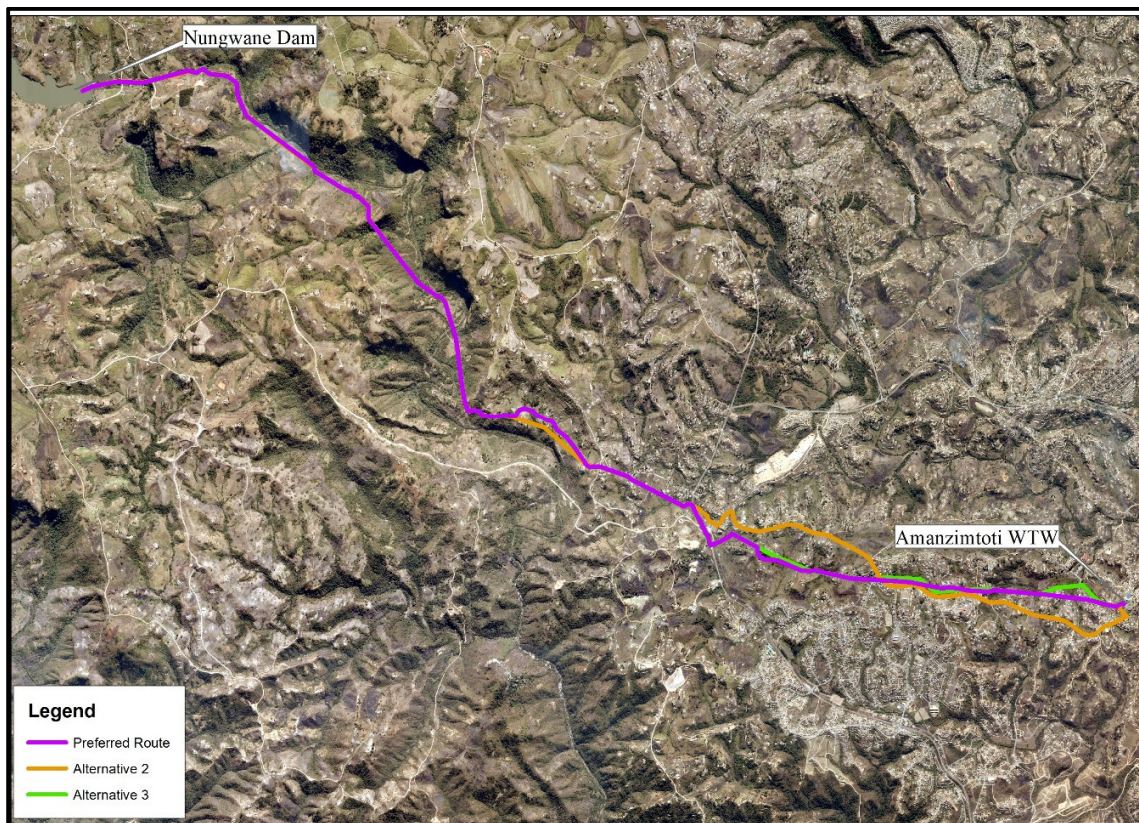


BASIC ASSESSMENT REPORT FOR THE UPGRADING OF NUNGWANE RAW WATER PIPELINE, KWAZULU-NATAL, DEA REF: 14/12/16/3/3/1/1148



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Executive Summary

Introduction

Terratest (Pty) Ltd were appointed by Umgeni Water to apply for Environmental Authorization for the upgrading of the Nungwane Pipeline, KwaZulu-Natal. The upgrade has been necessitated as a result of deterioration of the existing pipeline.

Proposed Project

Amanzimtoti Water Treatment Plant (WTP) receives raw water from the Nungwane Dam through the Nungwane Raw Water Pipeline. The existing pipeline is in very poor condition due to corrosive action by sulphur-reducing-bacteria. Umgeni Water proposes the upgrading of the pipelines to meet the demands of the surrounding area. The proposed pipeline runs from Nungwane Dam pumpstation to the Amanzimtoti Water Treatment Plant.

Due to social encroachment on the current line impacting direct replacement, alternate routes have been considered.

Biophysical Environment

The terrestrial study confirmed the presence of 13 vegetation types ranging from wetlands; riparian vegetation to grasses, thickets and forests. The study also confirms the presence of extensive urban transformed areas in the eastern extent of the alignment.

According to the National Freshwater Ecosystem Priority Areas database, the Nungwane River is classed as Category B which is classified as largely natural. The upper section of the pipeline is highlighted in Ezemvelo KZN Wildlife Minset Database as being part of a Biodiversity Priority Area 1 with key species being *Doratogonus rubipodus*, *Gerrardanthus tomentosus*, *Hyperolius pickersgilli* and South Coast Grassland. When considering the Minset in the context of the 2008 Landcover Database, the Landcover Database acknowledges the transformation of the project site

Social Environment

Socially, the proposed project is in line with the eThekweni Municipality and Vulamehlo Local Municipality Integrated Development Plan (IDP) and supports the municipality's reliance on good water infrastructure as a support to its economy.

At a site level provided that the Environmental Management Programme attached is correctly implemented, the project will have limited social impacts.

Economic Environment

Employment opportunities, associated with the construction phase will arise, however the operational phase will not require any permanent appointments.

Cultural Heritage Environment

A Heritage Impact Assessment found no items of cultural heritage significance.

Legislative Review

The proposed project crosses 4 watercourses and takes place within 32m of a tributary of the Nungwane River, as a result constitutes “The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic metres from:(i) a watercourse” (GN. R544 of 2010, Activity 18 i), “The expansion of facilities or infrastructure for the bulk transportation of water, sewage or storm water where:The facility or infrastructure is expanded by more than 1000 metres in length” (GN. R544 of 2010, Activity 37 a) and “The expansion of infrastructure by more than 50 square meters, within a watercourse or within 32 meters of a watercourse, but excluding where such construction will occur behind the development setback line (GN. R544 of 2010, Activity 40 iv).

The estimated area within 32m of the watercourse is greater than 50 m².

No other activities are triggered.

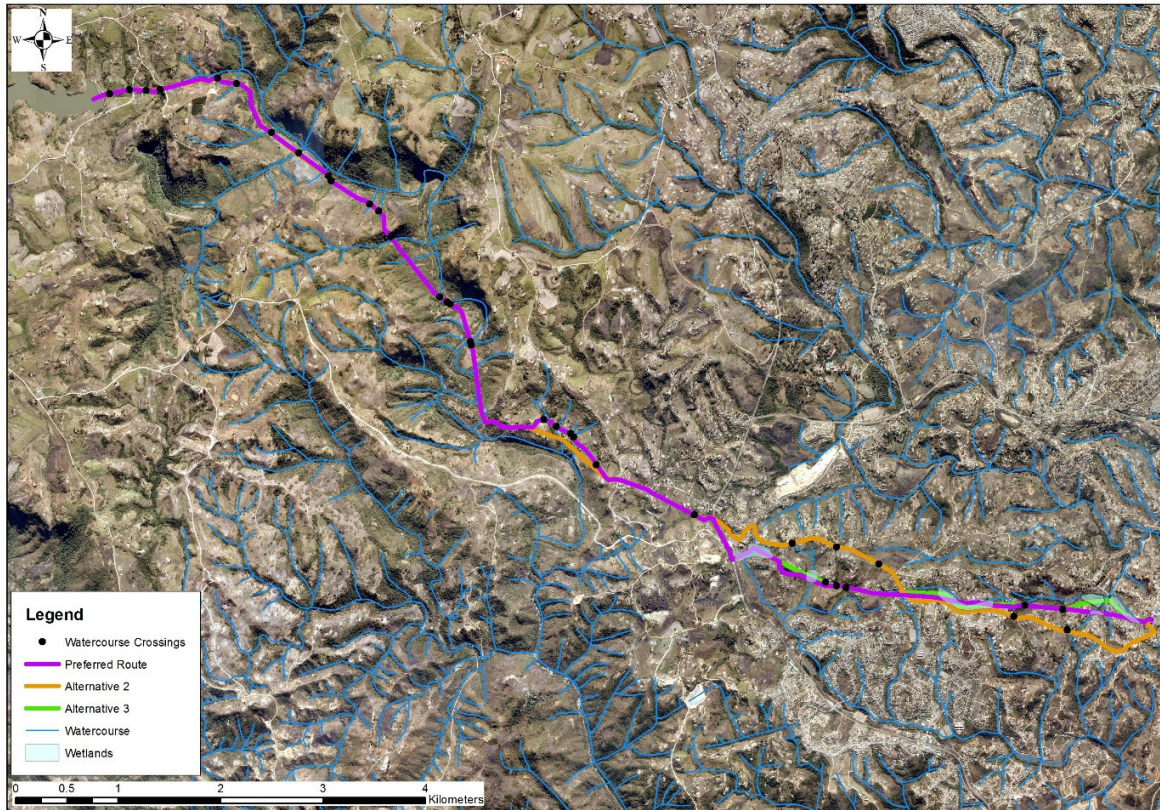


Figure 1. View of the proposed upgrade (and alternatives) which requires Environmental Authorization.

