicles. The proposed bridge upgrade is therefore desirable. ⇒ The proposed project will also provide opportunities for local SMME's, entrepreneurial and HDI companies to participate in the provision of construction services. ⇒ The proposed project will create a number of temporary jobs during the construction phase. The proposed project will have a significant positive impact, in further enhancing mobility and reducing risk factors affecting both people and vehicles that need to cross the river. <p><u>Indirect impacts:</u></p> <ul style="list-style-type: none"> - <p><u>Cumulative impacts:</u></p>

Basic Assessment Report

- ⇒ Socio-economic
- ⇒ Surface and groundwater pollution

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A1:

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Access routes	Medium	⇒ Choice of access routes should be of minimum disturbance to residents/businesses. Existing access will be used. Point's men to direct traffic in the event of road closure or diversion.	Low
Storm water control	Low-Medium	⇒ Storm water control measures need to be implemented throughout the duration of construction of this project.	Low
Social	Medium	<ul style="list-style-type: none"> ⇒ Points men to direct traffic in cases where road obstruction/traffic diversion is unavoidable. ⇒ Do not allow the works footprint to be accessed by children. ⇒ The municipality to address issues concerning incidental damage to private property. 	Low
Socio-economic	High (Negative)	<ul style="list-style-type: none"> ⇒ The proposed project will allow safe crossing at the river during high water levels. ⇒ The upgrade will allow a two way traffic flow with pedestrian walkways unlike the existing bridge thus improving overall safety of individuals crossing the bridge on foot and motor vehicles. The proposed bridge upgrade is therefore desirable. ⇒ The proposed project will also provide opportunities for local SMME's, entrepreneurial and HDI companies to participate in the provision of construction services. ⇒ The proposed project will create a number of temporary jobs during the construction phase. The proposed project will have a significant positive impact, in further enhancing mobility and reducing risk factors affecting both people and vehicles that need to cross the river. 	High (Positive)

Basic Assessment Report

Surface Water	Medium	<ul style="list-style-type: none"> ⇒ Ensure the new crossing can handle high flows and will maintain a near natural flow regimen during all flow periods ⇒ The construction camp and any hazardous substances utilized during construction must be kept away from the stream. ⇒ Any flow disruption arising from damming or diversion of the main channel should be subject to consideration by the environmental officer, who should identify points where diversion and damming should be undertaken. All such activities should be addressed following the close out of the construction programme and the main channel re-established to the pre-construction flow pattern. ⇒ Water quality samples must be taken before, during and after the construction period for monitoring purposes. Post construction determinants should fall within a 10% of the pre-construction sample determinants. ⇒ Any fauna found during construction must be recorded and released unharmed. 	Low
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2.2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE

a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the construction phase:

Alternative S1

Direct impacts:

- ⇒ Erosion
- ⇒ Excavations
- ⇒ Storm water control
- ⇒ Waste management
- ⇒ Trenching/excavations
- ⇒ Safety
- ⇒ Surface water

Indirect impacts:

- ⇒ Noise and Dust

Cumulative impacts:

- ⇒ Socio economic

Alternative S2 (if any)

N/A:

Basic Assessment Report

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Noise	Low-Medium	<ul style="list-style-type: none"> ⇒ Restriction of noisy activity as per Project Specifications or General Conditions of Contract, and notification of residents of the activities. ⇒ Equipping construction vehicles and machinery with silencers and ensuring their maintenance and that the construction vehicles adhere to speed limits at all times. ⇒ Make use of noise mufflers as required during removal of concreted surfaces. 	Low
Dust emission	Low-Medium	<ul style="list-style-type: none"> ⇒ Where dust emission is significant, screening and amelioration methods such as wetting of surfaces may be required, and residents may need to be notified. ⇒ Material/topsoil stockpiles may be protected via use of a covering, such as Hessian mats. 	Low
Waste management	Medium-High	<ul style="list-style-type: none"> ⇒ Waste from chemical toilets to be disposed of responsibly in a chemical treatment plant. All waste/ excess materials must be stored responsibly in designated skips or other specified areas as approved by the Engineer/ECO, or sent to a registered landfill. These should not be left to obstruct natural water flow. ⇒ Concrete and cement, is to be mixed on a demarcated area protected by an impermeable lining. A Mechanical mixer should preferably do the mixing of concrete/cement. ⇒ All spoil that will not be used should be removed daily and disposed of in a pre-approved spoil site. ⇒ Skips should be used for retention of solid waste that will be used for backfill. ⇒ Waste to be cleared from the sites at the end of each working day, no stripped tar, materials 	Low

