

PROPOSED UPGRADE: PROVINCIAL ROAD DR 08376 FROM THE R61 AT ST MARKS TO SABALELE VILLAGE, EASTERN PROVINCE

DRAFT BASIC ASSESSMENT REPORT

Report Prepared for

**South African National Roads Agency SOC
Limited**



Report Number 475139/2

On behalf of: KCS Consultants



Report Prepared by



September 2014

PROPOSED UPGRADE: PROVINCIAL ROAD DR 08376 FROM THE R61 AT ST MARKS TO SABALELE VILLAGE, EASTERN PROVINCE

DRAFT BASIC ASSESSMENT REPORT

South African National Roads Agency SOC Limited

SRK Consulting (South Africa) (Pty) Ltd.

Ground Floor Bay Suites
1a Humewood Rd.
Humeralil
Port Elizabeth 6001
South Africa

e-mail: portelizabeth@srk.co.za

website: www.srk.co.za

Tel: +27 (0) 41 509 4800

Fax: +27 (0) 41 509 4850

SRK Project Number 475139

September 2014

Compiled by:

Karien Killian(MSc)
Environmental Scientist

Peer Reviewed by:

Karissa Nel (MEM)
Senior Environmental Scientist

Rob Gardiner (Pr Sci Nat)
Principle Environmental Scientist

Email: rgardiner@srk.co.za

Authors:

Karien Killian; Karissa Nel

Contents

Summary Report

DEA Basic Assessment Report Form

Appendices

Definitions

Environment	The external circumstances, conditions and objects that affect the existence and development of an individual, organism or group. These circumstances include biophysical, social, economic, historical and cultural aspects.
Basic Assessment	An assessment of the positive and negative effects of a proposed development on the environment. The process involves collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of an application for environmental authorisation. A simpler process than EIA, that is subject to one phase (Basic Assessment) and generally does not include specialist studies.
Environmental Impact Assessment (EIA)	An assessment of the positive and negative effects of a proposed development on the environment. The process involves the collecting, organising, analysing, interpreting and communicating of information that is relevant to the consideration of an application for environmental authorisation. A full EIA is subject to a Scoping phase and EIA phase and includes various specialist studies.
Interested and Affected Party	Any person, group of persons or organisation interested in or affected by an activity and any organ of state that may have jurisdiction over any aspect of the activity.
Public Participation Process	A process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters relating to a proposed development.

Abbreviations

ASAPA	Association of South African Professional Archaeologists
BAR	Basic Assessment Report
BID	Background Information Document
DEA	Department of Environmental Affairs (National)
DEDEA	Department of Economic Development and Environmental Affairs (Eastern Cape Province)
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
ECPHRA	Eastern Cape Provincial Heritage Resources Authority

BASIC ASSESSMENT REPORT

EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ER	Environmental Representative
IAP	Interested and Affected Party
NEMA	National Environmental Management Act
PPP	Public Participation Process
RoD	Record of Decision
SAHRA	South African Heritage Resources Agency
SANRAL	South African National Roads Agency SOC Limited
SRK	SRK Consulting
+ve	Positive
-ve	Negative

BASIC ASSESSMENT REPORT



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

Application Number:

Date Received:

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. 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.
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? YES 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

The proposed project is located within the Intsika Yethu Local Municipality of the Chris Hani District Municipality, Eastern Cape, and includes the upgrade of a 19 km portion of the DR 08376 from the R61 at St Marks to Sabelele Village. The nearest major centre is the town of Cofimvaba, located approximately 20 km to the east along the R61 and Queenstown located approximately 55 km to the west.

The project involves upgrading the existing gravel road to surface standard, with a single lane in each direction. The upgraded road would, amongst other benefits, improve access to the Chris Hani memorial located in Sabelele Village.

The upgraded road would have an asphalt pavement width of 6.8 m (two 3.4 m lanes) with a 0.9 m wide shoulder on each side of the road (total road width therefore 8.6 m). Along most of the alignment this is wider than the existing 5 – 6 m road width. The existing road includes a number of road bridges of varying standard, plus a number of low level and narrow causeways. One new bridge will be constructed at km 3.4 and one existing bridge will be widened to include a pedestrian walkway at chainage km 1.8 (see Locality Plan in Appendix A). Major new SATS¹ culverts will be required at chainages km 9, km 10.6, km 11.2 and km 12.9 as well as a number of smaller culverts. The design speed of the road will not be changed and consequently horizontal and vertical alignment changes will be minor, and usually associated with crossing of rivers (for new bridges).

Assessments will also be done for the utilisation and development of one new Hard Rock Quarry (Quarry 171) at km 10.4 of the proposed road to be upgraded, as well as a new access road to the quarry. The quarry site is situated on the eastern side of DR 08376 just south and south east of the villages of Luncwini, KwaFanti, and Ntsingeni. The existing excavated quarry area (due to the drilling of test pits) is approximately 115 m x 85 m in extent, however, the proposed quarry area including the existing excavated area is approximately 575 m x 450 m in extent (see Quarry Plan in Appendix A). An application will be submitted to the Department of Mineral Resources. Six (6) existing borrow pits and one (1) existing quarry were also assessed in the specialist reports and although these were not further considered in this Basic Assessment Report, they will probably be assessed in the next phase of this project.

¹ The SATS Portal Culvert is used in stormwater applications with high loadings. The unit consists of a deck and two legs and is placed on a concrete base. The standard culvert sizes range from a span of 1,500 mm to 3,000 mm, and from a height of 1,000 mm to 3,000 mm.

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
GN R.544 Item 11(iii): The construction of bridges 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.	At all river crossings, bridge widening or reconstruction will be required which will occur within watercourses. Bridges will vary in height and length, and are expected to accommodate a road no wider than 8 m.
GN R.544 Item 18 (i): The infilling or depositing of material of more than 5 cubic metres into, or the dredging, excavation, removal of soil, sand, shell grit, pebbles or rock from a watercourse.	The upgrading of the road, and the widening or reconstruction of bridges, would involve limited earthworks within watercourses associated with these construction activities.
GN R.544 Item 39 (iii): The expansion of bridges within a watercourse or within 32 m of a watercourse, measured from the edge of a watercourse, where such expansion will result in an increased development footprint but excluding where such expansion will occur behind the development setback line.	One existing bridge over a watercourse will be widened at chainage 1820 m.
GNR.546 Item 13 (a) the clearance of an area of 1 hectare or more of vegetation, where 75% of the vegetative cover constitutes indigenous vegetation.	Construction activities will result in the (often temporary) clearing of vegetation adjacent to the road, and due to its length, is likely to cumulatively exceed 1 hectare, but unlikely to exceed 5 hectares. A more precise estimate will be provided during the assessment. Clearing of vegetation will also be required for the quarry area (total quarry surface area is 2.5 ha).

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

BASIC ASSESSMENT REPORT

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 surfaced road runs mostly on the existing gravel road alignment in order to avoid existing services. The design speed is 60 km/h to limit major changes to the alignments. As this is an existing road identified for upgrade, no alignment alternatives were considered.

Quarry 171 was the only suitable hard rock quarry considered for this project. The existing hard rock quarry (Quarry 193) at km 41.7 is too far from the portion of the road to be upgraded and excavating material from this quarry would have resulted in additional, unnecessary impacts (e.g. longer access roads, additional noise and dust from vehicles, elevated costs, compromised traffic safety) that would be avoided by excavating the proposed new Quarry 171. Geotechnical investigations did not identify any other locations along this portion of road with suitable rock.

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

No alternatives were considered as this is an existing road to be upgraded.

Alternative:

Alternative S1 (preferred)

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

Latitude (S):

Longitude (E):

32° 0'17.85"S	27°23'7.59"E
32° 3'5.29"S	27°25'22.90"E
32° 6'26.44"S	27°27'29.41"E

Alternative S2 (if any)

- Starting point of the activity

--	--

BASIC ASSESSMENT REPORT

- 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.

(Please refer to Appendix J)

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.

Quarry 171:

Latitude (S): Longitude (E):

32° 3'41.47"S	27°26'58.75"E
32° 3'32.77"S	27°27'14.79"E
32° 3'45.69"S	27°27'22.28"E
32° 3'51.28"S	27°26'59.94"E

No lay-out, technology or other alternatives were considered for the road.

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Not Applicable		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Not Applicable		
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
Not Applicable		

c) Technology alternatives

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

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

Alternative 1 (preferred alternative)		
Alternative 2		

Alternative 3

e) No-go alternative

This was not an option as the road to be upgraded already existed and due to the poor condition of the road surface, it was identified by SANRAL for upgrade. Should the road not be upgraded, it would result in reduced traffic safety. The upgraded road would also improve access to the Chris Hani monument, which would in turn generate more income from tourists in the area.

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

The project involves upgrading of the existing gravel road to surface standard, with a single lane in each direction. The existing road includes a number of road bridges of varying standard, plus a number of low level and narrow causeways. The design speed of the road will not be changed and consequently horizontal and vertical alignment changes will be minor, and usually associated with crossing of rivers (for new bridges).

3. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:

- Alternative A1² (preferred activity alternative)
- Alternative A2 (if any)
- Alternative A3 (if any)

Size of the activity:

	25,000 m ²
	m ²
	m ²

or, for linear activities:

Alternative:

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

Length of the activity:

	19,000 m
	m
	m

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

The upgraded road would have an asphalt pavement width of 6.8 m (two 3.4 m lanes) with a 0.9 m wide shoulder on each side of the road (total road width therefore 8.6 m). Along most of the alignment this is wider than the existing 5 – 6 m road width.