Impact Assessment and Recommendations

Expected impacts, such as soil erosion and the loss of fauna and flora are associated with the construction phase and are temporary. As a result, with management and mitigation, the significance is considered low



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

Application Number:

Date Received:

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 September 2012**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of “not applicable” in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. 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.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

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14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section? NO
 If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

a) Describe the project associated with the listed activities applied for

Amanzimtoti Water Treatment Plant (WTP) receives raw water from the Nungwane Dam through the Nungwane Raw Water Pipeline. This existing 14km steel pipeline, which was constructed in the 1990's, has deteriorated as a result of sulphate-reducing bacteria. Sulphate-reducing bacteria can create problems when metal structures are exposed to sulfate-containing water: Interaction of water and metal creates a layer of molecular hydrogen on the metal surface; sulfate-reducing bacteria then oxidize the hydrogen while creating hydrogen sulfide, which contributes to corrosion.

The deteriorating condition of the pipeline has reduced the capacity of the pipeline from its design capacity of 20MI/day to an average 16.5MI/day. In order to meet the increasing demand requirements, Umgeni Water proposes the replacing the pipe with a resistant pipeline, however as a result of social encroachment to within the pipeline servitude, the pipeline needs to deviate a total of approximately 4km from the existing alignment. These deviations will permit that no resettlements will be required.

b) Provide a detailed description of the listed activities associated with the project as applied for

Listed activity as described in GN R.544, 545 and 546	Description of project activity
Example: <i>GN R.544 Item 11(3): The construction of a bridge where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</i>	<i>A bridge measuring 5 m in height and 10m in length, no wider than 8 meters will be built over the Orange river</i>
GN. R 544 Item 18: The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic metres from: (i) a watercourse; (ii) the sea; (iii) the seashore; (iv) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is greater – But excluding where such infilling, depositing,	The current pipe crosses the river at 4 points. It is proposed that a new 450mm diameter steel replacement pipe be laid in the same position as the current pipes river crossings. The pipe will be encased in concrete which will extend a distance of at least 2m on both ends of the river banks at each crossing. In order to implement the above, material in excess of 5 cubic meters will be excavated from a watercourse(s)

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<p>dredging, excavation, removal or moving; (a) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or (b) occurs behind the development setback line.</p>	
<p>GN. R 544 Item 37: The expansion of facilities or infrastructure for the bulk transportation of water, sewage or storm water where:</p> <p>a) The facility or infrastructure is expanded by more than 1000 metres in length; or</p> <p>b) Where the throughput capacity of the facility or infrastructure will be increased by 10% or more – excluding where such expansion:</p> <p>(i) Relates to transportation of water, sewage or storm water within a road reserve; Or</p> <p>(ii) Where such expansion will occur within urban areas but further than 32 metres from a water course, measured from the edge of a water course.</p>	<p>The current pipe crosses the river at 4 points. It is proposed that a new 450mm diameter steel replacement pipe be laid in the same position as the current pipes river crossings. The pipe will be encased in concrete which will extend a distance of at least 2m on both ends of the river banks at each crossing.</p> <p>In order to implement the above, material in excess of 5 cubic meters will be excavated from a watercourse(s)</p> <p>The infrastructure will be expanded by approximately 4.48Km.</p>
<p>GN. R 544 Item 40: The expansion of:</p> <p>(i) jetties by more than 50 square metres; (ii) slipways by more than 50 square metres; (iii) buildings by more than 50 square metres; (iv) infrastructure by more than 50 square metres; within a water course or within 32 metres of a water course, measured from the edge of a water course, excluding where such construction will occur behind the development setback line.</p> <p><u>“watercourse” means –</u></p> <p>(a) a river or spring; (b) a natural channel or depression in which water flows regularly or intermittently; (c) a wetland, lake, or dam into which, or from which, water flows; and (d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998) and a reference to a watercourse includes, where relevant, its bed and banks;</p> <p><u>“wetland” means</u> land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.</p>	<p>The current pipe crosses the river at 4 points. It is proposed that a new 450mm diameter steel replacement pipe be laid in the same position as the current pipes river crossings. The pipe will be encased in concrete which will extend a distance of at least 2m on both ends of the river banks at each crossing.</p> <p>The infrastructure will be expanded by more than 50 square meters within 32 meters of a watercourse.</p>

2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

Describe alternatives that are considered in this application as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) 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 identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

The proposed project is the upgrading of an existing pipeline alignment. The availability of any site alternatives is therefore limited and the assessment thereof could not be defined as Feasible or Reasonable.

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
The site is linear from the Nungwane Dam to Amanzimtoti Water Treatment Works.	Appendix J	
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
NOT APPLICABLE		
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
NOT APPLICABLE		

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In the case of linear activities:

Alternative:	Latitude (S):	Longitude (E):
Alternative S1 (preferred)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S2 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S3 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

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

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A.

b) Lay-out alternatives

Due to the linear nature of the project, all alternative co-ordinates are provided within Appendix J. Co-ordinates are taken every 250 meters along the route for each alternative alignment.

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Please refer to APPENDIX J		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
APPENDIX J		
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
APPENDIX J		

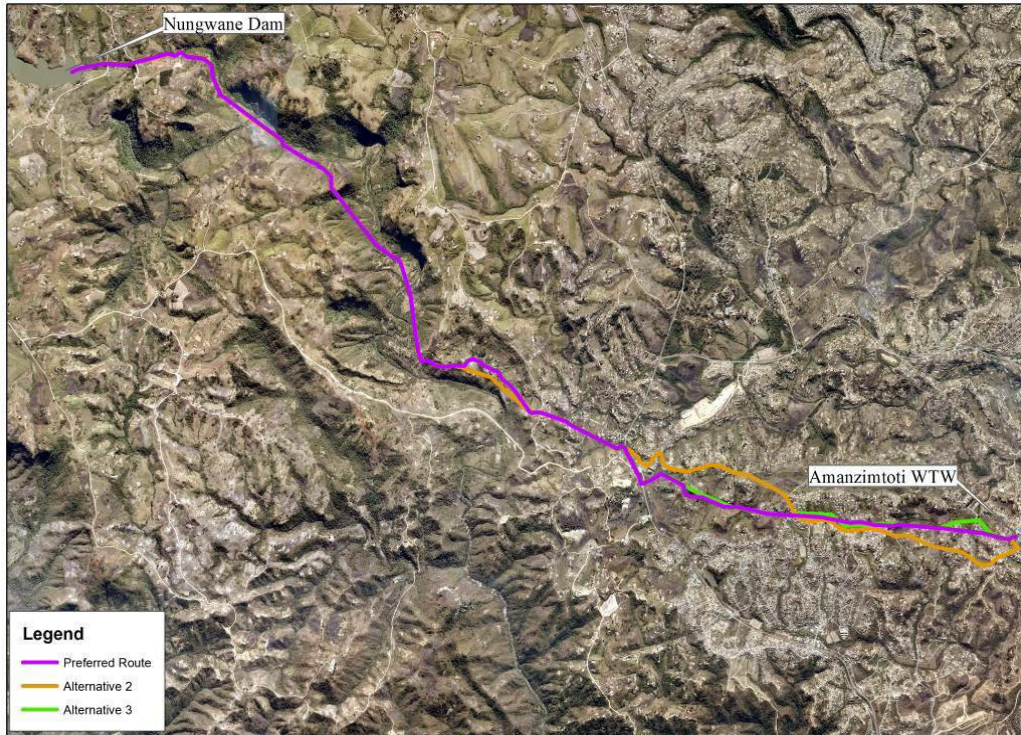


Figure 1. View of the proposed alignments

Technology alternatives

Due to the nature of the activity, no technology alternatives were considered.

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)
450mm Steel Pipeline is the preferred option as this is able to accommodate required pressures.
Alternative 2
500mm Steel Pipeline is the alternative, it is able to accommodate required pressures. This option has a higher cost, therefore alternative one will be used.
Alternative 3

e) No-go alternative

The necessity for the proposed project is as a result of the ongoing degradation of the existing pipeline through the action of sulphur-reducing bacteria.

The implication of implementing the No-go alternative is that the existing pipeline will continue deteriorating to the extent that it can no longer deliver the demand required by the Amanzimtoti Water

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Treatment Plant. Ultimately it would threaten Umgeni Water's capacity to supply of bulk water to the surrounding area.

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

3. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:	Size of the activity:
Alternative A1 ¹ (preferred activity alternative)	m ²
Alternative A2 (if any)	m ²
Alternative A3 (if any)	m ²

or, for linear activities:

Alternative:	Length of the activity:
Alternative A1 (preferred activity alternative)	14 000m
Alternative A2 (if any)	13 492m
Alternative A3 (if any)	13 257m

b) 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)	126 000 m ²
Alternative A2 (if any)	121 429 m ²
Alternative A3 (if any)	119 320 m ²

4. SITE ACCESS

Does ready access to the site exist?	YES
If NO, what is the distance over which a new access road will be built	m

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.

¹ "Alternative A.." refer to activity, process, technology or other alternatives.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

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

6. LAYOUT/ROUTE PLAN

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

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

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The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

8. 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.

9. FACILITY ILLUSTRATION



A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

10. ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?	YES		Please explain
A majority of the pipeline is within the existing pipeline servitude. The realignment sections occur over tribal and private land, servitudes will be registered on these areas.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES		Please explain
One of the four main spatial objectives informing the PSDF, stated in the KZN Provincial Growth and Development Strategy (PGDS) (August 2011), is that of Social Need. The project will form part of Infrastructure Asset Management as an effort to reduce municipal water loss through the renewal and maintenance of infrastructure. Part of the PSDF is the Water Services Development plan, this activity is in line with this as it promotes the provision of water. These fall within the ambit of the term "Social Need".			
(b) Urban edge / Edge of Built environment for the area		NO	Please explain
The pipeline crosses the urban development line as per the PSDF however the area is identified as rural. The proposed pipeline is situated outside urban areas and will therefore not affect the urban edge or edge of the built environment.			