Basic Assessment Report

		<p>etc. should be left lying on the roads, especially those frequented by pedestrians/vehicles.</p> <p>⇒ All potentially hazardous or polluting substances should be underlain by a plastic sheet that leads to a low point, where such spills or leaks can be collected and dealt with professionally.</p> <p>⇒ Should accidental waste spillage occur, prompt action should be taken to rehabilitate and clean the area, with significant spills being reported to the relevant authorities.</p>	
Erosion	Low-Medium	<p>⇒ Necessary temporary measures as approved must be implemented.</p> <p>⇒ Storm water controls need to be established to prevent the accumulation of water in excavated areas.</p> <p>⇒ Do not allow runoff to be concentrated or flow along the pipeline route without erosion protection measures being in place, or to accumulate in trenches.</p> <p>⇒ Avoid access into seasonally wet soils during or immediately after rainy periods until the soil is dry.</p> <p>⇒ Open trenches/excavations should not allow for the prolonged accumulation and stagnation of water. Where possible, water flow should be diverted away from the excavated areas using storm water/drainage facilities/berms. Trenches will be open and closed on the same day as far as possible.</p>	Low
Trenching/ excavations	Medium	<p>⇒ Excavations should be undertaken carefully incorporating appropriate drainage.</p> <p>⇒ For significant trees trenching must be 3m away from the stem.</p> <p>⇒ Excavate and backfill trenches on a progressive basis.</p> <p>⇒ Ensure that no trench longer than 1000m is exposed at any one time.</p>	Low

Basic Assessment Report

Surface water and groundwater	Medium-High	<ul style="list-style-type: none"> ⇒ Ensure the new crossing can handle high flows and will maintain a near natural flow regimen during all flow periods ⇒ The construction camp and any hazardous substances utilized during construction must be kept away from the stream. ⇒ Any flow disruption arising from damming or diversion of the main channel should be subject to consideration by the environmental officer, who should identify points where diversion and damming should be undertaken. All such activities should be addressed following the close out of the construction programme and the main channel re-established to the pre-construction flow pattern. ⇒ Water quality samples must be taken before, during and after the construction period for monitoring purposes. Post construction determinants should fall within a 10% of the pre-construction sample determinants. ⇒ Any fauna found during construction must be recorded and released unharmed. 	Low
Anthropogenic effects/safety	Medium	<ul style="list-style-type: none"> ⇒ All residents need to be notified of work times, and should be encouraged to fill in complaints and comments on a special complaints register. Restriction of activities to contract stated work times. ⇒ Try to avoid carrying out the works along key access roads during peak hour traffic periods. ⇒ Prevent pedestrians from accessing the sites, or from being in too close proximity by cordoning of the area can reinforce safety. 	Low

Basic Assessment Report

		⇒ The contractor is responsible for worker safety on site.	
Socio-economic	High (Negative)	<p>⇒ The proposed project will allow safe crossing at the river during high water levels.</p> <p>⇒ The upgrade will allow a two way traffic flow with pedestrian walkways unlike the existing bridge thus improving overall safety of individuals crossing the bridge on foot and motor vehicles. The proposed bridge upgrade is therefore desirable.</p> <p>⇒ The proposed project will also provide opportunities for local SMME's, entrepreneurial and HDI companies to participate in the provision of construction services.</p> <p>⇒ The proposed project will create a number of temporary jobs during the construction phase. The proposed project will have a significant positive impact, in further enhancing mobility and reducing risk factors affecting both people and vehicles that need to cross the river.</p>	high (Positive)

b. Process, technology, layout or other alternatives

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the construction phase (please list impacts associated with each alternative separately):