Alternative:

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

Size of the site/servitude:

	m ²
	m ²
	m ²

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

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

Describe the type of access road planned:

Quarry 171 is adjacent to the road to be upgraded. However, a new access road to the top section of the quarry needs to be constructed. This road would be approximately 400 m in length, and no wider than 4.6 m.

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.

The exact location of the proposed access road is not available at this stage.

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.

Refer to locality map in Appendix A.

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);

BASIC ASSESSMENT REPORT

- 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.

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.

As this is a linear project it was not possible to take photographs in the prescribed manner. Photographs are included of relevant features on the site and are included under Appendix B.

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	<input type="checkbox"/>	Please explain
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES	<input type="checkbox"/>	Please explain

BASIC ASSESSMENT REPORT

(b) Urban edge / Edge of Built environment for the area	YES	NO	Please explain
(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?).	YES	NO	Please explain
(d) Approved Structure Plan of the Municipality	YES		Please explain
(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?)	YES	NO	Please explain
(f) Any other Plans (e.g. Guide Plan)	YES	NO	Please explain
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
The proposed project involves upgrading of an existing road and has no bearing on the SDF and IDP.			
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.)	YES		Please explain
All users of the portion of the DR 08376 to be upgraded will benefit from the proposed activities as road conditions will be improved, and road safety will be enhanced. In addition to these benefits, the proposed upgrade would also improve access to the Chris Hani memorial located in Sabelele Village.			
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.)	YES	NO	Please explain
Not Applicable.			

BASIC ASSESSMENT REPORT

<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>YES</p>	<p style="background-color: black; color: black;">[REDACTED]</p>	<p>Please explain</p>
<p>As this is an existing road to be upgraded, there will be no impact on infrastructure planning within the municipality.</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	<p style="background-color: black; color: black;">[REDACTED]</p>	<p>NO</p>	<p>Please explain</p>
<p>This project will benefit the local community by improving traffic flow and safety, as well as tourists and learners visiting the Chris Hani Memorial.</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 style="background-color: black; color: black;">[REDACTED]</p>	<p>Please explain</p>
<p>The proposed development is a modification to the existing land use, and does not change the current land use.</p>			
<p>9. Is the development the best practicable environmental option for this land/site?</p>	<p>YES</p>	<p style="background-color: black; color: black;">[REDACTED]</p>	<p>Please explain</p>
<p>This is an existing road on an already transformed area. The upgrading of bridges and old culverts which would include erosion protection measures will provide protection to the highly erosive mudstones that occur in the area. The culverts that are currently in place in some areas channel the water increasing the velocity of water, causing more erosion. There would most likely be an improvement to flow rates due to the span configuration of the bridges to be upgraded.</p>			
<p>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</p>	<p>YES</p>	<p style="background-color: black; color: black;">[REDACTED]</p>	<p>Please explain</p>
<p>Erosion is the biggest environmental concern in the area, and upgrading the road and bridges and the associated implementation of erosion control measures as per the Environmental Management Programme could potentially reduce the effects of erosion in the long term.</p>			
<p>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</p>	<p style="background-color: black; color: black;">[REDACTED]</p>	<p>NO</p>	<p>Please explain</p>
<p>The proposed development is an upgrade of existing infrastructure.</p>			
<p>12. Will any person's rights be negatively affected by the proposed activity/ies?</p>	<p style="background-color: black; color: black;">[REDACTED]</p>	<p>NO</p>	<p>Please explain</p>
<p>The proposed project is an upgrade of an existing road.</p>			
<p>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</p>	<p style="background-color: black; color: black;">[REDACTED]</p>	<p>NO</p>	<p>Please explain</p>
<p>N/A</p>			

BASIC ASSESSMENT REPORT

14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES		Please explain
<p><u>SIP 6: Integrated municipal infrastructure project</u> Develop national capacity to assist the 23 least resourced districts (19 million people) to address all the maintenance backlogs and upgrades required in water, electricity and sanitation bulk infrastructure. The road maintenance programme will enhance service delivery capacity thereby impacting positively on the population.</p> <p><u>SIP 11: Agri-logistics and rural Infrastructure:</u> Improve investment in agricultural and rural infrastructure that supports expansion of production and employment, small-scale farming and rural development, including facilities for storage (silos, fresh-produce facilities, packing houses); transport links to main networks (rural roads, branch train-line, ports), fencing of farms, irrigation schemes to poor areas, improved R&D on rural issues (including expansion of agricultural colleges), processing facilities (abattoirs, dairy infrastructure), aquaculture incubation schemes and rural tourism infrastructure.</p>			
15. What will the benefits be to society in general and to the local communities?	Please explain		
<p>All users of the portion of the DR 08376 to be upgraded will benefit from the proposed activities as road conditions will be improved, and road safety and traffic flow will be enhanced. In addition to these benefits, the proposed upgrade would also improve access to the Chris Hani memorial located in Sabelele Village. A number of employment opportunities will also be created during the construction phase of the proposed activities.</p>			
16. Any other need and desirability considerations related to the proposed activity?	Please explain		
None.			
17. How does the project fit into the National Development Plan for 2030?	Please explain		
<p>It will create employment opportunities as well as improve traffic flow and safety, which could in turn enhance rural economy.</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.			
<p>The Basic Assessment has been undertaken according to the principles of NEMA (Act 107 of 1998). Specifically, it has included the following:</p> <ul style="list-style-type: none"> ○ Impacts potentially resulting from the proposed project have been evaluated in an objective manner; ○ Public participation has been carried out in accordance with the NEMA 2010 regulations and includes the placing of an advertisement in the local newspaper, the placement of a poster on site and the distribution of a BID to all identified potential IAPs; ○ A site visit was conducted in order to assess the potential environmental impacts; ○ The current state of the vegetation and presence of a possible wetlands, have been taken into account in the assessment of environmental impacts; and ○ The principles of environmental management have been taken into account with regard to the EMPr and mitigation measures recommended. 			

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

The relevant interested and affected parties and stakeholders have been notified and given the opportunity to comment on the project.

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 Environmental Management Act (NEMA, Act 107 of 1998)	Assessment and management of activities that could potentially impact on the natural environment.	National Department of Environmental Affairs (DEA)	27 November 1998
National Environmental Management Act (NEMA, Act 107 of 1998), Environmental Impact Assessment Regulations	Applicable listed activities as applied for.	National Department of Environmental Affairs (DEA)	18 June 2010
National Water Act, (Act No. 36 of 1998).	The proposed road upgrade involves various water crossings for which Water Use Licence Applications would be required.	National Department of Water Affairs (DWA)	26 August 1998
Noise Control Regulations 1182 and 1183 under the Environment Conservation Act (Act 73 of 1989)	Minimal noise associated with the road upgrade and quarry excavations.	National Department of Environmental Affairs (DEA)	9 June 1989
National Heritage Resources Act (Act 25 of 1999)	Archaeological and paleontological specialist studies conducted to identify significant heritage resources.	National Department of Arts and Culture	28 April 1999

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

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

YES	
Small amount of construction waste	

BASIC ASSESSMENT REPORT

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

Excess soil and rock material will be spoiled in one of the existing old borrow pits adjacent to the road where it will be covered with topsoil and revegetated during the rehabilitation of Quarry 171. All remaining solid waste will be trucked and disposed of at a registered waste disposal site.

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

Excess soil and rock material will be spoiled in one of the borrow pits adjacent to the road where it will be covered with topsoil and revegetated during the rehabilitation of the quarry. All remaining solid waste will be trucked and disposed of at a registered waste disposal site.

Will the activity produce solid waste during its operational phase?

NO

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

Not Applicable

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

Not Applicable

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

Not Applicable

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

Not Applicable

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?

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.

BASIC ASSESSMENT REPORT

Will the activity produce effluent that will be treated and/or disposed of at another facility?

NO

If YES, provide the particulars of the facility:

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

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

Not Applicable

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:

Small amounts of dust and exhaust emissions will be generated due to the road construction activities during the construction phase. The level of these emissions has not been quantified, but it is the view of the Environmental Assessment Practitioner that these levels are unlikely to exceed limits set in terms of the National Environmental Management Act (Air Quality Act). Also, the impact will be temporary, occurring only during the construction phase.

New standards for dust levels listed as the National Ambient Air Quality Standards for Particulate Matter (PM10) are set at 50µg/m³. However, the proposed activity will not generate additional dust during the operational phase.

Also, the proposed activity will not generate significant quantities of additional traffic during the operational phase and should therefore not result in additional exhaust emissions during this phase.

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?

YES

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

NO

BASIC ASSESSMENT REPORT

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 generated due to the proposed activity includes noise generated temporarily during the construction phase and general noise, not expecting to exceed current levels, from the vehicles using the new upgraded road during the operational phase.

Construction activities are not expected to have a significant noise impact as the construction phase is temporary. Residents and learners along the road might temporarily be impacted during the construction phase.

It is not anticipated that traffic volumes will increase as a result of the proposed rehabilitation of the road during the operational phase and should therefore not result in higher noise levels. Furthermore, the proposed new surfaced road could contribute to a decrease in traffic-related noise due to better road conditions.

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	
The proposed activity will not require water during operation. Some water from nearby rivers and dams will be used during the construction phase where required. It is unclear how much water would be required, but should it exceed 50 kl/d, a DWS permit will be obtained.		

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

Does the activity require a water use 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.

Unclear
YES

Water Use Licence Applications for crossing of watercourses and activities within 500 m of a wetland will be submitted in due course.

14. ENERGY EFFICIENCY

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

No electricity will be used for the proposed activity during operation. During construction electricity will be required for the site accommodation for the contractor and the engineer.

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

Not Applicable

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? YES 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.

Property description/physical address:	Province	Eastern Cape
	District Municipality	Chris Hani
	Local Municipality	Intsika Yethu
	Ward Number(s)	1 & 2
	Farm name and number	St Marks Mission No. 45
	Portion number	SG Code: C1060000000004500000
	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.