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<p>(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).</p>	<p>YES</p>		<p>Please explain</p>
<p>The eThekweni IDP 2012-2013 highlighted the need for improved infrastructure and water supply. Issues identified include the provision of water to the population. The provision of basic services such as water is a critical element in the national developmental agenda. The project falls into the municipal asset management which promotes the replacing water pipes to reduce the loss of municipal water.</p> <p>Water supply has been identified as a critical infrastructure gap within the Ugu District Municipality IDP. Water infrastructure is identified as a development priority. The activity within this application has been identified as part of the IDP implementation plan.</p> <p>The approval of the proposed realignment would not compromise the Integrated Development Plan or the Spatial Development Plan.</p>			
<p>(d) Approved Structure Plan of the Municipality</p>	<p>YES</p>		<p>Please explain</p>
<p>Forms part of the Infrastructure Asset Management Plan to reduce the loss of municipal water by ensuring the renewal of pipelines for water provision.</p>			

<p>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</p>		<p>NO</p>	<p>Please explain</p>
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The Environmental Management Framework for the eThekweni Municipality and Vulamehlo Local Municipality has yet to be completed. Because of the project involving the terrestrial and aquatic environments, the Water Resource Commission's National Freshwater Ecosystem Priority Areas database and the Ezemvelo KZN Wildlife Minset database were reviewed.

According to the National Freshwater Ecosystem Priority Areas database, the Nungwane River is classed as Category B which is classified as largely natural. The upper section of the pipeline is highlighted in Ezemvelo KZN Wildlife Minset Database as being part of a Biodiversity Priority Area 1 with key species being *Doratogonus rubipodus*, *Gerrardanthus tomentosus*, *Hyperolius pickersgilli* and South Coast Grassland. When considering the Minset in the context of the 2008 Landcover Database, the Landcover Database acknowledges the transformation of the project site.

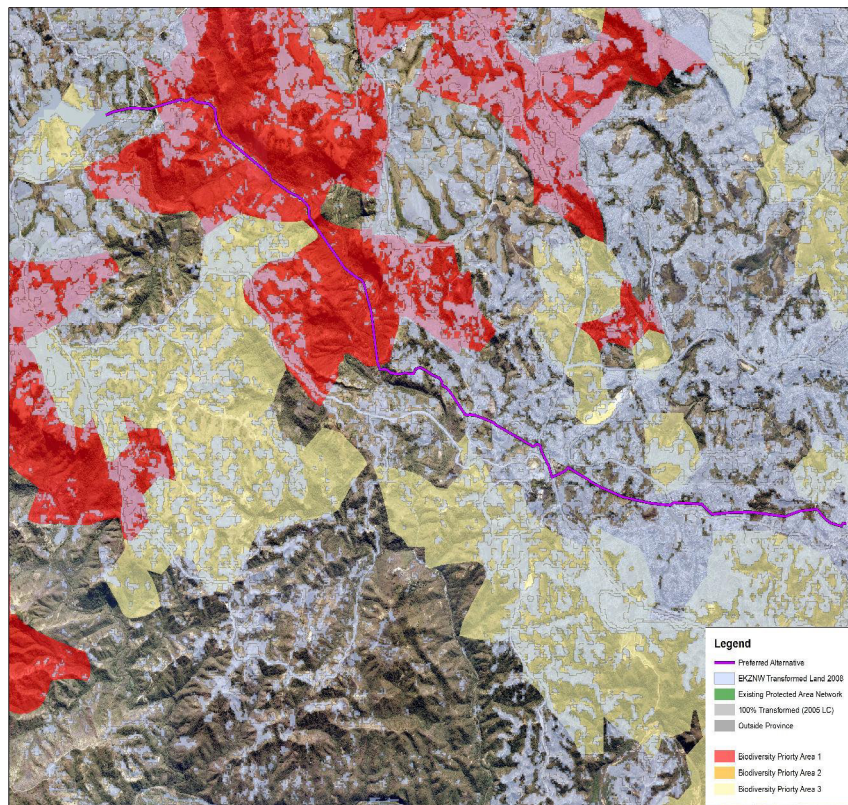


Figure 2: Ezemvelo KZN Wildlife MINSET data

Investigation into the Durban Open Space System indicates that the pipeline crosses thicket. Upon further investigation, this thicket is considered degraded. The pipeline will therefore, not negatively impact the thicket area.

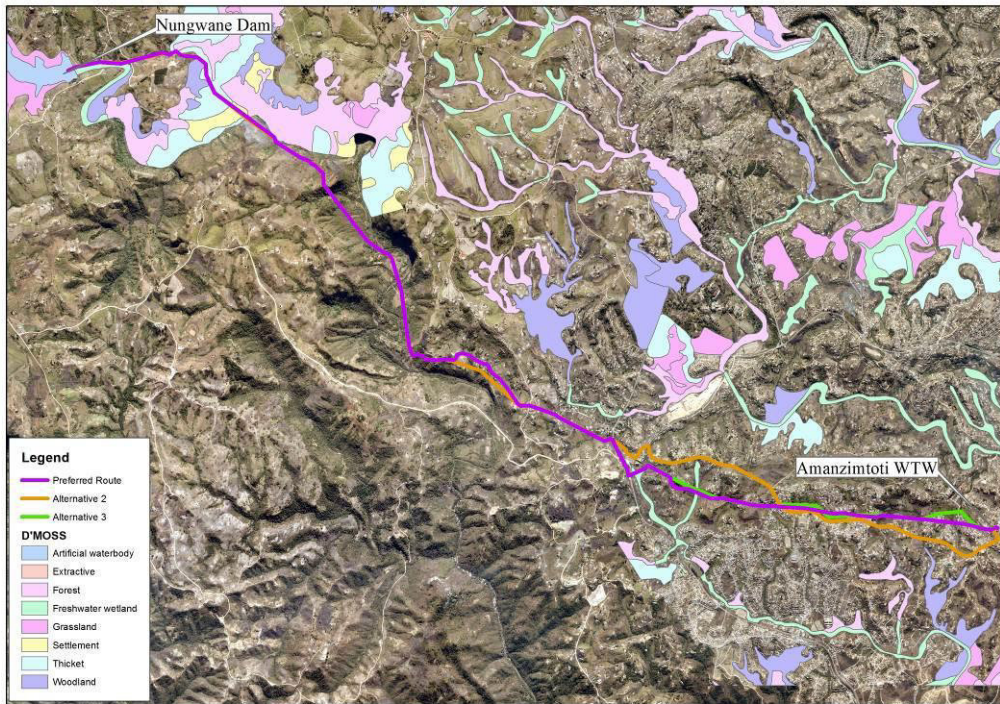


Figure 3: D'MOSS of the proposed Nungwane pipeline.

It is considered that, with the correct implementation of the recommendations of this report and its associated Environmental Management Programme, that the upgrade and realignment of the Nungwane Pipeline should not have any adverse effect on either of these strategic plans.

(f) Any other Plans (e.g. Guide Plan)		NO	Please explain
None were identified.			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES		Please explain
Please refer to section 2(a)(c)(d).			

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<p>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</p>	<p>YES</p>	<p>NO</p>	<p>Please explain</p>
<p>The availability of potable water is considered a basic human need, thus at a strategic level, the surround communities need the proposed upgrade.</p> <p>At a local level, the proposed alignment predominantly follows the existing alignment, and where encroachment from the local community onto the pipeline servitude has occurred, the alignment has been deviated to accommodate this sprawl. Thus at a local level, the potential societal impacts have been limited.</p>			
<p>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	<p></p>		<p>Please explain</p>
<p>Not applicable. The upgrade is not municipal service reliant as it is the upgrade of an existing pipeline within its pipeline servitude.</p>			
<p>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	<p></p>		<p>Please explain</p>
<p>Again, the upgrade is within a current pipeline servitude where Umgeni Water is the administering authority. The approval of this project is not dependent upon any municipal input and will not compromise any of the municipality's planning capabilities.</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	<p></p>		<p>NO Please explain</p>
<p>This project is locally specific and important to the surrounding areas.</p>			
<p>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</p>	<p>YES</p>	<p>Please explain</p>	
<p>The development will occur predominantly within the current servitude. Location of this pipeline is location specific.</p>			
<p>9. Is the development the best practicable environmental option for this land/site?</p>	<p>YES</p>	<p>Please explain</p>	
<p>The development occurs within the current pipeline servitude. The Preferred Option being proposed is considered the Best Practical Environmental Option.</p>			

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10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES		Please explain
<p>The benefits are: providing water to the surrounding area.</p> <p>The negative impacts: The existing pipeline is in very poor condition due to corrosive action by sulphur-reducing-bacteria. It is possible that over time, the existing pipeline will deteriorate to a point at which it may no longer be used. The deterioration would cause further stress on the surrounding area. The demands of the surrounding area will not be met as Amanzimtoti Water Treatment Plant (WTP) receives raw water from the Nungwane Dam through the Nungwane Raw Water Pipeline.</p>			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?		NO	Please explain
<p>There is no need for similar activities due to the nature of this project. It does not set a precedent.</p>			
12. Will any person's rights be negatively affected by the proposed activity/ies?		NO	Please explain
<p>The activity occurs within an existing servitude. The activity does not negatively impact any person's rights, peoples' right will not be affected.</p>			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		NO	Please explain
<p>The area is defined as rural by the local municipality. The activity will occur within an existing servitude.</p>			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?		NO	Please explain
<p>N/A</p>			
15. What will the benefits be to society in general and to the local communities?	Please explain		
<p>The benefits to society is primarily through the provision of water infrastructure of a higher standard as well as through job creation.</p>			
16. Any other need and desirability considerations related to the proposed activity?	Please explain		
<p>None.</p>			
17. How does the project fit into the National Development Plan for 2030?	Please explain		
<p>In Chapter 4: Economic Infrastructure of the National Development Plan for 2030, the vision statement concerning the Water sector states the following: "Before 2030, all South Africans will have affordable access to sufficient safe water and hygienic sanitation to live healthy and dignified lives." The proposed development seeks to pursue this vision by continued provision of access to safe water.</p>			

18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.

