

## Basic Assessment Report



## agriculture, environmental affairs & rural development

Department:  
Agriculture, Environmental Affairs  
& Rural Development  
**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 and Rural Development. 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.
9. The KZN Department of Agriculture, Environmental Affairs and Rural Development may require that for specified types of activities in defined situations only parts of this report need to be completed.

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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 and Rural Development 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):	
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:	<b>GIBB (Pty) Ltd</b>		
Physical address:	<b>2nd Floor, Greyville House, Cnr Greyville &amp; Cape Rd, Greenacres, Port Elizabeth 6001</b>		
Postal address:	<b>PO Box 63703, Greenacres</b>		
Postal code:	<b>6057</b>	Cell:	<b>0828546926</b>
Telephone:	<b>041 3927500</b>	Fax:	<b>041 3639300</b>
E-mail:	<a href="mailto:jjegels@gibb.co.za">jjegels@gibb.co.za</a>		

## 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)
<b>Mr. J. Jegels</b>	<b>M.Sc</b>	<b>SACNASP</b>	<b>8</b>

## 3. NAMES AND EXPERTISE OF SPECIALISTS

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
<b>Gavin Anderson</b>		<b>Archaeology</b>	<b>Appendix D</b>	<b>The Archaeological Survey For The Proposed Umgeni River Canalisation</b>
<b>Shamilla Pillay</b>		<b>Biodiversity</b>	<b>Appendix D</b>	<b>Proposed flood control embankments for the lower Mgeni</b>

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				<b>River at Springfield Park: Preliminary Biodiversity Assessment</b>

## SECTION B: ACTIVITY INFORMATION

### 1. PROJECT TITLE

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

**Basic Assessment for the Proposed Widening of the Lower Umgeni River**

### 2. PROJECT DESCRIPTION

Provide a detailed description of the project:

**The Umgeni Business Park, which is located in the flood plains of the Umgeni River just inland of the river mouth, was developed during the past 20 years in what is known as the Springfield Flats. It contributed significantly to the expansion of industrial and business areas within eThekweni municipal area. (Note that the Umgeni River is also known as the Mgeni River)**

**The development of the Umgeni Business Park went ahead based on the understanding that a section of the Umgeni River would be widened through provision of flood protection works (which in technical terms is referred to as canalisation) to reduce the flooding risk to within acceptable levels.**

**The eThekweni Coastal, Stormwater & Catchment Management Department (hereafter referred to as eThekweni unless otherwise specified) phased in the widening when the southern embankment of the relevant section of the Umgeni River was 'trimmed' during the mid 1980s. The embankments were stabilised with vegetated gabion type structures for flood protection. A section of the Umhlangane River, a tributary to the Umgeni River, was also widened at the time.**

**eThekweni proposes to continue with the second phase of the project, by further widening the Umgeni River through work along an approximate 1 km section of its northern embankment, in order to further reduce the flooding risk of the Umgeni Business Park. The proposed site to be affected is location approximately 3 km inland of the river mouth.**

**The proposed second phase of the widening project (hereafter referred to as the Umgeni Project for the purposes of this document) constitutes the provision of flood protection works, in the form of vegetated gabion type structures, for the northern river embankment at the desired river width. It is proposed to not line or excavate the riverbed.**

**A positive Record of Decision permitting the above development was issued on the 4<sup>th</sup> April 2006 (EIA/6008) under the Environmental Conservation Act (Act No.73 of 1989). The proponent however failed to proceed with construction and to implement the development within the validity period for construction commencement (18 months) as stated in the RoD and therefore defaulted on the authorisation.**

**This application is therefore submitted with the same development intent under the new NEMA Regulations (National Environmental Management Act, Act No. 107 of 1998).**

### 3. ACTIVITY DESCRIPTION

Describe each listed activity in Listing Notice 1 (GNR 544, 18 June 2010), Listing Notice 3 (GNR 546, 18 June 2010) or Category A of GN 718, 3 July 2009 (Waste Management Activities) which is being applied for as per the project description:

**Listing Notice 1 (GNR 544, 18 June 2010):**

**Activity 11. The construction of:**

(i) canals

(ii) channels

(xi) infrastructure or structures covering 50 square metres or more

**Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of the watercourse, excluding where such construction will occur behind the development setback line.**

### 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.

**The development proposal is very specific, i.e. dealing with the flooding of businesses in the Umgeni Business Park, and is the second phase of a two phased development that started in the 1980's.**

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

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## 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.

	Latitude (S):			Longitude (E):		
<b>Alternative:</b>						
Alternative S1 <sup>1</sup> (preferred or only site alternative)	N/A					
Alternative S2 (if any)						
Alternative S3 (if any)						

### In the case of linear activities:

	Latitude (S):			Longitude (E):		
<b>Alternative:</b>						
Alternative S1 (preferred or only route alternative)						
• Starting point of the activity	29°	48'	40"	31°	00'	31"
• Middle point of the activity	29°	48'	40"	31°	00'	46"
• End point of the activity	29°	48'	34"	31°	01'	00"
Alternative S2 (if any)	N/A					
• Starting point of the activity						
• Middle point of the activity						
• End point of the activity						
Alternative S3 (if any)	N/A					
• Starting point of the activity						
• Middle point of the activity						
• End point of the activity						

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

## 6. PHYSICAL SIZE OF THE ACTIVITY

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

<b>Alternative:</b>	<b>Size of the activity:</b>
Alternative A1 <sup>2</sup> (preferred activity alternative)	N/A
Alternative A2 (if any)	
Alternative A3 (if any)	
or, for linear activities:	
<b>Alternative:</b>	<b>Length of the activity:</b>
Alternative A1 (preferred activity alternative)	1000 m

<sup>1</sup> "Alternative S.." refer to site alternatives.

<sup>2</sup> "Alternative A.." refer to activity, process, technology or other alternatives.

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Alternative A2 (if any)  
Alternative A3 (if any)

N/A
N/A

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

**Alternative:**

**Size of the site/servitude:**

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

N/A
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### 7. SITE ACCESS

Does ready access to the site exist?

YES	NO
X	
N/A	

If NO, what is the distance over which a new access road will be built  
Describe the type of access road planned:

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

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.

**A Site Plan is included in Appendix A**

## 9. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

**Plates / photographs of the proposed site are included in Appendix B. Photo's that were taken from various positions that overlook the site and surrounding areas are included to clearly illustrate the surrounding area. Other plates were included and illustrate the Flooding of 1987.**

## 10. FACILITY ILLUSTRATION

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.

**A Facility Illustration is included in Appendix C**

## 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?

What percentage of this will accrue to previously disadvantaged individuals?

How many permanent new employment opportunities will be created during the operational phase of the activity?

R 25 mil	
R 0	
YES X	NO
YES	NO X
10	
R 10 mil	
20 %	
None	

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What is the expected current value of the employment opportunities during the first 10 years?

**R 0**

What percentage of this will accrue to previously disadvantaged individuals?

**0%**

## 11.2. Need and desirability of the activity

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

**The Umgeni Project is motivated by the need to continue with the flood attenuation project that was initiated as part of eThekweni's development plans for the Umgeni Business Park and surrounding area.**

**The widening of a section of the lower Umgeni River provides for additional flood protection measure for the properties and infrastructure already established within the floodplains of the river. Although flooding may still occur during extreme storm events, the area affected by the floods will be much reduced. In addition the risk of flood damage in areas that will still be affected will be significantly reduced.**

**Without further flood attenuation, properties adjacent to the proposed Umgeni Project site and upstream at the Umgeni Business Park will remain prone to unacceptable high and frequent flood risk, which could potentially include loss of life.**

**Please refer to *Appendix D – Specialist Reports and Appendix B – Site Photographs* for further background to the 1987 flood event that serves as a motivation for the proposed development.**

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

**Greater protection from flooding events will relieve maintenance costs caused by flood damage.**

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

**Local industries and businesses will benefit from better protection from flooding events.**

## 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:
National Environmental Management Act 107 of 1998 (NEMA)	Department of Environmental Affairs	1998
National Water Act 36 of 1998 (NWA)	Department of Water Affairs	1998
National Environmental Management: Waste Act 59 of 2008	Department of Environmental Affairs	2008
National Environmental Management: Biodiversity Act 10 of 2004	Department of Environmental Affairs	2004
National Heritage Resources Act 25 of 1999	South African Heritage Resources Agency	1999

Occupational Health and Safety Act 85 of 1993	Department of Labour	1993
All relevant Provincial regulations and Municipal bylaws	eThekweni Municipality	As Updated

### 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	NO
X	
20 m <sup>3</sup>	

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

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

**The waste generated will result from what can be considered as 'normal' construction activities. Most of this waste will likely fall in the category of 'general waste' but small quantities of 'hazardous waste' (e.g. oil rags, sealants, fuels and lubricating oil from construction vehicles; contaminated soil from accidental spills) may also be generated. Solid construction waste will be placed in dedicated waste bins or skips, which will be located in strategic and convenient places at the construction camp. These bins will also be clearly marked so that the potential for mixed waste is eliminated. These bins or skips will be collected weekly for disposal at registered municipal landfill sites. It is recommended that this be specified as such in the EMP.**

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

**The waste will be disposed of at the nearest suitably registered municipal landfill site.**

Will the activity produce solid waste during its operational phase?