The road upgrade is proposed within the existing road reserve.

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

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? YES NO

BASIC ASSESSMENT REPORT

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	
------	-------------	-------------	-------------	--

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

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

2. LOCATION IN LANDSCAPE

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

2.1 Ridgeline		2.4 Closed valley		2.7 Undulating plain / low hills	
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain		2.6 Plain		2.9 Seafront	

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)	NO		YES	NO	YES	NO
Dolomite, sinkhole or doline areas	NO		YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES		YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES		YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES		YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	NO		YES	NO	YES	NO
Any other unstable soil or geological feature	NO		YES	NO	YES	NO
An area sensitive to erosion	YES		YES	NO	YES	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 with scattered aliens ^E			
	Cultivated land	Paved surface	Building or other structure	Bare soil
<p>According to the National South African Vegetation Map (Mucina and Rutherford, 2006), the vegetation habitats that extend across the area of the proposed development are Tsomo Grassland, Drakensberg Foothill Moist Grassland and a small portion of Eastern Valley Bushveld in the west. The predominant vegetation unit is the Tsomo Grassland. This vegetation unit is described as grassland or open thornveld, often grazed short or replaced by dwarf shrubland dominated by species of <i>Euryops</i>. Dominant and common species include omnipresent representatives of the genera <i>Cymbopogon</i>, <i>Elionurus</i>, <i>Eragrostis</i>, <i>Aristida</i> and <i>Themeda</i>. <i>Asteraceae</i> and <i>Fabaceae</i> are prominent among the forbs. The conservation status of this vegetation type is “vulnerable” with 27 % transformed mainly for cultivation and by dense concentrations of rural settlements. Erosion is a serious problem and it is high in 33 % of this unit, moderate in 32 %, and low and very low in 34 % of the area.</p> <p>The vegetation in the area is largely degraded. This is due to the current land use of the area, which is a mix of semi-urban and rural housing, sand mining (borrow pits and quarries) and subsistence agricultural land use activities in the form of livestock grazing and the cultivation of food crops. Veld burning practices were evident during site investigations. Around St Marks and the Sibubu River, large-scale intensive agriculture occurs in the form of crop cultivation. Donga and gully erosion is prevalent in the landscape. Old cultivated lands have resulted in a degraded landscape; and have contributed to the donga and gully erosion. Erosion was especially prevalent along the ephemeral watercourses in the lower reaches of the tributaries, where surrounding past and current land use practices have impacted on the natural cover and these systems.</p> <p>These vegetation types are not listed Threatened Ecosystems in terms of the National Environmental Management: Biodiversity Act (10 of 2004) (Gazetted 9 December 2011).</p> <p>The proposed activity is the rehabilitation of an existing road and is restricted to the existing servitude, which is transformed; and as such a vegetation specialist study has not been undertaken. The area identified for mining activities (Quarry 171) represented limited biodiversity value due to existing impacts (uncontrolled livestock grazing and gully erosion) (see Aquatic Survey & Assessment in Appendix D).</p>				

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

5. 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	
Seasonal (Temporary) Wetland	YES	
Artificial Wetland	YES	
Estuarine / Lagoonal wetland		NO

BASIC ASSESSMENT REPORT

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

A specialist was appointed to conduct an Aquatic Survey and Assessment on the watercourses and wetlands within 500 m from the proposed activities. The complete specialist report is included in Appendix D.

A total of twenty drainage areas (lines) and twenty-two ephemeral/non-perennial and perennial watercourses and rivers were mapped. The irrigation canal was not mapped, but is indicated by the 1:50 000 topographical data. Drainage areas that have been transformed or present as gully erosion, rather than watercourse areas (at Quarry 171), were not mapped.

The ephemeral/non-perennial watercourses and larger perennial and non-perennial rivers (e.g. Sabelele and Sidubu) are upper foothill (steep gradient) or lower foothill (flatter gradient) streams and rivers, with a distinct channel and wetland plants in the active channel. The drainage areas, without a distinct channel, riverine habitat or riparian zone are typically known as surface water run-off areas. A distinct riparian zone was not evident for all of the ephemeral/non-perennial watercourses beyond the channel banks, and for the majority of the larger river systems. Wetland plants were located within the channel. The Sidubu and Sabelele rivers were afforded a riparian zone of approximately 10 m based on stands of *Acacia karroo* trees, however, determining this zone was challenging due to land use activity impacts that have severely degraded areas. Buffer areas around watercourses are important with respect to maintaining the integrity of the channel banks etc., especially within an area that has a high prevalence of donga and gully erosion; although these cannot be applied at watercourse crossings.

Twenty-three wetlands were mapped within the surrounding area. Of the 23 wetland habitats mapped, 8 were assessed as natural and 15 were assessed as artificial. The artificial wetland habitats have established due to the construction of dams, borrow pit excavations, cultivation terraces, and/or discharged water from the canal irrigation system or boreholes. A large temporary wetland area was mapped around the dams 21, 22, and 23, which supported stands of *Juncus kraussii* (refer Map 1 in the specialist report – Appendix D). The excavations at Quarry 171 supported minimal wetland plants due to existing impacts, and represent limited biodiversity value.

The dams at the start of the road upgrade (north of the R61 at St Marks) are associated with a watercourse tributary that drains into the Wit-Kei River to the south, and are situated within old cultivated lands, as indicated by the presence of terraces (platforms and berms) and the topographical data. Old excavation areas are also present, as indicated on the topographical data, which have modified the local topography as well. These terraces and terrain modifications typically hold moisture and surface water during high rainfall periods, and support wetland plants. Large expanses of *Juncus kraussii* have established, beyond the saturated zone, a species which typically inhabits the supra-tidal zone of estuaries, where soil moisture content is lower and inundation occurs infrequently. Drainage from the upper catchment and changes in hydrology due to the land use impacts have therefore resulted in the establishment of these wetland plants and a larger temporary wetland area around the dams. Clayey soils also contribute as infiltration is slow. A wetland seepage area from the two dams also occurred downstream of the berm, which also typically encourage wetland plants to establish. Channels due to erosion have developed and modified the watercourse area where it drains into the next large dam (beyond the 500 m radius).

The four (concrete and earthen) reservoirs mapped by the National Freshwater Ecosystem Priority Areas data were excluded from this study.

BASIC ASSESSMENT REPORT

Due to donga and gully erosion, sedimentation has occurred in many of the watercourses.

Refer to Map Series 1 on p. 13 of Specialist Report (Appendix D), as well as Appendix A of this report for the high quality version of these maps.

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)

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

Not Applicable

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:

Not Applicable

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:

Not Applicable

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

BASIC ASSESSMENT REPORT

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. See sensitivity map in Appendix A.

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

The remains of two dry packed stone walling features situated at the base of a hill on the boundary of the proposed mining area (Quarry 171) in the south-eastern corner were recorded. The features included a relatively large circular enclosure and a smaller rectangular enclosure that may have been adjoined.

An informal burial ground is situated immediately adjacent to the DR 08376 within 250 m south of the position of Quarry 171. The burial ground comprises 132 burials, seven of the burials have been 'built up' and the remaining burials are stone packed with informal headstones. The appropriate mitigation and conservation measures shall be considered and as such, these graves would not be impacted by the construction or operational phase of the development.

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:

An Archaeological specialist investigation was conducted by Celeste Booth of the Albany Museum (see Appendix D for the specialist report). The following findings are noted with regard to archaeological resources that may be affected by the road upgrade and quarrying activities. The locations of all archaeological resources identified in the study are included in the Archaeological Plan in Appendix A.

Although the area for the proposed DR 08376 has an extensive pre-colonial and historical development possibly dating back to as early as the AD 1250, the areas investigated (DR 08376 and Quarry 171) are of a low pre-colonial archaeological cultural sensitivity. Several built environment structures, dry packed stone walling features, informal burial grounds and abandoned homesteads, were encountered along DR 08376 during the survey. Dry packed stone walling complexes situated within the area proposed for Quarry 171 are likely to be impacted by the construction activities. An informal burial area along the DR 08376 will also be negatively affected. In cases where the development may impede negatively on these heritage resources the appropriate mitigation and conservation measures must be considered and implemented before development commences and continue during the development, construction, and quarrying activities.

A Palaeontological specialist investigation of the sites and surrounding areas was conducted by Dr John Almond of Natura Viva (see Appendix D for the specialist report). The palaeontological study concluded that pending the discovery of substantial fossil remains (e.g. vertebrate bones, teeth) during excavation, the quarry site under consideration is not of sufficiently high palaeontological sensitivity to warrant further specialist palaeontological input or mitigation.

Will any building or structure older than 60 years be affected in any way?	NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	NO

If YES, please 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:

44 % of the working population was unemployed in 2009 according to the IDP.

Economic profile of local municipality:

According to the IDP (2009-2017) the Gross Value Added (GVA) contribution (2010) for the Intsika Yethu LM stood at 13 %. GVA refers to the measure of the value of goods and services in a certain

BASIC ASSESSMENT REPORT

area.

Level of education:

Uncertain

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R 90,000,000
What is the expected yearly income that will be generated by or as a result of the activity?	R 0
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	YES
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	130
What is the expected value of the employment opportunities during the development and construction phase?	R 11,777,095
What percentage of this will accrue to previously disadvantaged individuals?	50%
How many permanent new employment opportunities will be created during the operational phase of the activity?	18
What is the expected current value of the employment opportunities during the first 10 years?	R 23,323,101
What percentage of this will accrue to previously disadvantaged individuals?	90%

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.