Section 23 of NEMA promotes the application of environmental management tools ensuring the integrated environmental management of activities. The general objective of integrated environmental management is to:

Promote the integration of the principles of environmental management set out in section 2 into the making of all decisions which may have a significant effect on the environment;

Response: this assessment is aligned with the NEMA principles described below (see Section 19 assessment below).

Identify, predict and evaluate the actual and potential impact on the environment, socioeconomic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimizing negative impacts, maximizing benefits. and promoting compliance with the principles of environmental management set out in section 2;

Response: this process is implicit in the current Basic Assessment Reporting procedure.

Ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them;

Response: this process is implicit in the current Basic Assessment Reporting procedure.

Ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment;

Response: A comprehensive public participation process has been followed in accordance with EIA Regulation GN R543 of 2010.

Ensure the consideration of environmental attributes in management and decision-making which may have a significant effect on the environment; and

Response: A comprehensive assessment of the significance of impacts has been conducted as part of the BAR.

Identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section.

Response: Considerations of the environmental risk presented by each of the three options were made during the feasibility study. The preferred alternative proposed is the option considered to have the least economic and environmental impact.

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

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Principle	Consideration
(a) shall apply alongside all other appropriate and relevant considerations, including the State's responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter 2 of the Constitution and in particular the basic needs of categories of persons disadvantaged by unfair discrimination;	<p>The required EIA should provide sufficient information for the relevant authority to make a defensible and informed decision.</p> <p>The EIA process has been undertaken in order to provide the relevant decision makers with the required information.</p>
(b) serve as the general framework within which environmental management and implementation plans must be formulated;	It is the opinion of this review that the proposed project does not conflict with NEMA principles in such a manner that it places undue risks on the natural or socio-economic environment provided that mitigation measures be effectively implemented
(c) serve as guidelines by reference to which any organ of state must exercise any function when taking any decision in terms of this Act or any statutory provision concerning the protection of the environment;	<p>The required EIA should provide sufficient information for the relevant authority to make a defensible and informed decision.</p> <p>The EIA process has been undertaken in order to provide the relevant decision makers with the required information.</p>
(d) serve as principles by reference to which a conciliator appointed under this Act must make recommendations; and	Not Applicable
(e) guide the interpretation, administration and implementation of this Act, and any other law concerned with the protection or management of the environment.	Not Applicable
(2) Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.	The primary objectives of the proposed project is to provide access to water.
(3) Development must be socially, environmentally and economically sustainable.	<p>There is no indication that the proposed project would result in undue or environmental, social and economic impacts that would place at the risk the sustainability of local natural systems or the project.</p> <p>Recommendations made in the BAR must be adopted</p>
(4)(i) that the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;	The selection of the preferred alternative was, in part, based on the fact that of the three alternatives, this option would have the least impact on the environment.

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<p>(4) (ii) that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;</p>	<p>The BAR notes that impacts with regard to pollution and degradation of the environment can be managed and will not result in unacceptable impact on the local environment.</p> <p>The recommendations made in the BAR must be adopted.</p> <p>Particular focus must be given to the Environmental Management Plan.</p>
<p>(iii) that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;</p>	<p>At the time of writing, no items of cultural or heritage significance had been identified. However, as a Key Stakeholder, Amafa aKwaZulu-Natali are required to comment on this report. Should, a Heritage Impact Assessment be required, the findings will be included as part of the submission of the Final Basic Assessment Report as well as a copy submitted to Amafa.</p>
<p>(iv) that waste is avoided, or where it cannot be altogether avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner;</p>	<p>The BAR notes that impacts with regard to pollution and degradation of the environment can be managed and will not result in unacceptable impact on the local environment. The recommendations made in the BAR must be adopted.</p>
<p>(v) that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource</p>	<p>Not Applicable</p>
<p>(vi) that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;</p>	<p>Not Applicable</p>
<p>(vii) that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions;</p>	<p>The "precautionary principle" and the assessment of environmental risk are inherent in the EIA impact assessment process.</p>
<p>(viii) that negative impacts on the environment and on people's environmental rights be</p>	<p>The BAR assesses impacts on the natural and social environment and also provides</p>

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<p>anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.</p>	<p>recommendations to prevent minimise or remedy such impacts.</p> <p>Recommendations and mitigation measures provided in the BAR must be adopted.</p>
<p>4(b) Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.</p>	<p>As discussed, the selection of the preferred option was a result of an iterative process where considerations of the best practicable environmental options were made.</p>
<p>(c) Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.</p>	<p>The proposed project is in line with the eThekweni Municipality and Vulamehlo Local Municipality IDPs and supports the municipality's reliance on good water infrastructure as a support to its economy</p>
<p>(d) Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access there to by categories of persons disadvantaged by unfair discrimination.</p>	<p>The project will provide access to water.</p>
<p>(e) Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.</p>	<p>Environmental Management Plans are mandatory as part of the EIA process.</p>
<p>(f) The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.</p>	<p>The current EIA process has included a comprehensive PP process, including:</p> <ul style="list-style-type: none"> • Publicised the project through visible signage, local and regional press adverts, identification of local stakeholders and other government officials and parastatals. • Engagement with public • Engagement with key stakeholders, and affected land owners. <p>This process is described in more detail in the BAR.</p>
<p>(g) Decisions must take into account the interests, needs and values of all interested and</p>	<p>As above</p>

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affected parties, and this includes recognising all forms of knowledge, including traditional and ordinary knowledge.	
(h) Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.	Notification to the public made the communities aware of the proposed project and their opportunity to be involved in the project.
(i) The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.	The EIA process has been undertaken in order to provide the relevant decision makers with the required information.
(j) The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.	The proponent is committed to respecting the rights of workers in terms of both labour laws and environmental rights. Occupational Health and Safety mechanisms must be included in the relevant Environmental Management Plan.
(k) Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.	The EIA provides the relevant information needed for effective decision-making. Furthermore, such information is released into the public sphere and as such contributes to greater access to information.
(l) There must be intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment.	Not Applicable
(m) Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.	Not Applicable
(n) Global and international responsibilities relating to the environment must be discharged in the national interest.	Not Applicable
(o) The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.	The necessity for the project stems from a need to provide water infrastructure, benefitting people. The risk that the natural environment is presented with is in relation to the benefit afforded to the people. Specialist assessments will be undertaken in order to understand the risks and ensure that the level is acceptable so as to not compromise the environment for future generations.
(p) The costs of remedying pollution, environmental degradation and consequent	The liabilities associated with environmental degradation remain with the applicant and their

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adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.	appointed agent.
(q) The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.	<p>Opportunities to be involved in the Basic Assessment process are extended to all.</p> <p>Opportunities as a result of the construction contract are promoted through Umgeni Waters Contracts Procurement Goals where minimum requirements are to be met. These Goals require a specific participation of Historically Disadvantaged Individuals including woman.</p>
(r) Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.	Whilst in close proximity to watercourses, the impacts are limited, provided that the Environmental Management Programme is implemented.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Water Act (Act No 36 of 1998)	Multiple water crossings	Department of Water Affairs (DWA)	1998
National Environmental Management Act (Act No 107 of 1998 [NEMA]) as amended	GN. R 544 Item 18; GN. R 544 Item 37 and; GN. R 544 Item 40.	DAEA	1998
National Heritage Resources Act (Act No 25 OF 1999)	Section 38(1)	South African Heritage Resources Agency (SAHRA)/ Amafa AkwaZulu-Natali (Amafa)	1999

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

YES

NO

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

10m³

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

Solid waste shall be correctly stored on site (in skips, or when and where necessary; banded areas) until sufficient quantities have been collected to justify disposal. The waste will then be transported via skips to a permitted landfill site.

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

Construction waste will be disposed of at the nearest permitted landfill site that has capacity. The nearest such site is the Umbumbulu Road Landfill Site which disposes of general waste.

Will the activity produce solid waste during its operational phase?

NO

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

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

N/A

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

N/A

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

N/A

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

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?

NO

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?

NO

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

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

NO

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

N/A

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

NO

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

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Will the activity produce effluent that will be treated and/or disposed of at another facility? NO

If YES, provide the particulars of the facility:

Facility name:	NOT APPLICABLE		
Contact person:	The activity will not produce any effluent that will be treated and/or disposed of at another facility.		
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:

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities? NO

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

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

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

Emissions will take the form of dust and engine emissions that will result from the operation of vehicles and construction equipment on site. This will be limited to the construction phase of the project and will not continue during the operational phase. Mitigation measures for such emissions are included in the site specific Environmental Management Programme (EMPr). See Appendix G for further details.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA? NO

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise? NO

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

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

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

Noise produced will be from vehicles and equipment and will be limited to the construction phase. The noise nuisance will be managed in terms of the CEMP and the applicable sections of the Occupational Health and Safety Act (OHSA). No noise will be generated during the operational phase.