Alternative A1 (PREFERRED LAYOUT- Refer to layout Plan, Annexure A)

Direct impacts:

- ⇒ Trenching/excavations
- ⇒ Waste management
- ⇒ Erosion
- ⇒ Safety
- ⇒ Vegetation loss
- ⇒ Surface water
- ⇒ Visual Blight

Indirect impacts:

- ⇒ Noise and dust

Cumulative impacts:

- ⇒ Social/safety

Alternative A2

N/A

No-go alternative (compulsory)

Direct impacts:

Should this project be denied the following benefits will be forgone:

- ⇒ The proposed project will allow safe crossing at the river during high water levels.
- ⇒ The upgrade will allow a two way traffic flow with pedestrian walkways unlike the existing bridge thus improving overall safety of individuals crossing the bridge on foot and motor vehicles. The proposed bridge upgrade is therefore desirable.
- ⇒ The proposed project will also provide opportunities for local SMME's, entrepreneurial and HDI companies to participate in the provision of construction services.
- ⇒ The proposed project will create a number of temporary jobs during the construction phase. The proposed project will have a significant positive impact, in further enhancing mobility and reducing risk factors affecting both people and vehicles that need to cross the river.

Indirect impacts:

-

Cumulative impacts:

- ⇒ Socio-economic
- ⇒ Surface and groundwater pollution

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A1:

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Trenching/excavations	Medium	<ul style="list-style-type: none"> - Excavations should be undertaken carefully incorporating appropriate drainage. - For significant trees trenching must be 3m away from the stem. - Excavate and backfill trenches on a progressive basis. - Ensure that no trench longer than 1000m is exposed at any one time. 	Low
Erosion	Low-Medium	<ul style="list-style-type: none"> - Necessary temporary measures as approved must be implemented. - Storm water controls need to be established to prevent the accumulation of water in excavated areas. - Do not allow runoff to be concentrated or flow along the pipeline route without erosion 	Low

Basic Assessment Report

		<p>protection measures being in place, or to accumulate in trenches.</p> <ul style="list-style-type: none"> - Avoid access into seasonally wet soils during or immediately after rainy periods until the soil is dry. - Open trenches/excavations should not allow for the prolonged accumulation and stagnation of water. Where possible, water flow should be diverted away from the excavated areas using storm water/drainage facilities/berms. 	
Waste management	Medium-High	<ul style="list-style-type: none"> - Rubble must be disposed of at the nearest registered solid waste disposal facility. - Provide litterbins at regular positions, with spacing not exceeding 100m throughout the work sites. - Where necessary dedicate storage areas along the route for collection of construction waste. - Do not place hazardous material within proximity to the drainage channel. - Ensure all spoil that may not be re-used is removed to a registered spoil site daily. Spoil to be re-used should be stored in a skip until use, protected from the elements, and should not be mixed with topsoil at any time. - Ensure that the site is devoid of all litter at all times, bins will be provided for this purpose. At no point should there be evidence of garbage, 	Low

Basic Assessment Report

		cool drink bottles, cement bags, other waste or paper on the route.	
Safety	Medium	<ul style="list-style-type: none"> - All residents need to be notified of work times, and should be encouraged to fill in complaints and comments on a special complaints register. Restriction of activities to stated work times. - Try to avoid carrying out the works along key access roads during peak hour traffic periods. - Prevent pedestrians from accessing the sites, or from being in too close proximity by cordoning of the area can reinforce safety. - Stacked pipes should be bound and secured. - Qualified personnel to divert or direct traffic should the need arise. 	Low
Vegetation impacts	Medium-Low	<ul style="list-style-type: none"> - It is to be noted that no protected tree or plant, as well as other indigenous vegetation, is to be removed without prior permission from the authorities. An ECO will identify indigenous trees. - Imported material to be used for the project should be checked for contamination by alien seedlings or weeds. These need to be removed by use of herbicides, with stockpiles being monitored daily. 	Low
Noise	Low	<ul style="list-style-type: none"> - Restriction of noisy activity as per Project Specifications or General Conditions of Contract, and notification of residents of the activities. - Equipping construction 	Low