YES	NO
	X

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

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

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

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine the further requirements of the application.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?

YES	NO
	X

**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?

YES	NO
	X

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

**13.2. Liquid effluent**

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

YES	NO
	X

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

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

YES	NO
	X

**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?

YES	NO
	X

If yes, provide the particulars of the facility:

Facility name:

N/A

Contact

person:

Postal

address:

Postal code:

Telephone:

Cell:

E-mail:

Fax:

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

N/A

**13.3. Emissions into the atmosphere**

Will the activity release emissions into the atmosphere?

YES	NO
	X

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

**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:



**13.4. Generation of noise**

Will the activity generate noise?

YES	NO
	X
N/A	

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:

**Construction noise will result from the movement of construction vehicles, trucks and other associated construction noise. However the noise will be short term, localised and will only last during the construction activities/phase of the project.**

**14. WATER USE**

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

municipal	water board	groundwater	river, stream, dam or lake	other	the activity will not use water
					X

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:

N/A	
YES	NO
X	

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.

**A Water Use Licence will be required during the construction phase of the proposed Umgeni River widening. The Department of Water Affairs, will be closely consulted with and the consultation with the authorities will continue throughout the project process and a Water Use Licence Application (WULA) will be also be submitted to the Department of Water Affairs in the KZN Region for approval prior to the construction phase of the project.**

## 15. ENERGY EFFICIENCY

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

None were considered.

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

None were considered.

## 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:

Flat	1:50	1:20	1:15 – 1:10	1:10	1:7,5 – 1:5	Steeper than
X	1:20	1:15		1:7,5		1:5

#### Alternative S2 (if any):

--	--	--	--	--	--	--

#### Alternative S3 (if any):

--	--	--	--	--	--	--

### 2. LOCATION IN LANDSCAPE

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

#### Alternative S1 (preferred site):

Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea-front
				X				

#### Alternative S2 (if any):

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**Alternative S3 (if any):**

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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 X
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If YES, please complete the following:

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

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites? 

YES	NO
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If YES, specify and explain: [REDACTED]

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: [REDACTED]

Are any further specialist studies recommended by the specialist? 

YES	NO
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If YES, specify: [REDACTED]

If YES, is such a report(s) attached in Appendix D? 

YES	NO
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Signature of specialist: \_\_\_\_\_ Date: 

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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)	<table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">YES X</td><td style="text-align: center;">NO</td></tr></table>	YES X	NO		
YES X	NO				
Dolomite, sinkhole or doline areas	<table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">YES</td><td style="text-align: center;">NO X</td></tr></table>	YES	NO X		
YES	NO X				
Seasonally wet soils (often close to water bodies)	<table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">YES X</td><td style="text-align: center;">NO</td></tr></table>	YES X	NO		
YES X	NO				
Unstable rocky slopes or steep slopes with loose soil	<table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">YES</td><td style="text-align: center;">NO X</td></tr></table>	YES	NO X		
YES	NO X				
Dispersive soils (soils that dissolve in water)	<table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">YES</td><td style="text-align: center;">NO X</td></tr></table>	YES	NO X		
YES	NO X				
Soils with high clay content (clay fraction more than 40%)	<table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">YES</td><td style="text-align: center;">NO X</td></tr></table>	YES	NO X		
YES	NO X				
Any other unstable soil or geological feature	<table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">YES</td><td style="text-align: center;">NO X</td></tr></table>	YES	NO X		
YES	NO X				
An area sensitive to erosion	<table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">YES X</td><td style="text-align: center;">NO</td></tr></table>	YES X	NO		
YES X	NO				

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).

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### 4. GROUND COVER

Has a specialist been consulted for the completion of this section?		<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO X
If YES, please complete the following:			
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?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
If YES, specify and explain:			
Are there any special or sensitive habitats or other natural features present on any of the alternative sites?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
If YES, specify and explain:			
Are any further specialist studies recommended by the specialist?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
If YES, specify:			
If YES, is such a report(s) attached in <u>Appendix D</u> ?		<input type="checkbox"/> YES	<input type="checkbox"/> 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).

<del>Natural veld</del> good condition <sup>E</sup>	<del>Natural veld</del> with scattered aliens <sup>E</sup>	<del>Natural veld</del> with heavy alien infestation <sup>E</sup>	<b>Veld dominated by alien species<sup>E</sup></b> X	Gardens
Sport field	Cultivated land	<b>Paved surface</b> X	<b>Building or other structure</b> X	Bare soil

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	<b>YES</b> X	<del>NO</del>	This is a natural area as it is within the Lower Umgeni Flood Plain.
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Low density residential	YES	NO X	
Medium density residential	YES X	NO	The residential area of Seacow Lake and Umgeni Park are located to the north of these two roads at a distance of approximately 400m and 200m respectively from the affected riverbank. Visual impact during construction.
High density residential	YES X	NO	
Informal residential	YES X	NO	
Retail commercial & warehousing	YES X	NO	On the northern side of the site approximately ten business premises lie between the affected site and Inanda and Riverside Road. The site is at risk of being flooded if the no-go option is preferred.
Light industrial	YES X	NO	On the northern side of the site approximately ten business premises lie between the affected site and Inanda and Riverside Road. The site is at risk of being flooded if the no-go option is preferred.
Medium industrial	YES X	NO	On the northern side of the site approximately ten business premises lie between the affected site and Inanda and Riverside Road. The site is at risk of being flooded if the no-go option is preferred.
Heavy industrial	YES X	NO	On the northern side of the site approximately ten business premises lie between the affected site and Inanda and Riverside Road. The site is at risk of being flooded if the no-go option is preferred.
Power station	YES	NO X	
Office/consulting room	YES	NO X	
Military or police base/station/compound	YES	NO X	
Spoil heap or slimes dam	YES	NO X	
Quarry, sand or borrow pit	YES X	NO	No longer in use. Replaced by an electrical substation. Therefore no impact is predicted.
Dam or reservoir	YES	NO X	
Hospital/medical centre	YES	NO X	
School/ creche	YES	NO	

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		<b>X</b>	
Tertiary education facility	YES	NO <b>X</b>	
Church	YES	NO <b>X</b>	
Old age home	YES	NO	
Sewage treatment plant	YES	NO	
Train station or shunting yard	YES	NO	
Railway line	<b>YES X</b>	NO	No impact is predicted on the railway line.
Major road (4 lanes or more)	YES	NO <b>X</b>	
Airport	YES	NO <b>X</b>	
Harbour	YES	NO <b>X</b>	
Sport facilities	YES	NO <b>X</b>	
Golf course	<b>YES X</b>	NO	No impact is predicted on the golf course.
Polo fields	YES	NO <b>X</b>	
Filling station	YES	NO <b>X</b>	
Landfill or waste treatment site	<b>YES X</b>	NO	No impact is predicted on the waste treatment site.
Plantation	YES	NO <b>X</b>	
Agriculture	YES	NO <b>X</b>	Some subsistence agriculture
River, stream or wetland	<b>YES X</b>	NO	Impacts are listed in the impact tables below (Section 2).
Nature conservation area	<b>YES X</b>	NO	Natural conservational areas will not be impacted on extensively.
Mountain, hill or ridge	YES	NO <b>X</b>	
Museum	YES	NO <b>X</b>	
Historical building	<b>YES X</b>	NO	No historical buildings will be impacted on.
Protected Area	YES	NO <b>X</b>	
Graveyard	<b>YES X</b>	NO	Within a relatively close proximity to the proposed development is an Islamic graveyard. This will not be affected as the canalisation will be rerouted to avoid the graveyard.
Archaeological site	YES	NO <b>X</b>	
Other land uses (describe)	YES	NO <b>X</b>	

## 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?

YES	NO X
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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:

**Umlando was contracted by GIBB to undertake the archaeological survey of a selected area of the Umgeni River upon request from Amafa aKwaZulu-Natali.**

**The specialist observed that industrial activity and informal small-scale agriculture have heavily disturbed much of the affected area. Those parts of the lower embankment have been affected by previous flooding and are thus not archaeologically sensitive. No archaeological sites were observed along the proposed development route. The Muslim Cemetery close by will not be affected as the canalisation will be rerouted.**

**The specialist concluded that no further mitigation would be required for this development.**

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

YES	NO X
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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)?