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
--	---

BASIC ASSESSMENT REPORT

Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNA)	<p>The entire scope of the proposed project falls within Terrestrial CBA 2 and CBA 3 areas according to the Eastern Cape Biodiversity Conservation Plan.</p> <p>The recommended land use objective for CBA 2 areas is to maintain biodiversity in near natural state with minimal loss of ecosystem integrity. No transformation of natural habitat should be permitted. The recommended land use objective for CBA 3 areas is to manage for sustainable development, keeping natural habitat intact in wetlands (including wetland buffers) and riparian zones. Environmental authorisations should support ecosystem integrity.</p> <p>However, it should be noted that the ECBCP is a very coarse scale plan and much of the vegetation has been degraded due to over-grazing and erosion and its current state is of low ecological significance.</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	10%	Although some natural veld still exists, most of it has been degraded due to poor management practices and uncontrolled grazing.
Near Natural (includes areas with low to moderate level of alien invasive plants)	30%	<i>Acacia karroo</i> is the dominant alien species found in the area and this is as a result of grazing activities and possibly past construction activities.
Degraded (includes areas heavily invaded by alien plants)	40%	Vegetation has been disturbed as a result of land use activities in the area. This has led to alien plant infestation.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	20%	There are houses along the road and most of the land adjacent to the road has been transformed due to over grazing and subsequent erosion.

BASIC ASSESSMENT REPORT

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)		Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)	Estuary		Coastline	
	Vulnerable					
		YES			NO	

- 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)

According to the South African Vegetation Map (Mucina and Rutherford, 2006), the predominant vegetation type in the area of the proposed development is Tsomo Grassland (Grassland Biome). This vegetation is described as grassland or open thornveld, often grazed short or replaced by dwarf shrubland dominated by species of *Euryops*. Dominant and common species include omnipresent representatives of the genera *Cymbopogon*, *Elionurus*, *Eragrostis*, *Aristida* and *Themeda*. *Asteraceae* and *Fabaceae* are prominent among the forbs.

The conservation status of this vegetation type is “vulnerable” with 27 % transformed mainly for cultivation and by dense concentrations of rural settlements. Erosion is a serious problem and it is high in 33 % of this unit, moderate in 32 %, and low and very low in 34 % of the area.

Wetland plants that were recorded in the wetlands as well as the watercourses included: *Berula erecta*, *Eleocharis dregeana*, *Isolepis cernua*, *Isolepis natans*, *Juncus dregeanus*, *Juncus lomatoxyllus*, *Juncus kraussii*, *Marsilea burchellii* and *Schoenoplectus decipiens*, *Schoenoplectus brachyceras*, *Typha capensis* and *Phragmites australis*, as well as the grass *Setaria verticillata* and *Paspalum distichum*. The grass, *Andropogon eucomis*, and the fern, *Adiantum capillus-veneris*, were observed in watercourses.

The Grey Heron (*Ardea cinerea*), and the Blacksmith Lapwing Plover (*Vanellus armatus*) were observed at the seeps at Quarry 193. The Secretary Bird (*Sagittarius serpentarius*), Long Tailed Widowbirds (*Euplectes progne*) and either an African Marsh Harrier (*Circus ranivorus*) or a Steppe Buzzard (*Buteo vulpinus*) were recorded at seeps close to Cofimvaba, to the south-east of Quarry 193 (for another study). Numerous birds are likely to utilize and inhabit the aquatic ecosystems.

Numerous frog species are also likely to inhabit the aquatic features, and some tadpoles were observed in the un-named river proximate to Quarry 185. The frog species range from, for example: Bronze Caco (*Cacosternum nanum*), Common Platana (*Xenopus platanna*), Common River Frog (*Amietia angolensis*), Raucus Toad (*Amietophrynus rangeri*), Striped Stream Frog (*Strongylopus fasciatus*) and the Snoring Puddle Frog (*Phrynobatrachus natalensis*).

The Rudd's Lark (*Heteromira ruddi*), a Vulnerable bird that inhabits grasslands and damp depressions, and the Blue Crane (*Anthropoides paradiseus*), another Vulnerable bird, have been mapped in the area by the Maputoland-Pondoland Albany Hotspot study (SANParks metadata, 2010).

A total of twenty-three wetland habitats were mapped. Eight wetlands were classified as natural and the remaining wetland habitats were classified as artificial wetland habitats, ranging from dams, borrow pits, excavations and leakage areas. A combination of seeps (8), valley bottom (1), depressions (13) and flat (1) wetlands were recorded. All natural wetlands were rated as Moderately Modified (Class C), and are considered to be of Moderate Ecological Importance, apart from the seep No. 3 (discharge points), which is considered to be of Low ecological importance.

A total of twenty drainage areas (lines) and twenty-two ephemeral watercourses and rivers were mapped. The ephemeral watercourses and larger perennial rivers (e.g. Sabelele and Sidubu) are upper foothill (steep gradient) or lower foothill (flatter gradient) streams and rivers, with a distinct channel and wetland plants in the active channel. A distinct riparian zone was not evident for all of the ephemeral/non-perennial watercourses beyond the channel banks, and for the majority of the larger river systems. Due to donga and gully erosion, limited biodiversity, veld burning and livestock grazing, the Present Ecological State (PES) of the drainage lines and watercourses was assessed as Moderately Modified (Class B) to Largely Modified (Class C/D), apart from the watercourses at Drift 14 (Class D/E: Largely to Seriously Modified), including the two drainage areas at Quarry 186 and the small watercourse to the west of Quarry 190 (Class B: Largely Natural). The PES of the larger river systems were predominantly in a C Class (Moderately Modified), apart from the Ngxwashu River and the un-named tributary of the Hohita River (Class B: Largely Natural); and the Sidubu River (Class D: Largely Modified) (see Aquatic Survey & Assessment in Appendix D).

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	The Daily Dispatch	
Date published	6 June 2014	
Site notice position	Latitude	Longitude
	32°06'44.07"S	27°27'20.81"E
Date placed	18/06/2014	

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)
Mr Zamxolo Z Shasha	Municipal Manager of Intsika Yethu Local Municipality (surrounding landowner)	shashaz@intsikayethu.gov.za

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

- 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
None	

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.

BASIC ASSESSMENT REPORT

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 Rural Development & Agrarian Reform	Mr B Kekalame	043-700 7000	043-743 4786	BDJKeikelame@ruraldevelopment.gov.za	Eastern Cape Shared Service Centre, Po Box 1258, East London, 5200
Department of Rural Development & Agrarian Reform	Ms M Molokoane	045-839 2296	045-838 6066	MEMolokoane@ruraldevelopment.gov.za	66 Prince Alfred Road, Queenstown, 5319
Department of Rural Development & Agrarian Reform	Mr N Maswana	045-839 2296	045-838 6066	NMaswana@ruraldevelopment.gov.za	66 Prince Alfred Road, Queenstown, 5319
Department of Mineral Resources	Ms B Ngebulana	047-532 4488	047-532 4547	Brenda.Ngebulana@dmr.gov.za; Zimkita.Tyala@dmr.gov.za	Private Bag X 5252 Umthata 5099
Department of Water and Sanitation	Ms P Makhanya	043-604 5406	043-642 6032	MakhanyaP@dwa.gov.za	Private Bag X 7485 King William's Town, 5600
Department of Water and Sanitation	Ms Lizna Fourie	043-701 0248	043-722 6152	FourieL4@dwa.gov.za	PO Box 7019 , East London, 5200
Chris Hani District Municipality	Mr M Mene	045-808 4610	045-838 1556	ndanyela@chrishanidm.gov.za	15 Bells Road, Central, Queenstown,, 5320
Chris Hani District Municipality	Mr M Dungu	045-808 4600	045-838 1556	mdungu@chrishanidm.gov.za	15 Bells Road, Central, Queenstown,, 5320
Chris Hani District Municipality	Ms T Ncokazi	045-808 4600	045-838 1556	tncokazi@chrishanidm.gov.za	15 Bells Road, Central, Queenstown,,

BASIC ASSESSMENT REPORT

					5320
Intsika Yethu Local Municipality	Mr Z Shasha,	047-874 5213	047-874 0575	shashaz@intsikayethu.go v.za	Private Bag X1251, Cofimvaba, 5380
Intsika Yethu Local Municipality	Mr L Dudumashe	047-874 8700	047-874 0226	dudumashel@intsikayeth u.gov.za	Private Bag X1251, Cofimvaba, 5380
Intsika Yethu Local Municipality (Ward 1)	Cllr H Hewu	072 1105 007	047-874 0010	mhewu01@gmail.com	Private Bag X1251, Cofimvaba, 5380
Intsika Yethu Local Municipality (Ward 2)	Cllr N Gadeni	073 815 0793	047-874 0100	None	Private Bag X1251, Cofimvaba, 5380
Intsika Yethu Local Municipality (Ward 4)	Cllr M Shasha	079 8892 926	047-874 0010	colshasha@gmail.com	Private Bag X1251, Cofimvaba, 5380
Intsika Yethu Local Municipality (Ward 5)	Cllr D Kaspile	072 9758 832	047-874 0010	kaspile51@gmail.com	Private Bag X1251, Cofimvaba, 5380
Intsika Yethu Local Municipality (Ward 7)	Cllr N Magaga	072 9758 866	047-874 0010	nophelomagaga@gmail.c om	Private Bag X1251, Cofimvaba, 5380

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.

BASIC ASSESSMENT REPORT

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.

PLANNING AND DESIGN PHASE

Alternative (preferred alternative)

No impacts are anticipated to occur during the planning and design phase of the proposed development.

Direct impacts:

None.

Indirect impacts:

None.

Cumulative impacts:

None.

No-Go Alternative

Direct impacts:

None.

Indirect impacts:

None.

Cumulative impacts:

None.