13. WATER USE

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

		River, stream, dam or lake	
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

	0litres
	No

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

The Department of Water Affairs are a commenting authority on the proposed upgrade. As part of the Public Participation, the need for either a Water Use License or whether the project has a general authorization will be confirmed. Correspondance from the Department of Water thus far has indicated that no water use license will required (Appendix E3)

14. ENERGY EFFICIENCY

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

No specific energy efficiency measures have been implemented in the design phase.

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

Alternative power sources are not feasible for the proposed development. Most routes are governed by gravity, it is therefore not necessary to invest in alternative energy sources due to the low operational cost.
--

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

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

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

3. Has a specialist been consulted to assist with the completion of this section? NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

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Property description/physical address:

Province	Property Description found in Appendix J
District Municipality	
Local Municipality	
Ward Number(s)	
Farm name and number	
Portion number	
SG Code	

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

The upper portion of the pipeline (from start at Nungwane dam) is zoned as environment (including critically threatened areas). A portion of the pipeline then passes through Vulamehlo Local Municipality within an area zoned as rural. The pipeline then re-enters eThekweni Municipality rural area before ending within a land use zoned as residential.

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

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

NO

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Due to the linear nature of the proposed pipeline, the gradient of the site is varied.

Alternative S1:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Figure 4: Gradient along the Nungwane pipeline

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2. LOCATION IN LANDSCAPE

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

Due to the linear nature of the proposed activity, various landforms are present. A majority of the pipeline is within a valley and undulating plains.

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input checked="" type="checkbox"/>	2.7 Undulating plain / low hills	<input checked="" type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input checked="" type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input checked="" type="checkbox"/>	2.6 Plain	<input checked="" type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

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

4. GROUNDCOVER

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

Natural veld - good condition ^E	Natural veld with scattered aliens ^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Cultivated land	Paved surface	Building or other structure	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.

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5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	YES		
Non-Perennial River	YES		
Permanent Wetland	YES	NO	UNSURE
Seasonal Wetland	YES	NO	UNSURE
Artificial Wetland		NO	UNSURE
Estuarine / Lagoonal wetland		NO	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

According to the National Freshwater Ecosystem Priorities Area: The main river through the area is the Nungwane River which is classified as largely natural. The wetland vegetation is classified as Indian Ocean Coastal belt Group 2 which is classified as critically threatened.
Multiple non-perennial rivers are present in the area.

6. LAND USE CHARACTER OF SURROUNDING AREA

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

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential ^A	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant ^A	Nature conservation area
Medium industrial ^{AN}	Train station or shunting yard ^N	Mountain, koppie or ridge
Heavy industrial ^{AN}	Railway line ^N	Museum
Power station	Major road (4 lanes or more) ^N	Historical building
Office/consulting room	Airport ^N	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam ^A	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

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

N/A

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

N/A

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

N/A

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)*	YES	
Core area of a protected area?		NO
Buffer area of a protected area?		NO
Planned expansion area of an existing protected area?		NO
Existing offset area associated with a previous Environmental Authorisation?		NO
Buffer area of the SKA?		NO

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

*Due to Critical Biodiversity Areas not being Gazetted within the province, Ezemvelo KZN Wildlife MINSET and SANBI Threatened ecosystems datasets were used to represent Critical Biodiversity Areas.

References:

EKZNW (2010) Terrestrial Systematic Conservation Plan: Minimum Selection Surface (MINSET). Unpublished GIS Coverage [tscp_minset_dist_2010_wll.zip], Biodiversity Conservation Planning Division, Ezemvelo KZN Wildlife, P. O. Box 13053, Cascades, Pietermaritzburg, 3202.

7. 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 paleontological sites, on or close (within 20m) to the site? If YES, explain:

YES	NO
Uncertain	

The Heritage Impact Assessment did not identify any archaeological sites of significance. It did however note a number of graves within the vicinity of the pipeline route.

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

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The heritage impact assessment survey found three grave sites near the western section of the proposed pipeline. However, these grave sites are located more than 80m from the pipeline trajectory and they are not threatened by the proposed development. It is nevertheless important to enforce a buffer zone of 50m around these grave sites. No development or alteration of heritage features may occur within this zone. There are no heritage resources within 50m on either side of the proposed pipeline trajectory.

The area is also not part of any known 'cultural landscape'. However, the heritage survey was compromised by the density of the vegetation in the river valley. There is a slight possibility that construction work may unearth heritage features that have been invisible during the actual ground survey such as archaeological artefacts and informal graves. Should this occur then all construction work must stop and the provincial heritage agency, Amafa should be contacted for further evaluation. Apart from this concern there is no archaeological reason why the proposed pipeline development may not proceed as planned.

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

YES	NO
YES	NO

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

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

According to Ugu District Municipality IDP, Vulamehlo Local Municipality has a high (49%) level of unemployment. According to the eThekweni SDF, the rural areas, as zoned within this activity, has high levels of unemployment.

Economic profile of local municipality:

According to the Ugu District Municipality IDP, the Ugu District is predominantly rural with high levels of unemployment. There are low levels of economic growth, the main sectors are agriculture, manufacturing, trade and tourism, the informal sector and transport. The eThekweni Metro Municipality has high levels of economic growth, the main sectors are finance and manufacturing. Although the municipality has high levels of economic growth, there is a distribution in economic activity. Areas in which informal townships are found have low level access to economic opportunity.

Level of education:

According to the Ugu District IDP, the predominant education level is high school level. According to the eThekweni District Municipality SDF, rural areas have low levels of education.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R66.8 million	
What is the expected yearly income that will be generated by or as a result of the activity?	R22.8 million	
Will the activity contribute to service infrastructure?	YES	NO
Is the activity a public amenity?	YES	NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	10 000	person days
What is the expected value of the employment opportunities during the development and construction phase?	R6.0 million	
What percentage of this will accrue to previously disadvantaged individuals?	80%	
How many permanent new employment opportunities will be created during the operational phase of the activity?	Nil	
What is the expected current value of the employment opportunities during the first 10 years?	R6.0 million	
What percentage of this will accrue to previously disadvantaged individuals?	Nil	

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

*Due to Critical Biodiversity Areas not being Gazetted within the province, Ezemvelo KZN Wildlife MINSET and SANBI Threatened ecosystems datasets were used to represent Critical Biodiversity Areas.

References:

EKZNW (2010) Terrestrial Systematic Conservation Plan: Minimum Selection Surface (MINSET). Unpublished GIS Coverage [tscp_minset_dist_2010_wll.zip], Biodiversity Conservation Planning Division, Ezemvelo KZN Wildlife, P. O. Box 13053, Cascades, Pietermaritzburg, 3202.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category	If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
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Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	<p>According to EKZNW MINSET database, the following species are present indicating a Priority Area 1:</p> <p><i>Doratogonus rubipodus;</i> <i>Hyperolius pickersgilli;</i> <i>Gerrardanthus tomentosus;</i> <i>South Coast Grassland;</i> <i>Eastern Scarp Forests : Southern Coastal Scarp Forest;</i> <i>Edouardia conulus;</i> <i>Cochlitoma semidecussata;</i> <i>South Coast Bushland;</i> <i>Doratogonus cristulatus;</i> <i>Doratogonus montanus;</i> <i>KwaZulu-Natal Coastal Forests;</i> <i>Pseudoscolopia polyantha;</i> <i>Streptocarpus molweniensis;</i> <i>Gulella separate;</i> <i>Begonia rudatisii;</i> <i>Dahlgrenodendron natalense; and</i> <i>Diaphananthe millarii.</i></p>
				<p>However according to the EKZNW Land Transformation dataset, a majority of the area on which the pipeline is proposed to be placed is classified as transformed. Please refer to Section A (10) (2) (e).</p>

b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	0%	The area has been modified by social encroachment and the introduction of invasive alien plants.
Near Natural (includes areas with low to moderate level of alien invasive plants)	5%	A small portion of the area is near natural, there moderate levels of invasive plants present.
Degraded (includes areas heavily invaded by alien plants)	5%	A small portion of the area is heavily degraded, there high levels of invasive plants present.
Transformed (includes cultivation,	90%	A large portion of the pipeline has been transformed by roads and settlements. Large areas are used for

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dams, urban, plantation, roads, etc)		subsistence farming.
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c) Complete the table to indicate:

- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

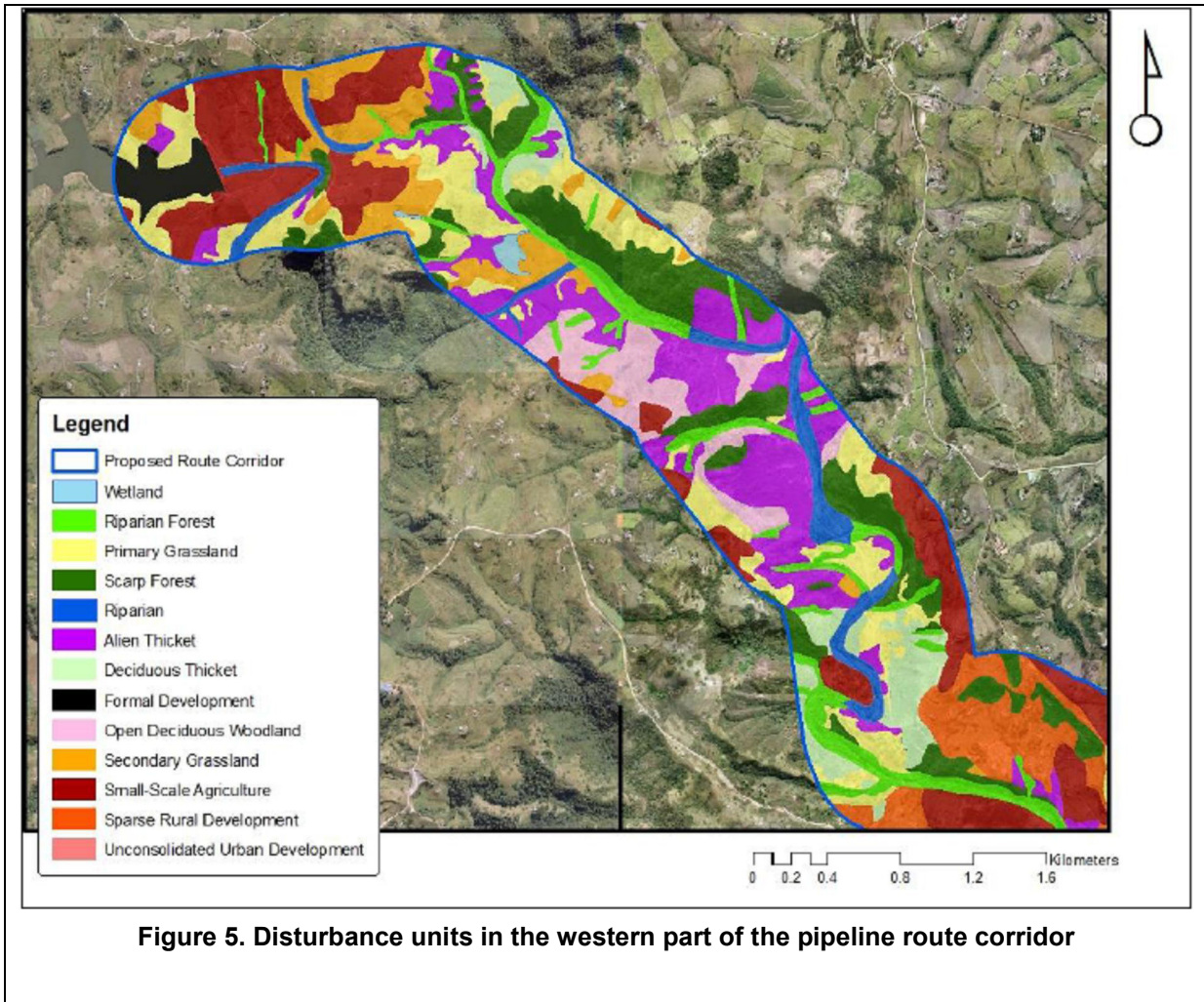
Terrestrial Ecosystems		Aquatic Ecosystems						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable	YES				NO		NO
Least Threatened								

d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

The pipeline traverses both aquatic and terrestrial ecosystems. As a result, Specialist Investigations have been undertaken and can be found in Appendix D.

Terrestrial Ecosystems

The terrestrial study confirmed the presence of 13 vegetation types ranging from wetlands; riparian vegetation to grasses, thickets and forests. The study also confirms the presence of extensive urban transformed areas in the eastern extent of the alignment.



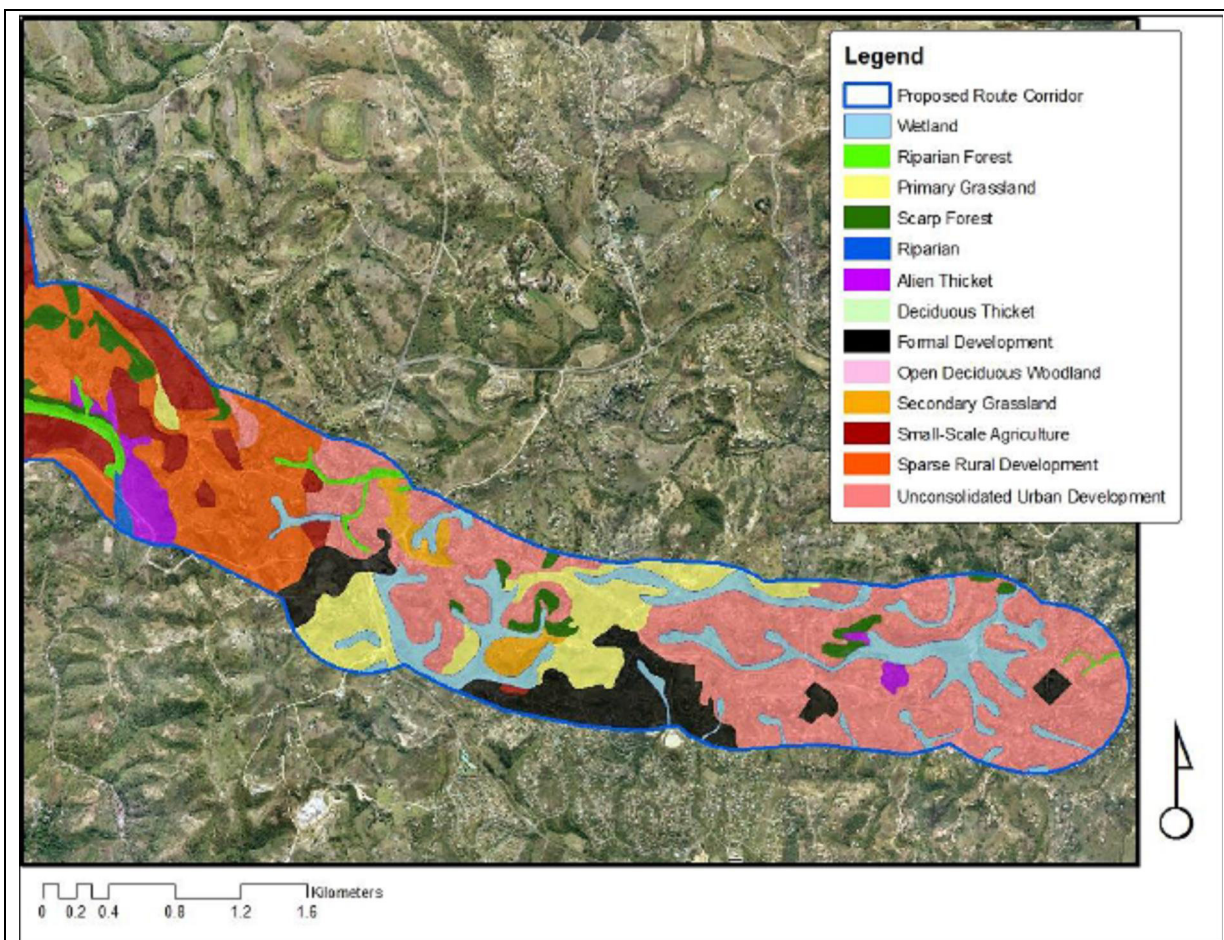


Figure 6. Disturbance units in the eastern part of the pipeline route corridor

The following conclusions were drawn from the above study:

- The route of the pipeline is mostly acceptable from an ecological and biodiversity maintenance point of view.
- The primary grassland and primary forest vegetation types were identified as being highly sensitive ecologically;
- The intact blocks of primary vegetation were identified as being important from a conservation priority point of view;
- Primary grassland and mature riparian forest were the only vegetation types regarded as having a high provincial conservation priority;
- The wetlands are sensitive, but from a geophysical perspective rather than a biodiversity perspective because they occur within a transformed landscape;
- The Nungwane valley is important for biodiversity at the landscape level, and has a high conservation priority at local and regional levels;
- Seven areas of concern were identified occurring within the Nungwane valley. These concerned river and forest crossings. Recommendation have been provided;
- The proposed route transects a number of wetland systems;
- The route mostly follows existing routes and roads, and is superimposed on disturbed areas;

- The spatial impact of the development is likely to be comparatively small;
- The temporal impact of the disturbance created by the development is considered to be short-lived and once-off;
- The development will not leave a significant above-ground footprint once completed, and hence is unlikely to impact on the core ecological processes driving the respective vegetation types in the long-term;
- Inherent in constructing the pipeline route through forest habitats should be appropriate rehabilitation. An idealised long term scenario is envisaged where the pipeline servitude through forest patches is flanked by spreading canopy trees such as *Albizia adianthifolia*, with near-complete canopy cover over the open space. This will enhance ecological connectivity and prevent alien plant species from establishing within the core of these forest patches;
- Alternative 2 is the route with the lowest environmental impact, requiring the least mitigation, mostly because it avoids the wetland habitat in the eastern part of the study area;
- The environmental impacts associated with the proposed route may be substantially reduced by the shifting of the route to the edge of the identified wetland habitat in the eastern part of the study area. This would avoid the sensitive habitat;
- The impacts of the pipeline on the important vegetation types are considered to have a high potential for successful mitigation or avoidance.