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

## SECTION D: PUBLIC PARTICIPATION

### 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—

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- (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 is desiring of but unable to participate in the process due to—
  - (i) illiteracy;
  - (ii) disability; or
  - (iii) any other disadvantage.

## 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.

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### 3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

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

Advertisements and notices must make provision for all alternatives.

### 4. DETERMINATION OF APPROPRIATE PROCESS

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

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

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?

YES X	NO
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If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

The Municipality is in full support of the proposed development

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Has any comment been received from the local municipality?

YES  NO

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

Has any comment been received from a traditional authority?

YES  NO

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

### 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?

YES  NO  
 X

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

**Not many comments were received from stakeholders. Please refer to Appendix E, Addendum 6 for I&AP Comments. More comments are expected after this public participation process and this section will therefore be updated following comment received on the Draft BAR.**

## 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.

**Please refer to the public meeting notes - Appendix E, Addendum 5 for the main issues raised by I&APs**

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):

**Please refer to the public meeting notes - Appendix E, Addendum 5 for the responses to the main issues raised by I&APs.**

## 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:**  
No impacts are envisaged during the planning stages.  
**Indirect impacts:**  
No impacts are envisaged during the planning stages.  
**Cumulative impacts:**  
No impacts are envisaged during the planning stages.

##### Alternative S2 (if any)

**Direct impacts:**  
No alternative technologies/layout was considered.  
**Indirect impacts:**  
No alternative technologies/layout was considered.  
**Cumulative impacts:**  
No alternative technologies/layout was considered.

##### No-go alternative (compulsory)

**Direct impacts:**  
The status quo is maintained and the Umgeni Project will not be implemented. The Umgeni Business Park would continue to be at a fairly high risk of being flooded. Property owners adjacent to the affected site would continue to be at high risk of floodwater destruction and safety hazard, which could potentially include serious injuries and even loss of life.  
**Indirect impacts:**  
No impacts identified.  
**Cumulative impacts:**  
This could potentially have disastrous implications in terms of long term viability of the Umgeni Business Park and as such could have significant impacts on the local and even regional economy.

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1	Alternative S2
Not applicable	Not applicable

#### 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 alternative)

**Direct impacts:**  
No alternative technologies/layout was considered.  
**Indirect impacts:**  
No alternative technologies/layout was considered.  
**Cumulative impacts:**  
No alternative technologies/layout was considered.

##### Alternative A2 (if any)

**Direct impacts:**  
No alternative technologies/layout was considered.  
**Indirect impacts:**  
No alternative technologies/layout was considered.  
**Cumulative impacts:**  
No alternative technologies/layout was considered.

##### No-go alternative (compulsory)

**Direct impacts:**  
The status quo is maintained and the Umgeni Project will not be implemented. The Umgeni Business Park would continue to be at a fairly high risk of being flooded. Property owners adjacent to the affected site would continue to be at high risk of floodwater destruction and safety hazard, which could potentially include serious injuries and even loss

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of life.  
**Indirect impacts:**  
 No impacts identified.  
**Cumulative impacts:**  
 This could potentially have disastrous implications in terms of long term viability of the Umgeni Business Park and as such could have significant impacts on the local and even regional economy.

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A1:	Alternative A2:
Not applicable	Not applicable

## 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 (preferred site)

**Direct impacts:**  
 Interruption of services:  
 The Umgeni Project will affect a number of existing services infrastructure such as sewer and water mains and storm water outlets.

Disturbance or damage to cultural and heritage features:  
 The affected site neighbours the Islamic graveyard. Although the proposed canalisation is not expected to impact upon the cemetery, the potential impacts from construction must still be considered due to the sensitivity of this heritage feature any such impacts must be avoided.

**Indirect impacts:**  
 Traffic and traffic infrastructure impacts:  
 Construction traffic required for transporting equipment, construction material, building rubble, waste and sand from and to the site could potentially have a significant impact on the local public road traffic. This is particularly due to the site's close proximity to a major traffic node, which is already known to experience significant congestion during peak hours.

Water quality impacts:  
 The proximity of the proposed development potentiates water quality issues as silt, construction waste and potential pollution from the construction plant enters the water or channel.

Community safety impacts:  
 Public members may potentially access the construction site due to its close proximity to a large recreational area and due to its allure to bikers and off-road vehicle drivers. Construction sites are however potentially unsafe for public members to access and use. Steep embankments, excavations and dangerous equipment and plant could result in accidents.

**Cumulative impacts:**  
 Social impacts associated with local migrations – influx of temporary construction workers:  
 It is unavoidable that there will be an influx of temporary construction workers for the entire construction period. This could potentially lead to disputes with local communities and businesses.  
 Impacts on recreation and tourism:  
 The potential impact on water quality and litter could in turn impact on recreational activities within the estuary.

#### Alternative S2 (if any)

**Direct impacts:**  
 No alternative sites were identified  
**Indirect impacts:**  
 No alternative sites were identified  
**Cumulative impacts:**  
 No alternative sites were identified

#### No-go alternative (compulsory)

**Direct impacts:**  
 The status quo is maintained and the Umgeni Project will not be implemented. The Umgeni Business Park would continue to be at a fairly high risk of being flooded. Property owners adjacent to the affected site would continue to be at high risk of floodwater destruction and safety hazard, which could potentially include serious injuries and even loss of life.  
**Indirect impacts:**  
 No impacts identified.  
**Cumulative impacts:**  
 This could potentially have disastrous implications in terms of long term viability of the Umgeni Business Park and as

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such could have significant impacts on the local and even regional economy.
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Indicate mitigation measures to manage the potential impacts listed above:

### Alternative S1

*Interruption of services:*

Ensuring that all sewer and water mains, storm water outlets and any other service infrastructure are adequately incorporated in the engineering designs.  
 Ensuring that contractors are provided with all the relevant information on existing services, including the survey results and maps.  
 Ensuring adequate planning for commissioning and switch-over of new services.  
 Notification of affected service users of dates and duration of any planned services interruptions during switch-over.  
 Quick response to accidental damage to any existing services during construction  
 Obtaining formal written approval from a professional civil engineer and eThekweni Electricity for any construction activity such as excavations within 20m of the overhead transmission line tower. This is to ensure that the tower foundations are not undermined.  
 Maintaining a 35 m wide servitude for the overhead transmission line i.e. 17.5 m on either side of the centre line. Ground levels within the servitude/ wayleave area may not be changed.  
 Strictly adhering to safety clearances of the Occupational Health and Safety Act at all times when working in or crossing an overhead transmission line servitude. This implies that nothing may approach within 3.8 m of the 132 kV conductors, even for assessing the height of conductors.

*Disturbance or damage to cultural and heritage features:*

Prevention of access to and any impact on the Islamic graveyard by construction activities, e.g. through appropriate fencing off of this sensitive site.  
 Treating the graveyard and any community activity at the graveyard with due respect.  
 Immediately stopping excavations and reporting to Amafa any potential cultural or heritage features uncovered during the construction activities.  
 Appointment a professional Archaeologist to undertake a formal investigation if Amafa give instructions to do so.

*Traffic and traffic infrastructure impacts:*

Liaison with the eThekweni Traffic and Transportation Department on any envisaged traffic impacts.  
 Adhere to all traffic regulations.  
 Minimisation of congestion and traffic obstruction e.g. by effective route planning, keeping lanes open and introducing traffic control measures.  
 Make arrangements with property owners for use of road infrastructure prior to commencement of construction.  
 Minimising of construction activities in roads during peak hours.