Basic Assessment Report

		<p>vehicles and machinery with silencers and ensuring their maintenance, and other noise attenuation methods such as buffering through use of vegetation.</p> <ul style="list-style-type: none"> - Make use of noise mufflers as required during removal of concreted surfaces. 	
Dust emission	Medium-high	<ul style="list-style-type: none"> - Where dust emission is significant, screening and amelioration methods such as wetting of surfaces may be required, and residents may need to be notified. - The stockpiles may be protected via use of a covering, such as Hessian mats. 	Low
Visual blight, storage areas and pollution	Medium	<ul style="list-style-type: none"> - The choice of storage areas are to be predetermined, taking note of topography, prevailing winds and ease of access. All hazardous materials are to be stored separately and signed. They also need to be proofed against pollution causing leakage, spills etc. - The construction site may be screened where necessary. - Transportation of harmful material should be done in sealed apparatus, and the handling of potentially hazardous substances is to be done on a demarcated, impermeable surface. - Residents of the respective sites are to be notified of the works. 	Medium
Surface Water	Medium-High	<ul style="list-style-type: none"> - Ensure the new crossing can handle high flows and will maintain a near natural 	Low

Basic Assessment Report

		<p>flow regimen during all flow periods</p> <ul style="list-style-type: none"> - The construction camp and any hazardous substances utilized during construction must be kept away from the stream. - Any flow disruption arising from damming or diversion of the main channel should be subject to consideration by the environmental officer, who should identify points where diversion and damming should be undertaken. All such activities should be addressed following the close out of the construction programme and the main channel re-established to the pre-construction flow pattern. - Water quality samples must be taken before, during and after the construction period for monitoring purposes. Post construction determinants should fall within a 10% of the pre-construction sample determinants. - Any fauna found during construction must be recorded and released unharmed. 	
Socio-economic	High (negative)	<ul style="list-style-type: none"> - The proposed project will allow safe crossing at the river during high water levels. - The upgrade will allow a two way traffic flow with pedestrian walkways unlike the existing bridge thus improving overall safety of individuals crossing the bridge on foot and motor vehicles. The proposed bridge upgrade is therefore desirable. - The proposed project will also provide opportunities for local SMME's, entrepreneurial and HDI companies to participate in the provision of construction services. - The proposed project will 	high (Positive)

Basic Assessment Report

		<p>create a number of temporary jobs during the construction phase. The proposed project will have a significant positive impact, in further enhancing mobility and reducing risk factors affecting both people and vehicles that need to cross the river.</p>
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2.3. IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the operational phase:

Alternative S1

Direct impacts:

⇒ Rehabilitation

Indirect impacts:

⇒ Waste management

Cumulative impacts:

⇒ Social

Alternative S2 (if any)

N/A

No-go alternative (compulsory)

Direct impacts:

Should this project be denied the following benefits will be forgone:

- ⇒ The proposed project will allow safe crossing at the river during high water levels.
- ⇒ The upgrade will allow a two way traffic flow with pedestrian walkways unlike the existing bridge thus improving overall safety of individuals crossing the bridge on foot and motor vehicles. The proposed bridge upgrade is therefore desirable.
- ⇒ The proposed project will also provide opportunities for local SMME's, entrepreneurial and HDI companies to participate in the provision of construction services.
- ⇒ The proposed project will create a number of temporary jobs during the construction phase. The proposed project will have a significant positive impact, in further enhancing mobility and reducing risk factors affecting both people and vehicles that need to cross the river.