Aquatic Ecosystem

The investigation into the present state of the three catchments affected by the proposed Nungwane pipeline indicates that:

- From an ecological perspective, the aquatic habitat along the line route can be divided into 4 particular forms, these being
 - The upper Nungwane
 - The lower Nungwane
 - The Little Manzimtoti
 - The Manzimtoti
- The Nungwane catchment shows the greatest ecological significance on account of the low settlement in the region and diversity of habitat (riverine system, wetland).
- The Nungwane system shows a moderate ichthyological species diversity with 12 recorded species across its entire length.
- The Little Manzimtoti and Manzimtoti catchments show moderate ecological value, with the Manzimtoti showing moderate ichthyological diversity, together with moderate habitat structure and compositional diversity.
- The findings of this report indicate that the most prudent approach to the development of the new pipeline from the Nungwane Dam to Amanzimtoti Water Works would be to establish the pipeline route in the same position as the existing line, with the concomitant management systems being set in place.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Mercury	
Date published	13 February 2014	
Site notice position	Latitude	Longitude
	30°2'47.49'S	30°47'58.83'E
	30°3'6.95'S	30°49'35.39'E
	30°3'10.68'S	30°51'5.85'E
	30°0'22.21'S	30°44'48.81'E
	30°0'21.35'S	30°44'34.79'E
Date placed	13 February 2014	

Publication name	Isolezwe	
Date published	13 February 2014	
Site notice position	Latitude	Longitude
	30°2'47.49'S	30°47'58.83'E
	30°3'6.95'S	30°49'35.39'E
	30°3'10.68'S	30°51'5.85'E
	30°0'22.21'S	30°44'48.81'E
	30°0'21.35'S	30°44'34.79'E
Date placed	13 February 2014	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.543.

Key stakeholders (other than organs of state) identified in terms of Regulation 54(2)(b) of GN R.543:

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Ingonyama Trust	Landowner	033 846 9900
Mnguni Sibusisiwe Gladys	Landowner	PO Box 90, New Germany, 3520
Mzokhona Mngoma	Interested & Affected Party	0732714556

One additional IAP has been identified as the pipeline is within their property. Attempts to obtain contact details were made by the eThekweni Metro Municipality and Umgeni Water. Information on this individuals are unavailable as they do not pay rates.

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

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- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
Will the pipeline cross his land? Who can he contact should he have any queries?	The pipeline will not cross his land. Contact details of EAP provided.

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Department of Agriculture and Environmental Affairs	Director: Integrated Environmental Authorisations	012-395-1768	012-320-7539	EIAAdmin@environment.gov.za	Private Bag X447 Pretoria 0001
Department of Water Affairs	N. Mokoena	031 336 2750	031 3059 915	MokoenaN@dwa.gov.za	PO Box 1018, Durban, 4000
Department of Transport	Roy Ryan	033 3558600	033 3423962	roy.ryan@kzntransport.gov.za	Private Bag X9043, PMB, 3200
Department of Rural Development and Land Reform	Chief Director <u>Adv Bheki Mbili</u>	(033) 341 2600		<u>BMbili@ruraldevelopment.gov.za</u>	Commercial City Building, 4th Floor, 40 Commercial Road, Durban, 4001
eThekweni Municipality	Diane Van Rensburg	031 311 7136	031 311 7859	<u>vanrensburgd@durban.gov.za</u>	PO Box 680 Durban 4000
Vulamehlo Local Municipality	Municipal Manager	0399740450	0399740432	msizi@venturenet.co.za	Private Bag X5509, Scottburgh, 4180
Department of Agriculture	Sibusiso Dlamini	082 921 9382		dlaminizn@kzndae.gov.za	Private Bag X9059 Pietermaritzburg 3201
Department of Co-operative Governance and Traditional Affairs	Norman Milne	033-355 6445	033-355 6212	norman.milne@kznlgta.gov.za	Private Bag X9018, Pietermaritzburg

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					3200
Department of Human Settlements	Thokozani Makagula	033 392 6400	033 845 6454		Private Bag X 9045, Pietermaritzburg, 3200
Ugu District Municipality	Municipal Manager: DD. Naidoo	039 688 5700	0396824820		PO Box 33 Port Shepstone 4240
eThekweni Department of Agriculture and Environmental Affairs	Yugeshnie Govender	0313022800		yugeshnie.govender@kzndae.gov.za	Private Bag X54321 Durban 4000
Ugu Department of Agriculture and Environmental Affairs	Sabelo Ngcobo	0396822045		sabelo.ngcobo@kzndae.gov.za	Private Bag X885, Port Shepstone, 4240

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

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

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. 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

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

Activity	Impact summary	Significance	Proposed mitigation	
Alternative 1 (preferred alternative)				
Planning and Design Phase	Survey and Geotechnical studies	Direct impacts:		
		1. Trial Pits Loss of flora, potential loss of fauna, soil loss.	Low	Cover trial pits after completion.
		2. Surveys Loss of flora, potential loss of fauna, soil loss.	Low	Vegetation clearing must be kept to a minimal when surveying. No pruning or removal of protected flora is to occur
3. Site inspections Loss of flora, potential loss of fauna, soil loss.	Low	Ensure minimal loss of vegetation by keeping vehicles on roads and tracks.		

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Activity	Impact summary	Significance	Proposed mitigation
	<p>Indirect impacts:</p> <p>Potential soil erosion</p>	Low	Limit the extent and duration of exposed soil. If possible excavations are to avoid slopes. Excavations are to be backfilled level to the previous ground level.
	<p>Cumulative impacts:</p> <p>Soil and flora loss.</p>	Low	With mitigation measures and implementation of the EMP, the cumulative environmental impact will be low
Construction Phase	<p>Direct impacts:</p> <ol style="list-style-type: none"> 1. Loss of flora and fauna. 2. Soil erosion and sedimentation into the watercourse. 3. Wetland degradation 	<p>Medium</p> <p>High</p> <p>Medium</p>	<p>All alien plants must be removed from the site.</p> <p>Revegetation of disturbed construction areas shall take place as soon as possible after construction work is completed. As much as is possible, revegetation shall take place at the start of the summer rains to maximise water availability and minimise the need for watering.</p> <p>If revegetation takes place during the dry season, irrigation of planted areas may be necessary. All plants/trees used in revegetation shall be locally indigenous species only.</p>
	<p>Indirect impacts:</p> <p>Potential establishment of invasive alien vegetation.</p>	Medium	All alien invasive plants should be removed by hand and disposed of by disposal at a permitted landfill site. Annual follow up maintenance of disturbed areas should occur on an annual basis for two years post rehabilitation.
	<p>Cumulative impacts:</p>	Low	With mitigation measures and following the EMP, the cumulative environmental impact will be low.

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Activity	Impact summary	Significance	Proposed mitigation
Operational Phase	<p>Direct impacts: Increased soil erosion along the boundaries of the rivers and steep slopes.</p>	Medium	<p>Revegetation of disturbed construction areas shall take place as soon as possible after construction work is completed. As much as is possible, revegetation shall take place prior to the start of the summer rains (August onwards) to maximise water availability and minimise the need for watering.</p> <p>If revegetation takes place during the dry season, irrigation of planted areas may be necessary. All plants/trees used in revegetation shall be locally indigenous species only.</p>
	<p>Indirect impacts: Increased sedimentation of the watercourse and adjacent wetland system.</p>	Medium	<p>Revegetation of disturbed construction areas shall take place as soon as possible after construction work is completed. As much as is possible, revegetation shall take place at the start of the summer rains to maximise water availability and minimise the need for watering.</p> <p>If revegetation takes place during the dry season, irrigation of planted areas may be necessary. All plants/trees used in revegetation shall be locally indigenous species only.</p>
	<p>Cumulative impacts: Loss / disturbance of indigenous flora may allow for the establishment of invasive alien plants</p>	Medium	<p>All alien invasive plants should be removed by hand and disposed off by burning or at an appropriate disposal site. Annual follow up maintenance of disturbed areas should occur on an annual basis for two years post rehabilitation.</p>

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Activity	Impact summary	Significance	Proposed mitigation
Decommissioning and Closure	Direct impacts: No decommissioning phase has been planned due to the nature and importance of this activity.		
	Indirect impacts:		
	Cumulative impacts:		

Activity	Impact summary	Significance	Proposed mitigation
Alternative 2			
Planning and Design Phase Survey and Geotechnical studies	Direct impacts: <ol style="list-style-type: none"> 1. Trial Pits Loss of flora, potential loss of fauna, soil loss. 2. Surveys 3. Loss of flora, potential loss of fauna, soil loss. 4. Site inspections Loss of flora, potential loss of fauna, soil loss. 	Low Low Low	Cover trial pits after completion. Vegetation clearing must be kept to a minimal when surveying. No pruning or removal of protected flora is to occur Ensure minimal loss of vegetation by keeping vehicles on roads and tracks.
	Indirect impacts: Potential soil erosion	Low	Limit the extend and duration of exposed soil. If possible excavations are to avoid slopes. Excavations are to be

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Activity	Impact summary	Significance	Proposed mitigation
	Cumulative impacts: Soil and flora loss.	Low	backfilled level to the previous ground level. With mitigation measures and implementation of the EMP, the cumulative environmental impact will be low
Construction Phase	Direct impacts: 1. Loss of flora and fauna. 2. Soil erosion and sedimentation into the watercourse. 3. Wetland degradation	Medium High Medium	All alien plants must be removed from the site. Revegetation of disturbed construction areas shall take place as soon as possible after construction work is completed. As much as is possible, revegetation shall take place at the start of the summer rains to maximise water availability and minimise the need for watering. If revegetation takes place during the dry season, irrigation of planted areas may be necessary. All plants/trees used in revegetation shall be locally indigenous species only.
	Indirect impacts: Potential establishment of invasive alien vegetation.	Medium	All alien invasive plants should be removed by hand and disposed of by disposal at a permitted landfill site. Annual follow up maintenance of disturbed areas should occur on an annual basis for two years post rehabilitation.
	Cumulative impacts:	Low	With mitigation measures and following the EMP, the cumulative environmental impact will be low.
Operational Phase	Direct impacts: Increased soil erosion along the boundaries of the rivers and steep slopes.	Medium	Revegetation of disturbed construction areas shall take place as soon as possible after construction work is completed.