*Water quality impacts:*

Ensuring good management practices are implemented concerning use and disposal of any hazardous substances, which includes but not limited to:  
 Ensuring excavation and safe disposal to an appropriate landfill site of any uncovered hazardous substances or contaminated soil that may have resulted from adjacent industrial activity.  
 Ensuring that no waste is stored at the construction site for longer than 14 days.  
 Carrying out routine vehicle maintenance and washing at a maintenance workshop instead of at the construction site or camps.  
 Utilisation of drip trays to prevent oil or fuel spills in case

### Alternative S2

No alternatives were identified.

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<p>of on-site emergency maintenance.          Minimisation of quantities of fuel, paints and other hazardous material kept at the construction site.          Safe-guarding of hazardous substances from being stolen, vandalised, catching fire or spilling on open ground.          Provision of bunding for bulk fuel, oil and any other hazardous liquid temporary storage facility in accordance with relevant legislation.          Introduction of appropriate waste and sewage collection and disposal procedures and facilities during construction.          Controlling drainage to ensure that runoff from the site will not culminate in off-site pollution or cause water damage to properties further down from the site.          Erection of any temporary latrines at least 100 m from the edge of the river.          Monitoring of suspended solids in the watercourse just downstream of the affected site on a frequent basis, to detect any impact caused by the proposed activities. The results of such monitoring must be submitted to the DWA office.</p> <p><i>Community safety impacts:</i>          Fence off the site where practically possible.          Control access to the site.          Ensuring regular patrolling and policing of the site.          Display of danger warning signs and no public access sign at all potential access roads and paths.          Prevention of access to any excavations and steep areas.          Appropriate security of all construction plant, equipment, material or substance when not supervised or in use.</p> <p><i>Social impacts associated with local migrations:</i>          Use local labourers as much as possible.          Training construction workers to respect the property and needs of the affected communities.          Ensure that adequate lines of communication are implemented to deal with any public grievances.</p>	
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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 construction phase (please list impacts associated with each alternative separately):

#### **Alternative A1 (preferred alternative)**

<p><b>Direct impacts:</b>          Erosion of immediate site:          During construction, clearance of vegetation, excavation and earth grading may expose fairly large areas of soil and sand that will be prone to erosion if left unprotected during heavy rains. Erosion may result in sedimentation and siltation of the Umgeni Estuary.</p> <p>Water quality impacts:          Large amounts of suspended silt from the excavation activities could potentially wash into the river, which could have a negative impact on water turbidity and aquatic fauna.          It might also impact on the appearance of the water, which could in turn impact on aesthetics and therefore recreational use and tourism.</p> <p>Interruption of services:          Construction activities may potentially affect existing services such as storm water and other bulk water services.          Impacts on recreation and tourism:          The impact on water quality could have an impact on recreational and tourism activities downstream to the proposed development.</p> <p>Impact on air quality:          Dust impact on neighbouring business premises and nearby residents could result from exposure of sand and soil due to site clearance, excavation, demolition, cement mixing as well as through construction traffic on unpaved roads.          Other sources of air pollution and odours which could potentially have a local impact would be as a result of construction vehicles and equipment exhaust fumes, poor maintenance of latrines, poor waste management procedures, waste burning, potential runaway fires and poor management of temporary latrines.</p>
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**Noise impacts:**

Ambient noise levels are expected to rise during the construction phase of the Umgeni Project. The noise may be emitted from construction plant that is not properly maintained.

**Visual/Aesthetic Impacts:**

Visual and aesthetic impacts will also result from the construction activities such as excavation, stockpiling of construction material, waste and rubble handling of materials. Poor planning, housekeeping and management of the construction site, site camp and activities may exacerbate such impacts.

**Indirect impacts:**

**Water quality:**

Apart from turbidity caused by siltation, water quality could be compromised by spillage of hazardous substances and spillage from latrines. Although no evidence of any spills or dumping of hazardous material were observed during site inspections, there is a potential for uncovering hazardous waste and contaminated soil during excavation activities, due to the current and historic industrial activities at the site. In addition any hazardous substances (e.g. fuel, paints and oils) used during construction could potentially result in water contamination unless good management practices are adhered to.

**Traffic and traffic infrastructure impacts:**

Without proper care construction activities could potentially cause damage to road infrastructure. Spillage of wet concrete on roads could damage roads. Excavations close to and heavy construction vehicles colliding with rail and road bridge pylons could potentially result in damage to these structures, which must be prevented.

**Social impacts associated with local migrations – influx of temporary construction workers:**

It is unavoidable that there will be an influx of temporary construction workers for the entire construction period. This could potentially lead to disputes with local communities and businesses.

**Economic impacts:**

Without proper planning and care, certain construction activities could also have a negative impact on neighbouring and surrounding business and industrial sites and economic activities. These could potentially include impacts such as damage to property or services that supply the businesses, requiring access through properties, restricting access to sites, construction traffic, dust, fume and noise generation.

**Cumulative impacts:**

No impacts were identified.

**Alternative A2**

**Direct impacts:**

No alternatives were identified.

**Indirect impacts:**

No alternatives were identified.

**Cumulative impacts:**

No alternatives were identified.

**No-go alternative (compulsory)**

**Direct impacts:**

The status quo is maintained and the Umgeni Project will not be implemented. The Umgeni Business Park would continue to be at a fairly high risk of being flooded. Property owners adjacent to the affected site would continue to be at high risk of floodwater destruction and safety hazard, which could potentially include serious injuries and even loss of life.

**Indirect impacts:**

No impacts identified.

**Cumulative impacts:**

This could potentially have disastrous implications in terms of long term viability of the Umgeni Business Park and as such could have significant impacts on the local and even regional economy.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative A1:**

**Erosion and water quality impacts:**

If at all possible, construction should occur during the dry season when risk of heavy rains is low.

Entering into negotiations with relevant stakeholders for the control of water flow from the upstream dams during the construction phase. In doing so the functionality of the estuary must however not be compromised.

No construction activities must be allowed within the normal 'non-flood' river channel and inner bank of the Umgeni River that could result in any disturbance thereof.

Grading of the site is required after construction to ensure free flow of runoff and to prevent ponding of water.

**Alternative A2:**

No alternatives were identified.

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Clearance of vegetation should be appropriately minimised and delayed to minimise exposed areas that might be prone to erosion during heavy rains.  
 Implement measures to protect the construction site from erosion by storm water.  
 Implement measures to effectively contain and allow settling prior to its discharge of any storm water arising at the construction site, which could potentially be laden with sand and silt.  
 Construction of anti-erosion berms on access tracks.  
 Ripping of compacted soil to promote re-vegetation of tracks and other areas surrounding the gabion structure that have been compacted.  
 Appropriate grassing and maintenance thereof of gabion structure and the top of the embankment.  
 Ensuring that no waste is stored at the construction site for longer than 14 days.  
 Carry out routine vehicle maintenance and washing at a maintenance workshop instead of at the construction site or camps.  
 Utilisation of drip trays to prevent oil or fuel spills in case of on-site emergency maintenance.  
 Minimise quantities of fuel, paints and other hazardous material kept at the construction site.  
 Safe-guard hazardous substances from being stolen vandalised, catching fire or spilling on open ground.  
 Provision of bunding for bulk fuel, oil and any other hazardous liquid temporary storage facility in accordance with relevant legislation.  
 Introduction of appropriate waste and sewage collection and disposal procedures and facilities during construction.  
 Controlling drainage to ensure that runoff from the site will not culminate in off-site pollution or cause water damage to properties further down from the site.  
 Erection of any temporary latrines at least 100 m from the river bank.  
 Monitoring of suspended solids in the watercourse just downstream of the affected site on a frequent basis, to detect any impact caused by the proposed activities. The results of such monitoring must be submitted to DWAF office.

*Interruption of services:*

Ensuring that all sewer and water mains, stormwater outlets and any other service infrastructure are adequately incorporated in the engineering designs.  
 Ensuring that contractors are provided with all the relevant information on existing services, including the survey results and maps.  
 Avoidance of unplanned damage to any existing services during construction.  
 Notification of affected service users of dates and duration of any planned services interruptions during switch-over.  
 Ensuring adequate planning for commissioning and switch-over of new services.

*Impacts on recreation and tourism:*

Minimisation of the construction footprint to the affected river section.  
 Prevention construction litter.  
 Controlling of alien vegetation after the removal of grass.  
 Covering or partial covering of soil over the gabions to promote the establishment of plant cover, for which indigenous, endemic species should be used.  
 Planting of indigenous trees on the top of the embankment to enhance the landscape features.