Cumulative impacts:

- ⇒ Socio-economic
- ⇒ Surface and groundwater pollution

Basic Assessment Report

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Rehabilitation	Medium-High	<ul style="list-style-type: none"> - Cleaning of campsite to remove any substances that may later harm the environment, such as oil, cement etc. - General removal of litter, temporary works materials, any delineation structures, tools etc. - Ensure that the drainage channel is free from leftover material, etc., and that all waste is removed completely. - Removal of all pollution containment structures. - Ensure that any indigenous vegetation removed has been replanted or that areas have been regrassed. - Any disturbance that has taken place around the footprint of the installation must be rehabilitated. - Exposed land must be rehabilitated immediately after construction is complete. - Disturbed soil around crossings and diversions must be stabilised immediately after construction. - River channel embankments must be restored to the pre-existing (or improved) profile. - Topsoil containing the valuable seedbed that has been stockpiled for rehabilitation purposes, must be spread over the subsoil (minimum of 20cm) in areas requiring rehabilitation for the facilitation of vegetation establishment. - Top soiling must be carried out prior to the rainy season and or to any expected wet weather conditions. - No vehicles must be allowed access onto top soiled areas. - Areas where soil has been compacted must be ripped and landscaped if necessary to approximate a natural gradient. 	Low

Basic Assessment Report

		<ul style="list-style-type: none"> - After topsoil placement is complete, cleared and stockpiled vegetation must be spread over the top soiled area. - Monitoring should ensure successful re-establishment of natural/desirable vegetation. - Rehabilitation and long term monitoring to ensure re-establishment of natural vegetation, and on-going removal of alien vegetation and weeds. 	
Waste Management	Medium-High	<ul style="list-style-type: none"> - Majority of the waste will be used for the backfill. - Unless otherwise specified by the EO/ECO, any accumulated waste should be removed and stored in the nearest registered solid waste disposal facility. - Solid waste should be transported properly avoiding waste spills en-route. - No waste disposal is to take place on site. - Ensure all excess spoil, is removed to a registered spoil site. It is strictly prohibited to dump spoil in back areas, drainage channel, wetlands or any other wet area. - No solid waste may be burned on site. - All waste material must be disposed of at a permitted landfill site that is authorised to accept such waste. - All contaminated material to be disposed of at a permitted hazardous landfill site. - All waste along the route is to be promptly removed. - As per contract, the approved, reputable chemical toilet provider should ensure that waste is properly handled and disposed of. 	Low
Social	Medium	<ul style="list-style-type: none"> - All social environments to be considered during the final completion of the project. 	Low

Basic Assessment Report

Socio-economic	High (negative)	<ul style="list-style-type: none"> - The proposed project will allow safe crossing at the river during high water levels. - The upgrade will allow a two way traffic flow with pedestrian walkways unlike the existing bridge thus improving overall safety of individuals crossing the bridge on foot and motor vehicles. The proposed bridge upgrade is therefore desirable. - The proposed project will also provide opportunities for local SMME's, entrepreneurial and HDI companies to participate in the provision of construction services. - The proposed project will create a number of temporary jobs during the construction phase. The proposed project will have a significant positive impact, in further enhancing mobility and reducing risk factors affecting both people and vehicles that need to cross the river. 	high (positive)
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b. Process, technology, layout or other alternatives

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the operational phase (please list impacts associated with each alternative separately):

Alternative A1 (PREFERRED LAYOUT-. Refer to layout Plan, Annexure A)

Direct impacts:

- ⇒ Rehabilitation
- ⇒ Waste management
- ⇒ Backfilling
- ⇒ Environmental

Indirect impacts:

Alien plant control

Cumulative impacts:

Encroachment of established alien plants to other areas

Alternative A2

N/A

No-go alternative (compulsory)

Direct impacts:

Should this project be denied the following benefits will be forgone:

- ⇒ The proposed project will allow safe crossing at the river during high water levels.
- ⇒ The upgrade will allow a two way traffic flow with pedestrian walkways unlike the existing

Basic Assessment Report

<p>bridge thus improving overall safety of individuals crossing the bridge on foot and motor vehicles. The proposed bridge upgrade is therefore desirable.</p> <p>⇒ The proposed project will also provide opportunities for local SMME's, entrepreneurial and HDI companies to participate in the provision of construction services.</p> <p>⇒ The proposed project will create a number of temporary jobs during the construction phase. The proposed project will have a significant positive impact, in further enhancing mobility and reducing risk factors affecting both people and vehicles that need to cross the river.</p> <p><u>Indirect impacts:</u></p> <p>-</p> <p><u>Cumulative impacts:</u></p> <p>⇒ Socio-economic</p> <p>⇒ Surface and groundwater pollution</p>