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Activity	Impact summary	Significance	Proposed mitigation
			<p>As much as is possible, revegetation shall take place prior to the start of the summer rains (August onwards) to maximise water availability and minimise the need for watering.</p> <p>If revegetation takes place during the dry season, irrigation of planted areas may be necessary. All plants/trees used in revegetation shall be locally indigenous species only.</p>
	<p>Indirect impacts: Increased sedimentation of the watercourse and adjacent wetland system.</p>	Medium	<p>Revegetation of disturbed construction areas shall take place as soon as possible after construction work is completed. As much as is possible, revegetation shall take place at the start of the summer rains to maximise water availability and minimise the need for watering.</p> <p>If revegetation takes place during the dry season, irrigation of planted areas may be necessary. All plants/trees used in revegetation shall be locally indigenous species only.</p>
	<p>Cumulative impacts: Loss / disturbance of indigenous flora may allow for the establishment of invasive alien plants</p>	Medium	<p>All alien invasive plants should be removed by hand and disposed off by burning or at an appropriate disposal site. Annual follow up maintenance of disturbed areas should occur on an annual basis for two years post rehabilitation.</p>
Decommissioning and Closure	<p>Direct impacts: No decommissioning phase has been planned due to the nature and importance of this activity.</p>		
	<p>Indirect impacts:</p>		

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Activity	Impact summary	Significance	Proposed mitigation
	Cumulative impacts:		

Activity	Impact summary	Significance	Proposed mitigation
Alternative 3			
Planning and Design Phase Survey and Geotechnical studies	Direct impacts: 1. Trial Pits Loss of flora, potential loss of fauna, soil loss. 2. Surveys Loss of flora, potential loss of fauna, soil loss. 3. Site inspections Loss of flora, potential loss of fauna, soil loss.	Low Low Low	Cover trial pits after completion. Vegetation clearing must be kept to a minimal when surveying. No pruning or removal of protected flora is to occur Ensure minimal loss of vegetation by keeping vehicles on roads and tracks.
	Indirect impacts: Potential soil erosion	Low	Limit the extend and duration of exposed soil. If possible excavations are to avoid slopes. Excavations are to be backfilled level to the previous ground level.
	Cumulative impacts: Soil and flora loss.	Low	With mitigation measures and implementation of the EMP, the cumulative environmental impact will be low

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Activity	Impact summary	Significance	Proposed mitigation
Construction Phase	<p>Direct impacts:</p> <ol style="list-style-type: none"> 1. Loss of flora and fauna. 2. Soil erosion and sedimentation into the watercourse. 3. Wetland degradation 	<p>Medium</p> <p>High</p> <p>Medium</p>	<p>All alien plants must be removed from the site.</p> <p>Revegetation of disturbed construction areas shall take place as soon as possible after construction work is completed. As much as is possible, revegetation shall take place at the start of the summer rains to maximise water availability and minimise the need for watering.</p> <p>If revegetation takes place during the dry season, irrigation of planted areas may be necessary. All plants/trees used in revegetation shall be locally indigenous species only.</p>
	<p>Indirect impacts:</p> <p>Potential establishment of invasive alien vegetation.</p>	<p>Medium</p>	<p>All alien invasive plants should be removed by hand and disposed of by disposal at a permitted landfill site. Annual follow up maintenance of disturbed areas should occur on an annual basis for two years post rehabilitation.</p>
	<p>Cumulative impacts:</p>	<p>Low</p>	<p>With mitigation measures and following the EMP, the cumulative environmental impact will be low.</p>
Operational Phase	<p>Direct impacts:</p> <p>Increased soil erosion along the boundaries of the rivers and steep slopes.</p>	<p>Medium</p>	<p>Revegetation of disturbed construction areas shall take place as soon as possible after construction work is completed. As much as is possible, revegetation shall take place prior to the start of the summer rains (August onwards) to maximise water availability and minimise the need for watering.</p>

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Activity	Impact summary	Significance	Proposed mitigation
			If revegetation takes place during the dry season, irrigation of planted areas may be necessary. All plants/trees used in revegetation shall be locally indigenous species only.
	<p>Indirect impacts: Increased sedimentation of the watercourse and adjacent wetland system.</p>	Medium	<p>Revegetation of disturbed construction areas shall take place as soon as possible after construction work is completed. As much as is possible, revegetation shall take place at the start of the summer rains to maximise water availability and minimise the need for watering.</p> <p>If revegetation takes place during the dry season, irrigation of planted areas may be necessary. All plants/trees used in revegetation shall be locally indigenous species only.</p>
	<p>Cumulative impacts: Loss / disturbance of indigenous flora may allow for the establishment of invasive alien plants</p>	Medium	All alien invasive plants should be removed by hand and disposed off by burning or at an appropriate disposal site. Annual follow up maintenance of disturbed areas should occur on an annual basis for two years post rehabilitation.
Decommissioning and Closure	<p>Direct impacts: No decommissioning phase has been planned due to the nature and importance of this activity.</p>		
	<p>Indirect impacts:</p>		
	<p>Cumulative impacts:</p>		

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No-go option			
	Direct impacts: Further deterioration of the pipeline	Medium	Upgrading of the existing pipeline.
	Indirect impacts: Increase stress on system for water supply	High	Upgrading of the existing pipeline.
	Deterioration of the pipeline resulting in the failure of the pipeline.	High	Upgrading of the existing pipeline.

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 must be included as Appendix F.

2. ENVIRONMENTAL IMPACT STATEMENT

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

Alternative A (preferred alternative)

Type of Impacts:

- Erosion along the riverbanks and steep slopes resulting in loss of soil;
- Increased sedimentation of the watercourse and adjacent wetland system;
- Disturbance and decrease in flora due to construction / maintenance activities;
- Disturbance of wetlands effecting ecosystem functionality and a decrease in flora and fauna within the wetland systems;
- Loss / disturbance of indigenous flora may allow for the establishment of invasive alien plants.

Duration of Impact

All impacts are considered to be short-term impacts after mitigation. Impacts would occur for the duration of the planning and construction phase.

Likelihood of Impacts

It is possible that these impacts would occur due to the nature of the planning and construction activities as well as the proximity to watercourses.

Significance

The significance of the impacts without mitigation is considered to be medium however significance of the impact on the environment after mitigation is considered to be low.

Alternative B

Type of Impacts:

- Erosion along the riverbanks and steep slopes resulting in loss of soil;
- Increased sedimentation of the watercourse and adjacent wetland system;
- Disturbance and decrease in flora due to construction / maintenance activities;
- Disturbance of wetlands effecting ecosystem functionality and a decrease in flora and fauna within the wetland systems;
- Loss / disturbance of indigenous flora may allow for the establishment of invasive alien plants.

Duration of Impact

All impacts are considered to be short-term impacts after mitigation. Impacts would occur for the duration of the planning and construction phase.

Likelihood of Impacts

It is possible that these impacts would occur due to the nature of the planning and construction activities as well as the proximity to watercourses.

Significance

The significance of the impacts without mitigation is considered to be medium however significance of the impact on the environment after mitigation is considered to be low.

Alternative C

Type of Impacts:

- Erosion along the riverbanks and steep slopes resulting in loss of soil;
- Increased sedimentation of the watercourse and adjacent wetland system;
- Disturbance and decrease in flora due to construction / maintenance activities;
- Disturbance of wetlands effecting ecosystem functionality and a decrease in flora and fauna within the wetland systems;
- Loss / disturbance of indigenous flora may allow for the establishment of invasive alien plants.

Duration of Impact

All impacts are considered to be short-term impacts after mitigation. Impacts would occur for the duration of the planning and construction phase.

Likelihood of Impacts

It is possible that these impacts would occur due to the nature of the planning and construction activities as well as the proximity to watercourses.

Significance

The significance of the impacts without mitigation is considered to be medium however significance of the impact on the environment after mitigation is considered to be low.

No-go alternative (compulsory)

Type of Impacts:

- Further deterioration of the pipeline;
- Increased stress on the Nungwane pipeline and Amanzimtoti Water Treatment Works;
- Failure of the pipeline;
- Increased stress on Wiggins Water treatment Works to provide water to the area.

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Duration of Impact

The impacts would be medium to long term as no mitigation measures are implemented within the no-go alternative.

Likelihood of Impacts

There is a high probability these impacts would occur as the pipeline is currently in poor condition.

Significance

The significance of the impact on the social environment is considered to be high.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

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

N/A

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

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Is an EMPr attached?

YES	
-----	--

The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

Theo Wicks

NAME OF EAP

SIGNATURE OF EAP

____21 July 2014____
DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information