*Impacts on air quality:*

Minimisation of the surface area exposed to wind erosion.  
 Wetting of roads during construction on windy days.  
 Maintenance of vehicles and other driven machinery in

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<p>use to ensure that no smoke is emitted from exhausts. Prevention of burning of cleared vegetation and wastes/refuse. Planting of grass immediately after construction where soil has been exposed. Regular emptying and appropriate disposal of latrine content.</p> <p><i>Noise impacts:</i> Restriction of noisy construction activities to daytime hours. Ensuring that all vehicles and where possible noisy equipment are fitted with silencers that are properly maintained.</p> <p><i>Visual/aesthetic impacts:</i> Ensuring that the Umgeni Project design features are aesthetically well designed and implemented. A landscaping plan must be developed in consultation with eThekweni Environmental Management Department and must be included in the project specifications. Planning of appropriate site layout, materials stockpiling and waste disposal management ahead of construction. Investigate opportunities for material re-use, e.g. filling for embankments. Adhering to good housekeeping during the construction phase to ensure that construction camps and sites are well organised, material is neatly stacked and waste is regularly removed. Prevention of construction litter. Implementing appropriate waste and rubble management and disposal procedures to ensure waste and rubble is not disposed in the river or any other illegal disposal site. Ensuring that appropriate vegetation is selected for vegetating gabion structures and that this vegetation is adequately established. Planting of suitable indigenous trees may provide for a visual shielding of industrial sites and be considered to improve the visual appearance. eThekweni should ensure that an EMP is implemented that covers good management and housekeeping of the construction site on topics such as stockpiling of material, waste management, litter, ablutions, etc.</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 (preferred alternative)**

<p><b>Direct impacts:</b> Loss of industrial land: The Umgeni Project will bring into affect a permanent change in land use for the sections currently zoned for industrial development, as these will then become part of the river servitude. The loss of industrial land at the affected site is insignificant in comparison to the protection of land use affected through the flood attenuation for the Umgeni Business Park at large.</p> <p>Visual and aesthetic impacts: Once in place, the Umgeni Project site will have an aesthetic/visual impact due to the change from the current disturbed secondary vegetated habitat on the embankment to an engineered vegetated gabion structure.</p> <p><b>Indirect impacts:</b> Ingress of squatters, vagrants and criminals: As a result security for surrounding residential areas, businesses, recreational users as well as the aesthetics of the area might potentially be negatively impacted should such ingress occur. Current occupation of the area surrounding and below the bridges reduces the risk of such ingress. For the Umgeni Project to provide for effective flood attenuation, the area below the bridges must be included in the widened section of the river and cleared of any structures that could cause blockage to floodwaters. This might</p>
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indeed encourage ingress of informal settling and sheltering of people below the bridges.

**Cumulative impacts:**

No impacts were identified.

**Alternative S2 (if any)**

**Direct impacts:**

No alternatives were identified.

**Indirect impacts:**

No alternatives were identified.

**Cumulative impacts:**

No alternatives were identified.

**No-go alternative (compulsory)**

**Direct impacts:**

The status quo is maintained and the Umgeni Project will not be implemented. The Umgeni Business Park would continue to be at a fairly high risk of being flooded. Property owners adjacent to the affected site would continue to be at high risk of floodwater destruction and safety hazard, which could potentially include serious injuries and even loss of life.

**Indirect impacts:**

No impacts identified.

**Cumulative impacts:**

This could potentially have disastrous implications in terms of long term viability of the Umgeni Business Park and as such could have significant impacts on the local and even regional economy.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative S1**

**Alternative S2**

*Loss of industrial land:*

Affected property owners should be financially compensated for the loss of land.  
Ensuring that land is appropriately zoned.  
eThekweni must follow legal procedures during the land acquisition process and should compensate property owners.

*Visual and aesthetic impacts:*

Minimisation of the construction footprint to the affected river section.  
Clear all construction litter.  
Controlling of alien vegetation after the removal of grass.  
Covering or partial covering of soil over the gabions to promote the establishment of plant cover, for which indigenous, endemic species should be used.  
Planting of indigenous trees on the top of the embankment to enhance the landscape features.  
Ensuring that the Umgeni Project design features are aesthetically well designed and implemented.  
A landscaping plan must be developed in consultation with eThekweni Environmental Management Department and must be included in the project specifications.  
Ensuring that appropriate vegetation is selected for vegetating gabion structures and that this vegetation is adequately established.  
Planting of suitable indigenous trees may provide for a visual shielding of industrial sites and be considered to improve the visual appearance.

*Ingress of squatters and vagrants:*

Fencing off and blocking off uncontrolled access to the site.  
Incorporating the embankment into a formal park area which links to the existing Umgeni Nature Trail and the Bird Park establishment.  
Ensuring that the site is regularly and adequately maintained.  
Ensuring regular patrolling and policing of the area.

No alternatives were identified.

### 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 alternative)**

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**Direct impacts:**

Impacts on topography and natural drainage:  
The modifications to the northern embankment of the Umgeni River will impact the local topography of a very small area.

The Umgeni Project is motivated by the need for flood attenuation and will certainly therefore impact on drainage aspects of the lower Umgeni River system. Widening of the 1km section of the Umgeni River will significantly reduce the 'bottle neck' and thus upstream flood levels during major flood events. This will allow for releasing a greater flow rate through the affected section of the river during major floods and thus reduce the risk of flooding of the Umgeni Business Park. Some lower lying properties adjacent to the project site might still experience ingress of floodwater during major floods, but the risk of flood damage will probably also be reduced due to the protection provided by the flood protection works of the embankment.

Impacts on geology and soil:

The geological impacts will consist of excavation of soil and sand from the affected embankment to provide for the widening. There will be no impact on any geological structures below the alluvium.

The Umgeni Project will substantially reduce the erosion depth of the riverbed in the vicinity of Connaught Bridge during major floods.

**Indirect impacts:**

None were identified.

**Cumulative impacts:**

Impacts on topography and natural drainage:  
Floodline studies indicate that the Umgeni Project would result in only a slight increase of flood levels in the Umgeni Estuary downstream of the proposed site between Connaught Bridge and Athlone Bridges during major flood events.

**Alternative A2**

**Direct impacts:**

No alternatives were identified.

**Indirect impacts:**

No alternatives were identified.

**Cumulative impacts:**

No alternatives were identified.

**No-go alternative (compulsory)**

**Direct impacts:**

The status quo is maintained and the Umgeni Project will not be implemented. The Umgeni Business Park would continue to be at a fairly high risk of being flooded. Property owners adjacent to the affected site would continue to be at high risk of floodwater destruction and safety hazard, which could potentially include serious injuries and even loss of life.

**Indirect impacts:**

No impacts identified.

**Cumulative impacts:**

This could potentially have disastrous implications in terms of long term viability of the Umgeni Business Park and as such could have significant impacts on the local and even regional economy.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative A1**

Impacts on topography and natural drainage:  
If at all possible, construction should occur during the dry season when risk of heavy rains are low.  
Entering into negotiations with relevant stakeholders for the control of water flow from the upstream dams during the construction phase. In doing so the functionality of the estuary must however not be compromised.  
No construction activities must be allowed within the normal 'non-flood' river channel and inner bank of the Umgeni River that could result in any disturbance thereof.  
Grading of the site is required after construction to ensure free flow of runoff and to prevent ponding of water.  
Implement measures to protect the site from erosion by storm water.

Impacts on geology and soil:

A detail geological investigation is required prior to detailed design and construction to provide further information on water table, extent and composition of fill, potential methane gas emissions from refuse, settlement on canal berms and stability of canal linings. The results of the investigation must be submitted to the eThekweni Geotechnical Engineering Department.

**Alternative A2**

No alternatives were identified.

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Implement measures to effectively contain and allow settling prior to its discharge of any stormwater arising at the construction site, which could potentially be laden with sand and silt	
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### 2.4. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING OR CLOSURE PHASE

#### a. Site alternatives

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

##### **Alternative S1 (preferred alternative)**

**Direct impacts:**

Interruption of services:

The decommissioning of the Umgeni Project will affect a number of existing services infrastructure such as sewer and water mains and storm water outlets.

Disturbance or damage to cultural and heritage features:

The affected site neighbours the Islamic graveyard and as a result without due respect and consideration, deconstruction activities may potentially impact on the graveyard.