Mitigation measures that may eliminate or reduce the potential impacts listed above:

None.

CONSTRUCTION PHASE

Alternative (preferred alternative):

Direct impacts:

ECOLOGICAL IMPACT:

The road to be upgraded is an existing road and construction will occur within the existing road reserve. The quarry will have a total footprint of <5 ha which will have to be cleared of vegetation. The vegetation in the area is largely degraded due to the current land use of the area, which is a mix of semi-urban and rural housing, sand mining (borrow pits and quarries) and subsistence agricultural land use activities in the form of livestock grazing and the cultivation of food crops. Veld burning practices were evident during site investigations. Around St Marks and the Sibubu River, large-scale intensive agriculture occurs in the form of crop cultivation. Donga and gully erosion is prevalent in the landscape. Old cultivated lands have resulted in a degraded landscape; and have contributed to the donga and gully erosion. Erosion was especially prevalent along the ephemeral watercourses in the lower reaches of the tributaries, where surrounding past and current land use practices have impacted on the natural cover and these systems.

The ecological impact as a result of loss of habitat due to the removal of vegetation and the consequent spread of invasive alien species were therefore rated VERY LOW (-ve). This impact is reduced to INSIGNIFICANT if mitigation measures are implemented.

AQUATIC IMPACTS (see Aquatic Specialist Report in Appendix D):

Impact A1: Loss of riparian systems due to vegetation clearance (biodiversity loss):

Direct impacts:

During the construction of the new culverts and bridges, in-stream vegetation will be cleared as well vegetation along the banks, at the construction footprint. The riparian zone component includes the functional or ecosystem services importance of the perennial, non-perennial and ephemeral drainage areas. Although a typical riparian area was not present beyond the channel banks for most of the watercourse crossings (as wetland plants grew within the channels), a no-go buffer area along the banks is important for all watercourses. However, the watercourse crossing upgrades cannot avoid these areas and will therefore impact on in-stream, riparian and bank vegetation. Loss of vegetation, along and within the watercourse channels is considered to be deleterious, not only due to loss of biodiversity pattern, but due to indirect impacts, such as soil erosion, sedimentation, and reduced water quality etc.

This biological impact would be localised at the watercourse crossing upgrade sites, but could result in further loss of vegetation due to donga and gully erosion beyond the construction site in the long term. Due to donga and gully erosion in the area, all possible mitigation measures should be implemented to reduce the impact.

During the operational phase of Quarry 171, vegetation will be cleared where the boundaries lie adjacent to a watercourse.

The potential impact on the loss of riparian systems due to vegetation clearance was rated as MEDIUM (-ve) without mitigation, but could be reduced to LOW if mitigation and management measures are properly implemented.

Indirect Impacts:

Possible impact on downstream areas due to changes in run-off characteristics.

Cumulative Impacts:

Donga and gully erosion is prevalent in the region, which has impacted on the aquatic systems. Livestock grazing is extensive across the region, and *Acacia mearnsii* is a problem alien invasive species along watercourses (although not recorded during in the study area watercourses). In some catchments, intensive agriculture is high, for example along the Sidubu Catchment. Based on Present Ecological State data, cumulative impacts are likely to be MEDIUM to HIGH (Sidubu River Catchment). Further, a study undertaken in the Eastern Cape on the grassland habitat and the impacts of communal and commercial farming systems found that the grasslands are highly impacted on and that satellite land cover data underestimates levels of transformation in the communal areas (Hoare, Unknown). Percentage cover of Natural, Transformed and Cultivated land cover for communal areas from satellite data and observations in the field:

DATA	NATURAL	TRANSFORMED	CULTIVATED
Satellite data (Landsat TM satellite data)	69%	31%	21%
Ground data (250 sites) (2002 observations)	33%	67%	55%

Impact A2: Partial loss of wetland habitat (hydrological processes and biodiversity loss):

Direct Impacts:

Partial loss of wetland habitat is likely to occur at Culvert 26 (Map 8), at crossings 56 and 57 (Quarry 186; Map 12) and potentially at the irrigation canal bridge (artificial wetland habitat No.18) (Map 2). The wetland habitat No. 18 is due to seepage from a borehole and a leaking water pipeline, which should be repaired.

The potential impact on the loss of wetland habitat was rated as MEDIUM (-ve) without mitigation, but could be reduced to LOW if mitigation and management measures are properly implemented.

Cumulative Impacts:

The cumulative impacts on wetland loss in the catchments are unknown as accurate wetland data (current and past losses) is not available. Further, the contribution of man-made dams to wetland habitat in the region should not be discounted and offset from this loss. Based on this assessment, and extrapolating to the larger catchment areas, the cumulative impacts may be LOW, but this cannot be stated with confidence.

Impact A3: Sedimentation and erosion (hydrological processes and pattern):

Direct Impacts:

During the construction phase, exposed soils will be created at the crossing sites along the channel banks, which will be vulnerable to further erosion and sedimentation of aquatic features. Sedimentation may result in reduced water quality in inundated systems. Potential impacts will be particularly important to mitigate or reduce in the perennial watercourses or if watercourses are inflow.

A number of artificial wetlands (dams and borrow pits) lie adjacent to the road, namely: borrow pits (19 and 20), dam (14), flat wetland (18) and the excavation sites (9 – 12) (Map 1, 2 and 5). Dam 14 is approximately 30 m (slight gradient upslope) and is unlikely to be impacted on by the road upgrade. The excavations No. 9-14 are Seriously Modified; and due to land use activities, this is unlikely to change. The dams (No. 15, 16, 17 and 22) will not be impacted on by the road upgrade due to distance from the road and topography. The leakages from the water supply network and a borehole that has created wetland habitat (No. 18, Map 2) should be repaired. If repaired, it is possible that this wetland habitat will desiccate and cease to exist. Wetland No. 8, within 500 m of Drift 23 (Map 7) on the Sabelele River, will not be impacted on due to position on an upper lying tributary of the Sabelele River.

It was evident at some of the existing crossings that sedimentation may be taking place due to active clearing of these sites, while sedimentation at other sites has resulted in portions of the watercourses downstream of the site creating wetland riparian habitat.

Soil excavation may result in increased soil erosion (donga and gully erosion) downslope of the quarry site. This may impact on watercourses and wetlands downslope of the quarries. In this regard, erosion control, stormwater management and aquatic buffers will be important to apply.

The potential impact due to sedimentation and erosion was rated as MEDIUM (-ve) without mitigation, but could be reduced to LOW if mitigation and management measures are properly implemented.

Indirect Impacts:

The overall hydrological regime and process should not be significantly altered.

Cumulative Impacts:

Numerous watercourse crossings would exist in the catchments, and as a result, cumulative impacts are probably MEDIUM. Also refer Impact 1 regarding degradation of natural cover in the catchments.

Impact A4: Pollution of surface water and groundwater (hydrological processes and biodiversity loss):

Direct Impacts:

No water quality data is available for the ephemeral watercourses, although algae mats were observed in most of the watercourses. Further, it is highly likely that, due to activities in the study area (washing, pit latrines, general household grey water, usage by livestock, vehicles); these systems already contain high levels of nitrates, phosphates and organic matter.

During construction various pollutants and toxicants, such as sediments, bitumen, diesel, oils and cement, will pose a threat to the continued functioning of the in-stream areas and wetlands, if by accident these materials are dispersed via surface run-off, or the pollutants infiltrate into the groundwater. Most of the watercourse crossing structures are pre-cast, which will reduce the potential impact of cement. The potential changes to water quality during the operational phase would be limited to sedimentation and erosion related issues assessed in the impact above.

Ablution facilities that are not properly maintained during the construction phase may also result in pollution of ground and surface water e.g. high in nitrates etc. Raw sewage (from construction staff ablutions) also contains "heavy metals" which may not be degraded by the sewage treatment processes and may be discharged in the final effluent or through the sludge produced.

Solid waste generated during the construction phase (i.e. building rubble, empty cans with hazardous materials, and litter) also has the potential to cause pollution of the environment.

Because the ephemeral watercourses are not in flow most of the time, this impact cannot be assessed as significant. However, many of these watercourses contained surface water pools, and therefore the impact was rated as MEDIUM (-ve), rather than LOW, pre-mitigation. The impact could be reduced to LOW if mitigation and management measures are properly implemented.

Cumulative Impacts:

According to the Present Ecological State data and assessment, the majority of the aquatic resources are in a C Class (Moderately Modified state), while a few are in Largely Modified (Class D) and Largely Natural state (Class B).

STORMWATER AND EROSION IMPACTS (also refer to aquatic impact A3 above):

- Soil erosion could occur due to the runoff / erosion during the road upgrade, excavated and fill material from stockpiles and borrow pit slopes due to runoff if stormwater control and other mitigation measures are not appropriately implemented.

Potential storm water and erosion impacts were rated as MEDIUM (-ve) without mitigation. This impact is reduced to be VERY LOW if mitigation measures are implemented.

PALEONTOLOGICAL IMPACTS: (see Palaeontological Impact Assessment in Appendix D)

- The paleontological impact is rated as INSIGNIFICANT (-ve) as no paleontological remains were found in the study area. Should substantial fossil remains such as vertebrate bones and teeth, plant-rich fossil lenses or dense fossil burrow assemblages be exposed during construction a chance-find procedure should be implemented.

ARCHAEOLOGICAL IMPACTS: (see Archaeological Impact Assessment in Appendix D)

- Several built environment structures, dry packed stone walling features and abandoned homesteads, were encountered during the survey. The dry packed stone walling complexes situated adjacent to (± 20 m) the areas proposed for Quarry 171 may be negatively affected by

the proposed development. The potential archaeological impact is rated as MEDIUM (-ve) without mitigation, but can be reduced to LOW if appropriate mitigation measures are followed; and

- The informal burial areas adjacent to the road to be upgraded may be negatively affected during the construction and quarrying activities. This impact is rated as HIGH (-ve) without mitigation, but can be reduced to LOW if appropriate mitigation measures are followed.