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A1

IMPACTS	SIGNIFICANCE UNMANAGED	MITIGATION	SIGNIFICANCE MANAGED
Rehabilitation/alien plant control	⇒ Medium-High	<ul style="list-style-type: none"> - Clearing of campsite to remove any substances that may later harm the environment, such as oil, cement etc. - General removal of litter, temporary works materials, any delineation structures, tools etc. - Ensure that the drainage channel is free from leftover material, etc., and that all waste is removed completely. - Removal of all pollution containment structures. - Ensure that any indigenous vegetation removed has been replanted or that areas have been regrassed. - Any disturbance that has taken place around the footprint of the installation must be rehabilitated. - Exposed land must be rehabilitated immediately after construction is 	⇒ Low

Basic Assessment Report

		<p>complete.</p> <ul style="list-style-type: none"> - Disturbed soil around crossings and diversions must be stabilised immediately after construction. - River channel embankments must be restored to the pre-existing (or improved) profile. - Topsoil containing the valuable seedbed that has been stockpiled for rehabilitation purposes, must be spread over the subsoil (minimum of 20cm) in areas requiring rehabilitation for the facilitation of vegetation establishment. - Top soiling must be carried out prior to the rainy season and or to any expected wet weather conditions. - No vehicles must be allowed access onto top soiled areas. - Areas where soil has been compacted must be ripped and landscaped if necessary to approximate a natural gradient. - After topsoil placement is complete, cleared and stockpiled vegetation must be spread over the top soiled area. - Monitoring should ensure successful re-establishment of natural/desirable vegetation. - Rehabilitation and long term monitoring to ensure re-establishment of natural vegetation, and on-going removal of alien vegetation and weeds. 	
Backfilling	Medium-High	- Backfilling to ideally	Low

Basic Assessment Report

		<p>occur on same day as trench has been open, if possible.</p> <ul style="list-style-type: none"> - Backfilling to be done on a progressive basis where possible. - Excavations should have been opened and closed on the same day. This also reduces the risk of invasive plant establishment on material meant for backfilling. Manual or approved mild chemical removal of weeds or invasive plants, upon discovery via inspection, may alleviate this problem. - Backfill needs to be properly compacted to avoid erosion risks and subsequent settlement of trenches. - Where topsoil is to be used as backfill, attempts should be made to emulate the natural soil profile. - Inert rubble, where approved, may also be used as backfill, and should be similarly well compacted. 	
Waste management	⇒ Medium-High	<ul style="list-style-type: none"> - Unless otherwise specified by the EO/ECO, any accumulated waste which will not be used as backfill should be removed and stored in the nearest registered solid waste disposal facility. - Solid waste should be transported properly avoiding waste spills en-route. - No solid waste may be burned on site. - All waste material must be disposed of at a permitted landfill site that is authorised 	⇒ Low

Basic Assessment Report

		<p>to accept such waste.</p> <ul style="list-style-type: none"> - All spoil must be removed as it is generated to a registered spoil site, and not disposed of in back areas, wet sites, or left lying around. - All contaminated material to be disposed of at a permitted hazardous landfill site. - All waste along the route that will not be used for backfill is to be promptly removed. - As per contract, the approved, reputable chemical toilet provider should ensure that waste is properly handled and disposed of. - Ensure waste generated by workers is completely cleared from the route. 	
Socio-economic	High (Negative)	<ul style="list-style-type: none"> - The proposed project will allow safe crossing at the river during high water levels. - The upgrade will allow a two way traffic flow with pedestrian walkways unlike the existing bridge thus improving overall safety of individuals crossing the bridge on foot and motor vehicles. The proposed bridge upgrade is therefore desirable. - The proposed project will also provide opportunities for local SMME's, entrepreneurial and HDI companies to participate in the provision of construction services. - The proposed project will create a number of temporary jobs 	high (Positive)

Basic Assessment Report

		<p>during the construction phase. The proposed project will have a significant positive impact, in further enhancing mobility and reducing risk factors affecting both people and vehicles that need to cross the river.</p>
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Indicate mitigation measures to manage the potential impacts listed above:

IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING OR CLOSURE PHASE:

N/A:

This section is not applicable as this is an upgrade of a bridge crossing across a river and will exist indefinitely as it will assist commuters to travel across during periods of high stream levels and will improve mobility across the stream for both people and vehicles.