Flood risks:

The Umgeni Industrial park and other areas in close proximity would once again be exposed to heavy flood damage.

**Indirect impacts:**

Traffic and traffic infrastructure impacts:

Construction traffic required for transporting equipment, construction waste, building rubble and sand from the site could potentially have a significant impact on the local public road traffic. This is particularly due to the site's close proximity to a major traffic node, which is already known to experience significant congestion during peak hours.

Water quality impacts:

The proximity of the deconstruction site potentiates water quality issues as silt, construction waste and potential pollution from the construction plant enters the water or channel.

**Cumulative impacts:**

No impacts were identified.

##### **Alternative S2**

**Direct impacts:**

No alternatives were identified.

**Indirect impacts:**

No alternatives were identified.

**Cumulative impacts:**

No alternatives were identified.

##### **No-go alternative (compulsory)**

**Direct impacts:**

The Umgeni Business Park would continue to enjoy the benefits of extra protection from floods.

**Indirect impacts:**

No impacts were identified.

**Cumulative impacts:**

No impacts were identified.

Indicate mitigation measures to manage the potential impacts listed above:

##### **Alternative S1**

*Interruption of services:*

Ensuring that all sewer and water mains, storm water outlets and any other service infrastructure are adequately incorporated into the decommissioning phase.

Ensuring that contractors are provided with all the relevant information on existing services, including the survey results and maps.

Ensuring adequate planning for commissioning and switch-over of new services.

Notification of affected service users of dates and duration of any planned services interruptions during switch-over.

Quick response to accidental damage to any existing services during construction

Obtaining formal written approval from a professional

##### **Alternative S2**

No alternatives were identified.

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<p>civil engineer and eThekweni Electricity for any construction activity such as excavations within 20m of the overhead transmission line tower. This is to ensure that the tower foundations are not undermined.</p> <p><i>Disturbance or damage to cultural and heritage features:</i> Prevention of access to and any impact on the Islamic graveyard by construction activities, e.g. through appropriate fencing off of this sensitive site. Treating the graveyard and any community activity at the graveyard with due respect.</p> <p><i>Traffic and traffic infrastructure impacts:</i> Liaison with the eThekweni Traffic and Transportation Department on any envisaged traffic impacts. Adhere to all traffic regulations. Minimisation of congestion and traffic obstruction e.g. by effective route planning, keeping lanes open and introducing traffic control measures. Make arrangements with property owners for use of road infrastructure prior to commencement of construction. Minimising of construction activities in roads during peak hours.</p> <p><i>Water quality impacts:</i> Ensuring good management practices are implemented concerning use and disposal of any hazardous substances, which includes but not limited to: Ensuring excavation and safe disposal to an appropriate landfill site of any uncovered hazardous substances or contaminated soil, that may have resulted from adjacent industrial activity. Ensuring that no waste is stored at the construction site for longer than 14 days. Carrying out routine vehicle maintenance and washing at a maintenance workshop instead of at the construction site or camps. Utilisation of drip trays to prevent oil or fuel spills in case of on-site emergency maintenance. Minimisation of quantities of fuel, paints and other hazardous material kept at the construction site. Safe-guarding of hazardous substances from being stolen, vandalised, catching fire or spilling on open ground. Provision of bunding for bulk fuel, oil and any other hazardous liquid temporary storage facility in accordance with relevant legislation. Introduction of appropriate waste and sewage collection and disposal procedures and facilities during construction. Controlling drainage to ensure that runoff from the site will not culminate in off-site pollution or cause water damage to properties further down from the site. Erection of any temporary latrines at least 100 m from the edge of the river. Monitoring of suspended solids in the watercourse just downstream of the affected site on a frequent basis, to detect any impact caused by the proposed activities.</p>	
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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 decommissioning or closure phase (please list impacts associated with each alternative separately):

#### Alternative A1 (preferred alternative)

<p><b>Direct impacts:</b> Erosion of immediate site: During construction, clearance of vegetation, excavation and earth grading may expose fairly large areas of soil and sand that will be prone to erosion if left unprotected during heavy rains. Erosion may result in sedimentation and siltation of the Umgeni Estuary.</p> <p>Water quality impacts: Large amounts of suspended silt from the decommissioning activities could potentially wash into the river, which could have a negative impact on water turbidity and aquatic fauna.</p>
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It might also impact on the appearance of the water, which could in turn impact on aesthetics and therefore recreational use and tourism.

**Interruption of services:**

Deconstruction activities may potentially affect existing services such as storm water and other bulk water services.

**Impacts on recreation and tourism:**

The impact on water quality could have an impact on recreational and tourism activities downstream to the proposed development.

**Impact on air quality:**

Dust impact on neighbouring business premises and nearby residents could result from exposure of sand and soil due to site clearance, excavation, and demolition.

Other sources of air pollution and odours which could potentially have a local impact would be as a result of construction vehicles and equipment exhaust fumes, poor maintenance of latrines, poor waste management procedures, waste burning, potential runaway fires and poor management of temporary latrines.

**Noise impacts:**

Ambient noise levels are expected to rise during the deconstruction phase of the Umgeni Project. The noise may be emitted from construction plant that is not properly maintained and general deconstruction activities.

**Visual/Aesthetic Impacts:**

Visual and aesthetic impacts will also result from the construction activities such as excavation, stockpiling of construction material, waste and rubble handling of materials. Poor planning, housekeeping and management of the construction site, site camp and activities may exacerbate such impacts.

**Indirect impacts:**

**Water quality**

Apart from turbidity caused by siltation, water quality could be compromised by spillage of hazardous substances and spillage from latrines.

**Traffic and traffic infrastructure impacts:**

Without proper care deconstruction activities could potentially cause damage to road infrastructure. Excavations close to and heavy construction vehicles colliding with rail and road bridge pylons could potentially result in damage to these structures, which must be prevented.

**Economic impacts:**

Without proper planning and care, certain deconstruction activities could also have a negative impact on neighbouring and surrounding business and industrial sites and economic activities. These could potentially include impacts such as damage to property or services that supply the businesses, requiring access through properties, restricting access to sites, construction traffic, dust, fume and noise generation.

**Cumulative impacts:**

No impacts were identified.

**Alternative A2**

**Direct impacts:**

No alternatives were identified.

**Indirect impacts:**

No alternatives were identified.

**Cumulative impacts:**

No alternatives were identified.

**No-go alternative (compulsory)**

**Direct impacts:**

The Umgeni Business Park would continue to enjoy the benefits of extra protection from floods.

**Indirect impacts:**

No impacts were identified.

**Cumulative impacts:**

No impacts were identified.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative A1**

**Interruption of services:**

Ensuring that all sewer and water mains, storm water outlets and any other service infrastructure are adequately incorporated into the decommissioning phase.

Ensuring that contractors are provided with all the relevant information on existing services, including the survey results and maps.

Ensuring adequate planning for commissioning and switch-over of new services.

Notification of affected service users of dates and

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<p>duration of any planned services interruptions during switch-over.          Quick response to accidental damage to any existing services during construction          Obtaining formal written approval from a professional civil engineer and eThekweni Electricity for any construction activity such as excavations within 20m of the overhead transmission line tower. This is to ensure that the tower foundations are not undermined.</p> <p><i>Disturbance or damage to cultural and heritage features:</i>          Prevention of access to and any impact on the Islamic graveyard by construction activities, e.g. through appropriate fencing off of this sensitive site.          Treating the graveyard and any community activity at the graveyard with due respect.</p> <p><i>Traffic and traffic infrastructure impacts:</i>          Liaison with the eThekweni Traffic and Transportation Department on any envisaged traffic impacts.          Adhere to all traffic regulations.          Minimisation of congestion and traffic obstruction e.g. by effective route planning, keeping lanes open and introducing traffic control measures.          Make arrangements with property owners for use of road infrastructure prior to commencement of construction.          Minimising of construction activities in roads during peak hours.</p> <p><i>Water quality impacts:</i>          Ensuring good management practices are implemented concerning use and disposal of any hazardous substances, which includes but not limited to:          Ensuring excavation and safe disposal to an appropriate landfill site of any uncovered hazardous substances or contaminated soil, that may have resulted from adjacent industrial activity.          Ensuring that no waste is stored at the construction site for longer than 14 days.          Carrying out routine vehicle maintenance and washing at a maintenance workshop instead of at the construction site or camps.          Utilisation of drip trays to prevent oil or fuel spills in case of on-site emergency maintenance.          Minimisation of quantities of fuel, paints and other hazardous material kept at the construction site.          Safe-guarding of hazardous substances from being stolen, vandalised, catching fire or spilling on open ground.          Provision of bunding for bulk fuel, oil and any other hazardous liquid temporary storage facility in accordance with relevant legislation.          Introduction of appropriate waste and sewage collection and disposal procedures and facilities during construction.          Controlling drainage to ensure that runoff from the site will not culminate in off-site pollution or cause water damage to properties further down from the site.          Erection of any temporary latrines at least 100 m from the edge of the river.          Monitoring of suspended solids in the watercourse just downstream of the affected site on a frequent basis, to detect any impact caused by the proposed activities.</p>	
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### 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 (preferred site)	Alternative S2
Please refer to attached EMPr	