SOCIO-ECONOMIC IMPACTS:

- Job creation during the construction phase was rated to have a VERY LOW positive impact. With mitigation to ensure local employment opportunities are maximised, the positive impact would be raised to have a MEDIUM (+ve) significance;

NOISE IMPACTS:

- Noise from construction activities may impact on residents and learners at schools along the route. Blasting activities are also expected at the proposed quarry. However, this impact will be of a temporary nature and only occur during working hours on weekdays. The potential noise impact was rated as VERY LOW (-ve).

AIR QUALITY IMPACTS:

- Dust will be created during the construction phase as a result of an increased amount of vehicles on access road as well as clearing of vegetation in the road reserve and at the proposed borrow pits and quarry. Dust will also be created during blasting and crushing activities at the borrow pits and quarry. A VERY LOW negative impact, even with mitigation measures in place, on residents and motorists in the area is expected as the impact is only temporary in nature.

WASTE MANAGEMENT IMPACTS:

- A LOW negative impact is expected due to incorrect disposal of construction waste, which could lead to other visual impacts and loss of natural habitat. With appropriate mitigation, this impact could be reduced to be INSIGNIFICANT.

EXISTING SERVICES:

- Existing services occurring in the footprint of the proposed activity could potentially be impacted. The services identified are: ESKOM power lines, Telkom lines and a water pipeline next to some of the bridges. The potential impact on existing services was rated as LOW (-ve). If recommended mitigation measures are implemented, the impact can be reduced to be INSIGNIFICANT.

TRAFFIC FLOW AND SAFETY:

- The traffic flow will be affected due to construction activities on and adjacent to the road. The road will be upgraded in full widths over most of the length except at narrow and steep sections where the road will be built in half-widths. Full traffic control will be specified. At chainage 12,900 m the old culvert will be utilized as a detour. The potential impact on traffic flow is expected to be LOW (-ve). With mitigation, the impact can be reduced to VERY LOW (-ve).

Indirect impacts:

As described above under Aquatic Impacts.

Cumulative impacts:

As described above under Aquatic Impacts.

Mitigation measures that may eliminate or reduce the potential impacts listed above:

ECOLOGICAL MITIGATION:

- Clearing of vegetation should be kept to the minimum and must take place in a phased manner (i.e. the entire area to be developed should not be cleared all at once);
- Construction activities and vehicles should not be allowed outside the fenced / demarcated area indicated for construction;
- A search and rescue operation for Red List Species should be undertaken prior to clearing of the site.
- No animals shall be harmed during the course of construction; and
- Fire control measures should be implemented where necessary.

AQUATIC MITIGATION:

Impact A1: Loss of riparian systems due to vegetation clearance (biodiversity loss):

- Ensure that the extent of disturbance (construction footprint) is kept to a minimum.
- Rehabilitation of disturbed areas post construction with indigenous species. Rehabilitation is essential in this region due to extensive donga and gully erosion. The following should apply:
 - Where in-stream wetland plants require removal (wetland plants were not growing at the existing culverts in all instances), removal of in-situ wetland plant sods could be implemented; and immediate rehabilitation of these areas undertaken after construction has completed at the crossing sites. The removed plant sods should be planted in undisturbed areas of the channel, and new plant sods (taken from the watercourse) could be utilized during the rehabilitation process.
 - If available, stockpile topsoil for re-use when planting of indigenous plants in disturbed areas/construction footprints (rehabilitation). Measures to protect these stockpiles will be required to prevent erosion and dispersion (e.g. bidum / shade-cloth cover). Topsoil should be re-applied in the correct order.
 - If construction occurs during the dry season and if wetland areas are not sufficiently moist, watering of removed and re-planted sods may be required to ensure establishment.
 - At least 80 % establishment should be achieved.
 - If necessary, cordon off rehabilitation areas.
- Implement the 32 m ecological buffers around the drainage areas and ephemeral watercourses, in relation to the quarry sites.
- Control of alien invasive species by the Contractor.

Impact A2: Partial loss of wetland habitat (hydrological processes and biodiversity loss):

- Ensure that the extent of disturbance (construction footprint) is kept to a minimum.
- Removal of in-situ wetland plant sods should be implemented; and immediate rehabilitation of these areas undertaken after construction has completed at the crossing site. The removed plant sods should be planted in undisturbed areas of the wetland, and new plant sods (from the wetland) should be utilized during the rehabilitation process (to enhance survival). If wetland plants are not available in –situ for some reason (e.g. livestock grazing), purchased indigenous wetland plants should be utilized.
- Refer to general rehabilitation specifications as indicated in Impact A1 above for wetlands (not quarries).
- Implement an Environmental Management Programme, which indicates the above specifications.
- Audit reporting is required by a qualified Environmental Control Officer.

Impact A3: Sedimentation and erosion (hydrological processes and pattern):

- Where the watercourse crossing upgrades take place, adequate measures should be implemented to prevent significant impacts on the channel banks, aquatic environment and wetlands during construction. Specifications may include:
 - Where possible, implement protective measures to reduce sheet run off during high rainfall periods, such as the placement of bidum or other suitable material.
 - The use of coffer dams, or other suitable measure as indicated by the Engineer, in watercourses that are perennial (flowing) or if ephemeral/non-perennial watercourses are flowing at the time of construction, although construction is preferable during no flow periods for these systems.
 - Minimize the removal of vegetation to within the construction footprint only, to reduce the extent of exposed soils.
 - Immediate rehabilitation/planting of disturbed areas once construction is complete at a particular crossing site, with indigenous plants. If necessary, cordon off rehabilitation areas.
 - If available, stockpile topsoil for re-use when planting of indigenous plants in disturbed areas/construction footprints (rehabilitation). Measures to protect these stockpiles will be required to prevent erosion and dispersion (e.g. bidum / shade-cloth cover). Topsoil should be re-applied in the correct order.
- Compile and implement a stormwater and erosion control plan, for the road upgrade portion, that does not unnecessarily increase flows into aquatic features (watercourses and wetlands), for example: the establishment of grassed v-drains that encourages infiltration along the road reserve, as deemed appropriate by the Engineer.
- Compile and implement a stormwater and erosion control plan, for the quarry sites, that does not unnecessarily increase flows into aquatic features (watercourses and wetlands), for example: the establishment of narrow linear retention swales (with indigenous grass) and vegetated buffer strips that encourages infiltration before reaching any watercourses and wetlands, as deemed appropriate by the Engineer.
- Where wetland habitats (dams and quarries) are sited adjacent to the road upgrade portion, the construction area should avoid the wetland habitat. Although a separate issue, leakage

from the water supply network and a borehole that has created wetland habitat (No. 18) should be repaired. If repaired, it is possible that this wetland habitat will desiccate and cease to exist.

- The various watercourse crossings should be designed in such manner that the natural flow of the various watercourses is taken into consideration, as well as the 1:100 year flood line or other flood line, as deemed appropriate by the Hydrological Engineer.
- Appropriate erosion control measures should be installed (e.g. grassed gabion structures), if and as deemed appropriate by the Hydrological Engineer.

Impact A4: Pollution of surface water and groundwater (hydrological processes and biodiversity loss):

- Implementation of the aquatic buffers, as indicated above, where possible.
- The Environmental Management Programme to identify procedures for solid waste disposal (e.g. bins, no littering or burning policy) and the maintenance of ablution facilities, including the disposal of liquid and hazardous waste at a licensed waste disposal site.
- Strict management of potential sources of chemical pollution (e.g. bitumen, hydrocarbons from vehicles and machinery, cement) i.e. waste management procedures (storage, disposal).
- Emergency spill kits to be made available at the construction site, in the event of accidental spillages.
- Immediate containment, removal and storage of spilled hazardous materials.
- Chemicals and hazardous waste storage areas should be in storage facilities at the construction camp.
- Hazardous and chemical wastes (includes old containers) should be disposed of at licensed waste disposal site.
- During construction, the construction camp, with ablution, sanitation, and waste facilities should not be located within 100 m from the aquatic features (or within the 1:100 year flood line, if known).
- Maintenance and re-fuelling of vehicles or equipment should take place on bunded surfaces in designated areas at the construction camp, although maintenance procedures should preferably take place at the closest town.
- All above specifications and procedures to be indicated in the Environmental Management Programme.
- Audit reporting by the Environmental Control Officer during site establishment (to avoid buffer areas).

STORMWATER AND EROSION MITIGATION:

See mitigation listed under Impact A3 above.

PALEONTOLOGICAL MITIGATION:

- Should substantial fossil remains such as vertebrate bones and teeth, plant-rich fossil lenses or dense fossil burrow assemblages be exposed during construction a chance-find procedure should be implemented. The ECO / Site Engineer should take the appropriate action, which includes:
 - Stopping work in the immediate vicinity and fencing off the area with tape to prevent further access;

- Reporting the discovery to the provincial heritage agency, ECPHRA (i.e. The Eastern Cape Provincial Heritage Resources Authority. Contact details: Mr Sello Mokhanya, 74 Alexander Road, King Williams Town 5600; smokhanya@ecphra.org.za);
- Appointing a palaeontological specialist to inspect, record and (if warranted) sample or collect the fossil remains;
- Implementing any further mitigation measures proposed by the palaeontologist; and
- Allowing work to resume only once clearance is given in writing by the relevant authorities.