2.4.

a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the decommissioning or closure phase:

N/A: THIS ASPECT IS NOT EXPECTED SINCE THE BRIDGE UPGRADE WILL CONSTITUTE A LONGER LIFESPAN FOR THE BRIDGE

Alternative S1

Direct impacts:

Indirect impacts:

-

Cumulative impacts:

-

Alternative S2

N/A

b. Process, technology, layout or other alternatives

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the decommissioning or closure phase (please list impacts associated with each alternative separately):

Alternative A1 (preferred alternative)

Direct impacts:

Indirect impacts:

-

Cumulative impacts:

-

Alternative A2

N/A

No-go alternative (compulsory)

Direct impacts:

Should this project be denied the following benefits will be forgone:

- ⇒ The proposed project will allow safe crossing at the river during high water levels.
- ⇒ The upgrade will allow a two way traffic flow with pedestrian walkways unlike the existing bridge thus improving overall safety of individuals crossing the bridge on foot and motor vehicles. The proposed bridge upgrade is therefore desirable.
- ⇒ The proposed project will also provide opportunities for local SMME's, entrepreneurial and HDI companies to participate in the provision of construction services.
- ⇒ The proposed project will create a number of temporary jobs during the construction phase. The proposed project will have a significant positive impact, in further enhancing mobility and reducing risk factors affecting both people and vehicles that need to cross the river.

Indirect impacts:

-

Cumulative impacts:

- Socio-economic
- Surface and groundwater pollution

2.5. PROPOSED MONITORING AND AUDITING

For each phase of the project and for each alternative, please indicate how identified impacts and mitigation will be monitored and/or audited.

Alternative S1

The EMPr will be audited during the construction phase on a monthly basis, and these reports will be submitted to the Client, Project manager, Contractor and DAEA.

Alternative A1

(PREFERRED LAYOUT-

Refer to layout Plan,

Annexure A)

The EMPr will be audited during the construction phase on a monthly basis, and these reports will be submitted to the Client, Project manager, Contractor and DAEA.

3. 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.

Alternative S1

In line with the National Environmental Management Act (No. 107 of 1998), the development must be socially, economically and environmentally sustainable with the implications that:

- ⇒ Pollution and degradation of the environment are avoided.
 - Waste is avoided/minimised and re-used or re-cycled where possible.
 - Hazardous substances are handled and installed with extreme care and caution.
 - Only the utilisation of indigenous plant species in the landscaping and upliftment of site be permitted.
 - Negligence by construction workers is avoided wherever possible.
 - Construction vehicles and machinery are in good working order meeting manufactures specifications for anthropogenic and environmental safety.

Potential impacts were identified by professional judgement, project information, experience of similar projects, a review of available literature, site visits and consultation with authorities and the public. Works of this nature can pose significant impacts on the environment as identified below:

- ⇒ Social
- ⇒ Waste management
- ⇒ Noise/Dust
- ⇒ Vegetation
- ⇒ Rehabilitation

IMPACT	DURATION	PROBABILITY	SIGNIFICANCE	SIGNIFICNCE (WITH MITIGATION)
Waste management	Short term	Probable	Medium-High	Low
Social	Short term	Probable	High	Low
Vegetation	Short term	Probable	Medium	Low
Noise/dust	Short term	Probable	Medium-low	Low
Rehabilitation	Short term	Probable	Medium-High	Low

Alternative A1 ((PREFERRED LAYOUT- Refer to layout Plan, Annexure A)

In line with the National Environmental Management Act (No. 107 of 1998), the development must be socially, economically and environmentally sustainable with the implications that:

- Pollution and degradation of the environment are avoided.
- Waste is avoided/minimised and re-used or re-cycled where possible.
- Hazardous substances are handled and installed with extreme care and caution.
- Only the utilisation of indigenous plant species in the landscaping and upliftment of site be permitted.
- Negligence by construction workers is avoided wherever possible.
- Construction vehicles and machinery are in good working order meeting manufactures specifications for anthropogenic and environmental safety.
- Rehabilitation of buffer areas.