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**Alternative A1 (preferred alternative)**

**Alternative A2**

Please refer to attached EMPr

## 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.

**Table 1: Criteria used to determine the significance ratings**

Criteria	Description
Spatial extent	The extent of impact describes the region in which the impact will be experienced: <ul style="list-style-type: none"> <li>• Site specific</li> <li>• Local (&lt; 2km from site)</li> <li>• Regional (within 30km of the site)</li> <li>• National</li> </ul>
Intensity or Magnitude of impact	The intensity describes the magnitude or size of the impact: <ul style="list-style-type: none"> <li>• High: Natural and/or social functions and/or processes are severely altered</li> <li>• Medium: Natural and/or social functions and/or processes are notably altered</li> <li>• Low: Natural and/or social functions and/or processes are negligibly altered</li> </ul>
Duration	The duration is the time frame in which the impact will be experienced: <ul style="list-style-type: none"> <li>• Temporary (&lt;1 year)</li> <li>• Short term (1 to 6 years)</li> <li>• Medium term (6 to 15 years)</li> <li>• Long term (15 - 30 years)</li> <li>• Permanent</li> </ul>
Probability	The probability of the impact occurring: <ul style="list-style-type: none"> <li>• Improbable (little or no chance of occurring)</li> <li>• Probable (&lt; 50% chance of occurring)</li> <li>• Highly probable (50% - 90% chance of occurring)</li> <li>• Definite (&gt;90% chance of occurring)</li> </ul>

The impacts are assessed (rated) in terms of their significance (high, medium, low), status and confidence through a synthesis of the criteria in Table 1. The rating system is outlined in the Table 2 below.

**Table 2: Method for Rating of Impacts**

Class	Description
Significance	<ul style="list-style-type: none"> <li>• High: impacts of high magnitude locally for longer than 6 years and/or regionally and beyond. The impact results in major alterations to the environment even if effective mitigation measures are implemented and will have an influence on decision-making.</li> <li>• Medium: impacts of moderate magnitude locally to regionally in the short term. The impact results in medium alterations to the environment and can be reduced or eliminated by the implementation of effective mitigation measures.</li> <li>• Low to very low: impacts will be localised and temporary. Impacts result in minor alterations to the environment and can easily be alleviated by the implementation of effective mitigation measures.</li> <li>• No impact: a potential concern or impact, which, upon evaluation, is found to have no significant impact at all.</li> </ul>
Status	The status is the overall effect on the environment: <ul style="list-style-type: none"> <li>• Positive - a 'benefit'</li> </ul>

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Class	Description
	<ul style="list-style-type: none"><li data-bbox="416 241 635 271">• Negative - a 'cost'</li><li data-bbox="416 275 533 304">• Neutral</li></ul>
Confidence	The degree of confidence in predictions based on available information and specialist knowledge: <ul style="list-style-type: none"><li data-bbox="416 338 501 367">• Low</li><li data-bbox="416 371 539 400">• Medium</li><li data-bbox="416 405 501 434">• High</li></ul>

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### Alternative S1 (preferred site)

Phase	Impact	Extent	Duration	Intensity	Probability	Significance	Status	Confidence
Construction	Interruption of services: The Umgeni Project may affect a number of existing services infrastructure such as sewer and water mains and storm water outlets.	Site	Temporary	Low	Probable	Very low	Negative	High
Construction	Disturbance or damage to cultural and heritage features: The affected site neighbours the Islamic graveyard and as a result without due respect and consideration, construction activities may potentially impact on the graveyard.	Site	Temporary	Low	Improbable	No impact	Negative	High
Construction	Traffic and traffic infrastructure impacts: Construction traffic required for transporting equipment, construction material, building rubble, waste and sand from and to the site could potentially have a significant impact on the local public road traffic.	Site	Temporary	Low	Probable	Very low	Negative	High
Construction	Water quality impacts: The proximity of the proposed development potentiates water quality issues as silt, construction waste and potential pollution from the construction plant enters the water or channel.	Local	Temporary	Low	Probable	Very low	Negative	High
Construction	Community safety impacts: Public members may potentially access the construction site due to its close proximity to a large recreational area and due to its allure to bikers and off-road vehicle drivers. Steep embankments, excavations and dangerous equipment and plant could result in accidents.	Site	Temporary	Low	Improbable	Very low	Negative	High
Construction	Social impacts associated with local migrations – influx of temporary construction workers: It is unavoidable that there will be an influx of temporary construction workers for the entire construction period. This could potentially lead to disputes with local communities and businesses.	Local	Temporary	Low	Probable	Very low	Negative	High
Construction	Impacts on recreation and tourism: The potential impact on water quality and litter could in turn impact on recreational activities within the estuary.	Site	Temporary	Low	Improbable	No impact	Negative	High
Operational	Loss of industrial land: The Umgeni Project will bring into affect a permanent change in land use for the sections currently zoned for industrial development, as these will then become part of the river servitude.	Site	Permanent	Low	Probable	Very low	Negative	High
Operational	Visual and aesthetic impacts: Once in place, the Umgeni Project site will have an aesthetic/visual impact due to the change from the current disturbed secondary vegetated habitat on the embankment to an engineered vegetated gabion structure.	Site	Long term	Low	Probable	Very low	Negative	High

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Operational	Ingress of squatters, vagrants and criminals: As a result security for surrounding residential areas, businesses, recreational users as well as the aesthetics of the area might potentially be negatively impacted should such ingress occur.	Site	Long term	Low	Probable	Very low	Negative	High
Decommission	Interruption of services: The decommissioning of the Umgeni Project will affect a number of existing services infrastructure such as sewer and water mains and storm water outlets.	Site	Temporary	Low	Probable	Very low	Negative	Low
Decommission	Disturbance or damage to cultural and heritage features: The affected site neighbours the Islamic graveyard and as a result without due respect and consideration, deconstruction activities may potentially impact on the graveyard.	Site	Temporary	Low	Probable	Very low	Negative	Low
Decommission	Flood risks: The Umgeni Industrial park and other areas in close proximity would once again be exposed to heavy flood damage.	Regional	Long term	High	Highly probable	Very low	Negative	Low
Decommission	Traffic and traffic infrastructure impacts: Construction traffic required for transporting equipment, construction waste, building rubble and sand from the site could potentially have a significant impact on the local public road traffic. This is particularly due to the site's close proximity to a major traffic node, which is already known to experience significant congestion during peak hours.	Site	Temporary	Low	Probable	Very low	Negative	Low
Decommission	Water quality impacts: The proximity of the deconstruction site potentiates water quality issues as silt, construction waste and potential pollution from the construction plant enters the water or channel.	Regional	Long term	High	Highly probable	Very low	Negative	Low

### Alternative S2

Alternatives considered before the development proposal was completed are not considered as they were found to be either impractical and/or expensive. These alternatives are therefore not subjected to impact analysis.