ARCHAEOLOGICAL MITIGATION:

- A 20 m no development buffer zone should be established and clearly demarcated around the dry packed stone walling features identified at Quarry 171 (BP171 SW1). However, if it is deemed necessary that these structures be demolished for the proposed development to proceed, it is recommended that a specialist oral historian be appointed to assess the significance of the dry packed stone walling complexes.
- No development may take place with 20 m of the burial ground (SVR G1) identified along the road to be upgraded, therefore, a 20 m no development buffer zone should be established from the western side of the burial ground. However, if it is deemed necessary that these structures be relocate for the proposed development to proceed, it is recommended that the communities are consulted and an archaeologist who specialises in grave relocation be appointed to assess the significance of the built environment structure.
- If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum and/or the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) so that systematic and professional investigation/ excavation can be undertaken.
- Construction managers/foremen and/or the Environmental Control Officer (ECO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.

SOCIO-ECONOMIC MITIGATION:

- As there is a very high unemployment rate in the area, local contractors and labour should be considered for the construction phase. Local labour will be used through facilitation by a Public Liaison Officer (PLO).

NOISE MITIGATION:

- Construction activities should be kept to normal working hours (i.e. 6:00 to 18:00, Monday to Saturday) according to the Noise Control Regulations in terms of the Environmental Conservation Act (Act 73 of 1989).

AIR QUALITY MITIGATION:

- Dust suppression techniques, such as wetting or covering potential dust sources should be implemented to minimise the dust impact;
- No over-watering of the mining area or road surfaces should occur; and
- In open areas which are very exposed to wind, wind screens should be used to reduce wind

and also dust at the site.

WASTE MANAGEMENT MITIGATION:

- Standard waste management practices should be implemented; and
- All waste should be removed from the site on a regular basis and disposed of at a registered landfill site.

EXISTING SERVICES MITIGATION:

- Existing services should not be damaged in any way. Care should be taken when construction activities approach any services or during the relocation thereof; and
- If any incidents happen that result in the disconnection of services, immediate action should be taken to notify the relevant parastatal / owner and to ensure a quick repair / reconnection.

TRAFFIC FLOW AND SAFETY MITIGATION:

- In order to accommodate traffic during the construction period, the road will be upgraded in full widths over most of the length except at narrow and steep sections where the road will be built in half-widths. At chainage km 12.9 the old culvert will be utilized as a detour.
- Motorists travelling in both directions must be warned of the construction works on the road.
- Signs should be erected indicating the maximum stopping time (10 minutes) and the maximum speed limit in the work areas (60 km/hr).

OPERATIONAL PHASE

Alternative (preferred alternative):

Direct impacts:

AQUATIC IMPACTS (see Aquatic Specialist Report in Appendix D):

Impact A3: Sedimentation and erosion (hydrological processes and pattern)

During operation, at the crossing points flow may be concentrated due to channel narrowing, which may result in increased velocities downstream of the crossing and increased soil erosion and sedimentation at the crossing points and downstream of the crossing points. Sedimentation may result in creating riparian habitat, but erosion would result in the loss of riparian habitat.

For the section of the road upgrade, stormwater run-off will be created (not necessarily increased compared with the existing hard, 'impermeable' gravel roads), which may also contribute to additional surface run-off in to the watercourse areas, which may in turn increase erosion and sedimentation in the aquatic features adjacent to the road.

The potential impact due to sedimentation and erosion was rated as MEDIUM (-ve) without mitigation, but could be reduced to LOW if mitigation and management measures are properly implemented.

STORM WATER AND EROSION IMPACTS:

- A potential for MEDIUM (-ve) soil erosion impacts exist due to the runoff from the road, quarry and other areas if stormwater infrastructure has not been properly implemented and rehabilitation sufficiently done. This impact could be reduced to VERY LOW with appropriate planning and mitigation.

NOISE IMPACTS:

- The proposed road upgrade would not result in additional traffic and would therefore not contribute to the overall ambient noise levels in the surroundings areas. The proposed new surfaced road could potentially contribute to a decrease in traffic-related noise due to better road conditions. This impact was rated to be INSIGNIFICANT.

AIR QUALITY IMPACTS:

- The proposed road upgrade would not result in additional traffic and would therefore not lead to higher overall dust and CO₂ levels in the surroundings areas. This impact was rated to be INSIGNIFICANT.

TRAFFIC FLOW AND SAFETY IMPACTS:

- The proposed road upgrade would improve the general flow and safety of traffic. This was rated as a HIGH positive impact. No additional mitigation is deemed necessary.

SOCIO-ECONOMIC IMPACTS:

- The improved road condition would result in easier access to the area, which would continue to positively affect the local economy. This impact is rated as MEDIUM and positive.

Indirect impacts:

None.

Cumulative impacts:

None.

No-Go Alternative

Direct impacts:

TRAFFIC FLOW AND SAFETY IMPACTS:

- Traffic flow and safety would not be improved which would have a negative impact on traffic flow and safety. In the long term, the road and structures would deteriorate more and lead to worsened traffic conditions becoming less and less safe. This was rated to have a HIGH negative impact.

SOCIO-ECONOMIC IMPACTS:

- The deteriorating road could result in limited access to the area, which could affect the local economy and tourist access to the Chris Hani Monument. This impact is rate as MEDIUM and

negative.

Indirect impacts:

None.

Cumulative impacts:

None.

Mitigation measures that may eliminate or reduce the potential impacts listed above:

AQUATIC IMPACTS – SEDIMENTATION AND EROSION (HYDROLOGICAL PROCESSES AND PATTERN) (see Aquatic Specialist Report in Appendix D):

- Compile and implement a stormwater and erosion control plan, for the road upgrade portion, that does not unnecessarily increase flows into aquatic features (watercourses and wetlands), for example: the establishment of grassed v-drains that encourages infiltration along the road reserve, as deemed appropriate by the Engineer.
- Compile and implement a stormwater and erosion control plan, for the quarry sites, that does not unnecessarily increase flows into aquatic features (watercourses and wetlands), for example: the establishment of narrow linear retention swales (with indigenous grass) and vegetated buffer strips that encourages infiltration before reaching any watercourses and wetlands, as deemed appropriate by the Engineer.
- If possible, once the quarries are decommissioned, areas that have not been exposed to hard rock should be rehabilitated with indigenous vegetation. Adequate stormwater and erosion control measures should be maintained. Refer general rehabilitation specifications as indicated above Impact 1.

DECOMMISSIONING AND CLOSURE PHASE

Alternative (preferred alternative)

The impacts described below relate to the decommissioning or closure of the quarry which will include the required rehabilitation.

Direct impacts:

AQUATIC IMPACTS (see Aquatic Specialist Report in Appendix D):

Impact A3: Sedimentation and erosion (hydrological processes and pattern)

During the decommissioning phase of the quarry, moving of soils as part of rehabilitation activities will create areas vulnerable to further erosion. Erosion could result in sedimentation of aquatic features as well as reduced water quality in inundated systems. In this regard erosion control and stormwater management will be important to apply.

The potential impact due to sedimentation and erosion was rated as MEDIUM (-ve) without mitigation, but could be reduced to LOW if mitigation and management measures are properly implemented.

SOCIO-ECONOMIC IMPACTS:

- Job creation during the decommissioning phase at the quarry was rated to have a VERY LOW positive impact. With mitigation to ensure local employment opportunities are maximised, the positive impact would be raised to have a LOW (+ve) significance;

NOISE IMPACTS:

- Noise from decommissioning activities may impact on residents and learners at schools along the route. However, this impact will be of a temporary nature and only occur during working hours on weekdays. The potential noise impact was rated as VERY LOW (-ve).

AIR QUALITY IMPACTS:

- Dust will be created during this phase as a result of an increased amount of vehicles on access road as well as moving of soil to rehabilitate the quarry area. A VERY LOW (-ve) impact, even with mitigation measures in place, on residents and motorists in the area is expected as the impact is only temporary in nature.

WASTE MANAGEMENT IMPACTS:

- A LOW negative impact is expected due to incorrect disposal of construction waste, which could lead to other visual impacts and loss of natural habitat. With appropriate mitigation, this impact could be reduced to be INSIGNIFICANT.

TRAFFIC FLOW AND SAFETY:

- The traffic flow will be affected due to heavy vehicles moving to and from the quarry site during decommissioning. The potential impact on traffic flow is expected to be LOW (-ve). With mitigation, the impact can be reduced to VERY LOW (-ve).

Indirect impacts:

None.

Cumulative impacts:

None.

No-Go Alternative

Direct impacts:

None.

Indirect impacts:

None.

Cumulative impacts:

None.

Mitigation measures that may eliminate or reduce the potential impacts listed above:

AQUATIC MITIGATION:

- Rehabilitation of disturbed areas post construction with indigenous species. Rehabilitation is essential in this region due to extensive donga and gully erosion. If necessary, cordon off rehabilitation areas.
- If possible, once the quarries are decommissioned, areas that have not been exposed to hard rock should be rehabilitated with indigenous grasses/vegetation. Adequate stormwater and erosion control measures should be maintained. Specifications should include:
 - Labour intensive methods may be preferred for job creation, alternatively hydro-seeding could be the applied methodology.
 - Adequate ripping and scarifying, contour shaping, composting, watering and weed control should be implemented.
 - At least 80 % establishment should be achieved.
 - If necessary, cordon off rehabilitation areas during the establishment phase e.g. to prevent livestock grazing.
 - The following mix of grass species could be used (based on availability and can be adapted by the Contractor):

GRASS SPECIES	COMMON NAME	APPLICATION RATE (kg/ha)
<i>Chloris gayana</i>	Rhodes grass	2
<i>Cymbopogon excavatus</i>	Broad leaved turpentine grass	1
<i>Cymbopogon plurinodis</i>	Narrow-leaved turpentine grass	1
<i>Cynodon dactylon</i>	Couch grass	4
<i>Digitaria eriantha</i>	Smutsfinger grass	3
<i>Eragrostis curvula</i>	Weeping lovegrass	3
<i>Hyparrhenia hirta</i>	Common thatching grass	2
<i>Panicum maximum</i>	Guinea grass	2
<i>Setaria sphacelata</i>	Common bristle grass	1
<i>Themeda triandra</i>	Red grass	3
TOTAL		22

- Other indigenous species could be used in the rehabilitation of the quarries, including Threatened and/or Protected species known to occur in the habitat types.
- Audit reporting is required by a qualified Environmental Control Officer.
- Compile and implement a stormwater and erosion control plan, for the quarry sites, that does not unnecessarily increase flows into aquatic features (watercourses and wetlands), for example: the establishment of narrow linear retention swales (with indigenous grass) and vegetated buffer strips that encourages infiltration before reaching any watercourses and wetlands, as deemed appropriate by the Engineer.