Basic Assessment Report

Potential impacts were identified by professional judgement, project information, experience of similar projects, a review of available literature, site visits and consultation with authorities and the public. Works of this nature can pose significant impacts on the environment as identified below:

Impacts of significance identified are:

- ⇒ Social
- ⇒ Waste management
- ⇒ Excavations/Trenching

IMPACT	DURATION	PROBABILITY	SIGNIFICANCE	SIGNIFICANCE (WITH MITIGATION)
Social	Short term	Probable	Medium-High	Low
Surface Water & Groundwater	Short term	Probable	Medium-High	Low
Waste management	Short term	Probable	Medium-High	Low
Trenching	Short term	Probable	Medium	Low

No-go alternative (compulsory)

Should this project be denied the following benefits will be forgone:

- ⇒ The proposed project will allow safe crossing at the river during high water levels.
- ⇒ The upgrade will allow a two way traffic flow with pedestrian walkways unlike the existing bridge thus improving overall safety of individuals crossing the bridge on foot and motor vehicles. The proposed bridge upgrade is therefore desirable.
- ⇒ The proposed project will also provide opportunities for local SMME's, entrepreneurial and HDI companies to participate in the provision of construction services.
- ⇒ The proposed project will create a number of temporary jobs during the construction phase. The proposed project will have a significant positive impact, in further enhancing mobility and reducing risk factors affecting both people and vehicles that need to cross the river.

SECTION F. RECOMMENDATION OF EAP

Is the information contained in this report and the documentation attached hereto in the view of the EAPr sufficient to make a decision in respect of this report?

If "NO", please contact the KZN Department of Agriculture, Environmental Affairs and Rural Development regarding the further requirements for your report.

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

If "YES", please attach the draft EMPr as **Appendix F** to this report and 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:

It is recommended that the proposed bridge upgrade be authorised so as to achieve the following benefits:

- ⇒ The proposed project will allow easier crossing at the river during high water levels.
- ⇒ The upgrade will allow a two way traffic flow with pedestrian walkways unlike the existing bridge thus improving overall safety of individuals crossing the bridge on foot and motor vehicles. The proposed bridge upgrade is therefore desirable.
- ⇒ The proposed project will also provide opportunities for local SMME's, entrepreneurial and HDI

Basic Assessment Report

companies to participate in the provision of construction services.

⇒ The proposed project will create a number of temporary jobs during the construction phase. The proposed project will have a significant positive impact, in further enhancing mobility and reducing risk factors affecting both people and vehicles that need to cross the river.

Additionally, it is recommended that an ECO or vegetation specialist be appointed to assess and oversee vegetation removal during site preparation, and to perform a plant search and rescue if required, and to apply for permits from DAFF and EKZNW if required. Should indigenous trees (or protected trees) be removed, these must be replaced at a ratio of 1:3. In addition, trees must be pruned rather than removed if possible. This contractor must also compile a rehabilitation plan for the post construction phase, to be approved by the ECO just prior to rehabilitation. Further, an ECO must be appointed to monitor general compliance with the EMP. The EMP will ensure that negative impacts are minimised, mitigated or avoided.

Also, it is recommended that local staff, including local contractors, be used to construct this bridge.

It is imperative that an EA be granted for this proposed project, due to the consequences being suffered by the locals as a result of periodic flooding of the river. This bridge will help to improve their mobility.

Basic Assessment Report

SECTION G: ANNEXURES

The following appendixes must be attached as appropriate:

Annexure A: Layout Plan

Annexure B: Site Photographs; BID - Background Information Document, On-Site Notices, Advertisements (Proof), correspondence to/from IAP's and Relevant Authorities.

Annexure C: Facility illustration(s) – N/A

Annexure D: Specialist reports :

Annexure E: Comments and responses table

Annexure F: Environmental Management Programme Report (EMPr)