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### Alternative A1 (preferred alternative)

Phase	Impact	Extent	Duration	Intensity	Probability	Significance	Status	Confidence
Construction	Erosion of immediate site: During construction, clearance of vegetation, excavation and earth grading may expose fairly large areas of soil and sand that will be prone to erosion if left unprotected during heavy rains. Erosion may result in sedimentation and siltation of the Umgeni Estuary.	Site	Temporary	Low	Probable	Very low	Negative	High
Construction	Water quality impacts: Large amounts of suspended silt from the excavation activities could potentially wash into the river, which could have a negative impact on water turbidity and aquatic fauna. It might also impact on the appearance of the water, which could in turn impact on aesthetics and therefore recreational use and tourism.	Regional	Temporary	Low	Probable	Very low	Negative	High
Construction	Interruption of services: Construction activities may potentially affect existing services such as storm water and other bulk water services.	Site	Temporary	Low	Probable	Very low	Negative	High
Construction	Impacts on recreation and tourism: The impact on water quality could have an impact on recreational and tourism activities downstream to the proposed development.	Regional	Temporary	Low	Improbable	Very low	Negative	High
Construction	Impact on air quality: Dust impact on neighbouring business premises and nearby residents could result from exposure of sand and soil due to site clearance, excavation, demolition, cement mixing as well as through construction traffic on unpaved roads. Other sources of air pollution and odours which could potentially have a local impact would be as a result of construction vehicles and equipment exhaust fumes, poor maintenance of latrines, poor waste management procedures, waste burning, potential runaway fires and poor management of temporary latrines.	Site	Temporary	Low	Improbable	Very low	Negative	High
Construction	Noise impacts: Ambient noise levels are expected to rise during the construction phase of the Umgeni Project. The noise may be emitted from construction plant that is not properly maintained.	Site	Temporary	Low	Probable	Very low	Negative	High
Construction	Visual/Aesthetic Impacts: Visual and aesthetic impacts will also result from the construction activities such as excavation, stockpiling of construction material, waste and rubble handling of materials. Poor planning, housekeeping and management of the construction site, site camp and activities may exacerbate such impacts.	Site	Temporary	Low	Probable	Very low	Negative	High

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Construction	Water quality Apart from turbidity caused by siltation, water quality could be compromised by spillage of hazardous substances and spillage from latrines. Although no evidence of any spills or dumping of hazardous material were observed during site inspections, there is a potential for uncovering hazardous waste and contaminated soil during excavation activities, due to the current and historic industrial activities at the site. In addition any hazardous substances (e.g. fuel, paints and oils) used during construction could potentially result in water contamination unless good management practices are adhered to.	Regional	Temporary	Low	Probable	Very low	Negative	High
Construction	Traffic and traffic infrastructure impacts: Without proper care construction activities could potentially cause damage to road infrastructure. Spillage of wet concrete on roads could damage roads. Excavations close to and heavy construction vehicles colliding with rail and road bridge pylons could potentially result in damage to these structures, which must be prevented.	Site	Temporary	Low	Probable	Very low	Negative	High
Construction	Social impacts associated with local migrations – influx of temporary construction workers: It is unavoidable that there will be an influx of temporary construction workers for the entire construction period. This could potentially lead to disputes with local communities and businesses.	Site	Temporary	Low	Probable	Very low	Negative	High
Construction	Economic impacts: Without proper planning and care, certain construction activities could also have a negative impact on neighbouring and surrounding business and industrial sites and economic activities. These could potentially include impacts such as damage to property or services that supply the businesses, requiring access through properties, restricting access to sites, construction traffic, dust, fume and noise generation.	Site	Temporary	Low	Improbable	Very low	Negative	High
Operational	Impacts on topography and natural drainage: The modifications to the northern embankment of the Umgeni River will impact the local topography of a very small area. The Umgeni Project is motivated by the need for flood attenuation and will certainly therefore impact on drainage aspects of the lower Umgeni River system. Widening of the 1km section of the Umgeni River will significantly reduce the 'bottle neck' and thus upstream flood levels during major flood events. This will allow for releasing a greater flow rate through the affected section of the river during major floods and thus reduce the risk of flooding of the Umgeni Business Park. Some lower lying properties adjacent to the project site might still experience ingress of floodwater during major floods, but the risk of flood damage will probably also be reduced due to the protection provided by the flood protection works of the embankment.	Regional	Long term	Low	Probable	Medium to High	Positive	High
Operational	Impacts on geology and soil: The geological impacts will consist of excavation of soil and sand from the affected embankment to provide for the widening. There will be no impact on any geological structures below the alluvium. The Umgeni Project will substantially reduce the erosion depth of the riverbed in the vicinity of Connaught Bridge during major floods.	Regional	Long term	Low	Probable	Low	Negative	High

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Operational	Impacts on topography and natural drainage: Floodline studies indicate that the Umgeni Project would result in only a slight increase of flood levels in the Umgeni Estuary downstream of the proposed site between Connaught Bridge and Athlone Bridges during major flood events.	Regional	Long term	Low	Probable	Low	Negative	High
Decommissioning	Erosion of immediate site: During construction, clearance of vegetation, excavation and earth grading may expose fairly large areas of soil and sand that will be prone to erosion if left unprotected during heavy rains. Erosion may result in sedimentation and siltation of the Umgeni Estuary.	Site	Temporary	Low	Probable	Very low	Negative	Low
Decommissioning	Traffic and traffic infrastructure impacts: Without proper care deconstruction activities could potentially cause damage to road infrastructure. Excavations close to and heavy construction vehicles colliding with rail and road bridge pylons could potentially result in damage to these structures, which must be prevented.	Site	Temporary	Low	Probable	Very low	Negative	Low
Decommissioning	Economic impacts: Without proper planning and care, certain deconstruction activities could also have a negative impact on neighbouring and surrounding business and industrial sites and economic activities. These could potentially include impacts such as damage to property or services that supply the businesses, requiring access through properties, restricting access to sites, construction traffic, dust, fume and noise generation.	Site	Temporary	Low	Probable	Very low	Negative	Low
Decommissioning	Erosion of immediate site: During construction, clearance of vegetation, excavation and earth grading may expose fairly large areas of soil and sand that will be prone to erosion if left unprotected during heavy rains. Erosion may result in sedimentation and siltation of the Umgeni Estuary.	Regional	Medium	Medium	Probable	Medium	Negative	Low
Decommissioning	Water quality impacts: Large amounts of suspended silt from the decommissioning activities could potentially wash into the river, which could have a negative impact on water turbidity and aquatic fauna. It might also impact on the appearance of the water, which could in turn impact on aesthetics and therefore recreational use and tourism.	Regional	Long term	Medium	Probable	Medium	Negative	Low
Decommissioning	Interruption of services: Deconstruction activities may potentially affect existing services such as storm water and other bulk water services.	Site	Temporary	Low	Probable	Low	Negative	Low
Decommissioning	Impacts on recreation and tourism: The impact on water quality could have an impact on recreational and tourism activities downstream to the proposed development.	Regional	Long term	Low	Probable	Low	Negative	Low

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	<p>Impact on air quality: Dust impact on neighbouring business premises and nearby residents could result from exposure of sand and soil due to site clearance, excavation, and demolition. Other sources of air pollution and odours which could potentially have a local impact would be as a result of construction vehicles and equipment exhaust fumes, poor maintenance of latrines, poor waste management procedures, waste burning, potential runaway fires and poor management of temporary latrines.</p>	Site	Temporary	Low	Probable	Very low	Negative	Low
	<p>Noise impacts: Ambient noise levels are expected to rise during the deconstruction phase of the Umgeni Project. The noise may be emitted from construction plant that is not properly maintained and general deconstruction activities.</p>	Site	Temporary	Low	Probable	Very low	Negative	Low

### Alternative A2

Alternatives considered before the development proposal was completed are not considered as they were found to be either impractical and/or expensive. These alternatives are therefore not subjected to impact analysis.

### No-go alternative (compulsory)

Phase	Impact	Extent	Duration	Intensity	Probability	Significance	Status	Confidence
All phases	The status quo is maintained and the Umgeni Project will not be implemented. The Umgeni Business Park would continue to be at a fairly high risk of being flooded. Property owners adjacent to the affected site would continue to be at high risk of floodwater destruction and safety hazard, which could potentially include serious injuries and even loss of life.	Site	Permanent	Medium	Highly probable	High	Negative	High

Most of the impacts described above received a low to very low significance rating after mitigation. The predictions are made with high confidence except for the decommissioning phase impacts that are difficult to gauge at this stage of the propose development. Should the No-go option be chosen, the status quo for the site and region would remain, i.e. regular flooding and damage to high value industrial property.

## 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?

YES X	NO
N/A	

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

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:

**This proposed development has received a positive environmental authorisation previously (2007, EIA No: EIA/ 6008). The development proposal has not changed in terms of technical and site application. It is therefore recommended that the Environmental Authorisation be granted for the proposed development with conditions as highlighted in the mitigation measures of this report and the accompanying EMPr.**

## SECTION G: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Draft Environmental Management Programme (EMPr)

Appendix G: Other information – Previous Scoping Report (2005)