SOCIO-ECONOMIC MITIGATION:

- As there is a very high unemployment rate in the area, local contractors and labour should be considered for this phase. Local labour will be used through facilitation by a Public Liaison Officer (PLO).

NOISE MITIGATION:

- Decommissioning activities should be kept to normal working hours (i.e. 6:00 to 18:00, Monday to Saturday) according to the Noise Control Regulations in terms of the Environmental Conservation Act (Act 73 of 1989).

AIR QUALITY MITIGATION:

- Dust suppression techniques, such as wetting or covering potential dust sources should be implemented to minimise the dust impact;
- No over-watering of the mining area or access road surfaces should occur; and
- In open areas which are very exposed to wind, wind screens should be used to reduce wind and also dust at the site.

WASTE MANAGEMENT MITIGATION:

- Standard waste management practices should be implemented; and
- All waste should be removed from the site on a regular basis and disposed of at a registered landfill site.

TRAFFIC FLOW AND SAFETY MITIGATION:

- Proper signs should be erected warning traffic of the ongoing activities and presence of heavy vehicles.

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.

BASIC ASSESSMENT REPORT

IMPACT		CONSTRUCTION				OPERATION				DECOMMISSIONING				NO-GO OPTION	
		WITHOUT MITIGATION		WITH MITIGATION		WITHOUT MITIGATION		WITH MITIGATION		WITHOUT MITIGATION		WITH MITIGATION			
Ecological		Very Low	- ve	Insignificant	- ve	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Specialist Aquatic	A1: Loss of riparian systems due to vegetation clearance (biodiversity loss)	Medium	- ve	Low	- ve	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	A2: Partial loss of wetland habitat (hydrological processes and biodiversity loss)	Medium	- ve	Low	- ve	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	A3: Impacts resulting in sedimentation and erosion (hydrological processes and pattern)	Medium	- ve	Low	- ve	Medium	- ve	Low	- ve	Medium	- ve	Low	- ve	N/A	N/A
	A4: Pollution of surface water and groundwater (hydrological processes and biodiversity loss)	Medium	- ve	Low	- ve	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Stormwater & Erosion		Very Low	- ve	Very Low	- ve	Insignificant	- ve	Insignificant	- ve	N/A	N/A	N/A	N/A	N/A	N/A
Air Quality (Dust impacts)		Very Low	- ve	Very Low	- ve	Insignificant	- ve	Insignificant	- ve	Very Low	- ve	Very Low	- ve	N/A	N/A
Noise impact		Very Low	- ve	Very Low	- ve	Insignificant	- ve	Insignificant	- ve	Very Low	- ve	Very Low	- ve	N/A	N/A
Waste management impacts		Low	- ve	Insignificant	- ve	N/A	N/A	N/A	N/A	Low	- ve	Insignificant	- ve	N/A	N/A
Impacts on Existing Services (Powerlines and Water Pipelines)		Low	- ve	Insignificant	- ve	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Specialist Archaeological	Dry packed stone walls	Medium	- ve	Low	- ve	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Informal burial grounds	High	- ve	Low	- ve	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

BASIC ASSESSMENT REPORT

IMPACT	CONSTRUCTION				OPERATION				DECOMMISSIONING				NO-GO OPTION	
Specialist Paleontological	Insignificant	- ve	Insignificant	- ve	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Socio-economic	Very Low	+ ve	Medium	+ ve	Medium	+ ve	Medium	+ ve	Very Low	+ ve	Low	+ ve	N/A	N/A
Improved Traffic Safety and Flow	Low	- ve	Very Low	- ve	High	+ ve	High	+ ve	Low	- ve	Very Low	- ve	N/A	N/A

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	
-----	--

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).

Not Applicable

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.

Measures to be considered during the design phase:

ARCHAEOLOGICAL MITIGATION:

- A 20 m no development buffer zone should be established and clearly demarcated around the dry packed stone walling features identified at Quarry 171 (BP171 SW1). However, if it is deemed necessary that these structures be demolished for the proposed development to proceed, it is recommended that a specialist oral historian be appointed to assess the significance of the dry packed stone walling complexes.
- No development may take place with 20 m of the burial ground (SVR G1) identified along the road to be upgraded, therefor, a 20 m no development buffer zone should be established from the western side of the burial ground. However, if it is deemed necessary that these structures be relocate for the proposed development to proceed, it is recommended that the communities are consulted and an archaeologist who specialises in grave relocation be appointed to assess the significance of the built environment structure.

AQUATIC MITIGATION:

- Implement the 32 m ecological buffers around the drainage areas and ephemeral watercourses, in relation to the quarry site.

Mitigation recommended for the construction phase:

ECOLOGICAL MITIGATION:

- Clearing of vegetation should be kept to the minimum and must take place in a phased manner (i.e. the entire area to be developed should not be cleared all at once);
- Construction activities and vehicles should not be allowed outside the fenced / demarcated area indicated for construction;
- A search and rescue operation for Red List Species should be undertaken prior to clearing of the site.
- No animals shall be harmed during the course of construction; and
- Fire control measures should be implemented where necessary.

AQUATIC MITIGATION:

Impact A1: Loss of riparian systems due to vegetation clearance (biodiversity loss):

- Ensure that the extent of disturbance (construction footprint) is kept to a minimum.

- Rehabilitation of disturbed areas post construction with indigenous species. Rehabilitation is essential in this region due to extensive donga and gully erosion. The following should apply:
 - Where in-stream wetland plants require removal (wetland plants were not growing at the existing culverts in all instances), removal of in-situ wetland plant sods could be implemented; and immediate rehabilitation of these areas undertaken after construction has completed at the crossing sites. The removed plant sods should be planted in undisturbed areas of the channel, and new plant sods (taken from the watercourse) could be utilized during the rehabilitation process.
 - If available, stockpile topsoil for re-use when planting of indigenous plants in disturbed areas/construction footprints (rehabilitation). Measures to protect these stockpiles will be required to prevent erosion and dispersion (e.g. bidum / shade-cloth cover). Topsoil should be re-applied in the correct order.
 - If construction occurs during the dry season and if wetland areas are not sufficiently moist, watering of removed and re-planted sods may be required to ensure establishment.
 - At least 80 % establishment should be achieved.
 - If necessary, cordon off rehabilitation areas.
- Implement the 32 m ecological buffers around the drainage areas and ephemeral watercourses, in relation to the quarry sites.
- Control of alien invasive species by the Contractor.

Impact A2: Partial loss of wetland habitat (hydrological processes and biodiversity loss):

- Ensure that the extent of disturbance (construction footprint) is kept to a minimum.
- Removal of in-situ wetland plant sods should be implemented; and immediate rehabilitation of these areas undertaken after construction has completed at the crossing site. The removed plant sods should be planted in undisturbed areas of the wetland, and new plant sods (from the wetland) should be utilized during the rehabilitation process (to enhance survival). If wetland plants are not available in –situ for some reason (e.g. livestock grazing), purchased indigenous wetland plants should be utilized.
- Refer to general rehabilitation specifications as indicated in Impact A1 above for wetlands (not quarries).
- Implement an Environmental Management Programme, which indicates the above specifications.
- Audit reporting is required by a qualified Environmental Control Officer.

Impact A3: Sedimentation and erosion (hydrological processes and pattern):

- Where the watercourse crossing upgrades take place, adequate measures should be implemented to prevent significant impacts on the channel banks, aquatic environment and wetlands during construction. Specifications may include:
 - Where possible, implement protective measures to reduce sheet run off during high rainfall periods, such as the placement of bidum or other suitable material.
 - The use of coffer dams, or other suitable measure as indicated by the Engineer, in

watercourses that are perennial (flowing) or if ephemeral/non-perennial watercourses are flowing at the time of construction, although construction is preferable during no flow periods for these systems.

- Minimize the removal of vegetation to within the construction footprint only, to reduce the extent of exposed soils.
- Immediate rehabilitation/planting of disturbed areas once construction is complete at a particular crossing site, with indigenous plants. If necessary, cordon off rehabilitation areas.
- If available, stockpile topsoil for re-use when planting of indigenous plants in disturbed areas/construction footprints (rehabilitation). Measures to protect these stockpiles will be required to prevent erosion and dispersion (e.g. bidum / shade-cloth cover). Topsoil should be re-applied in the correct order.
- Compile and implement a stormwater and erosion control plan, for the road upgrade portion, that does not unnecessarily increase flows into aquatic features (watercourses and wetlands), for example: the establishment of grassed v-drains that encourages infiltration along the road reserve, as deemed appropriate by the Engineer.
- Compile and implement a stormwater and erosion control plan, for the quarry sites, that does not unnecessarily increase flows into aquatic features (watercourses and wetlands), for example: the establishment of narrow linear retention swales (with indigenous grass) and vegetated buffer strips that encourages infiltration before reaching any watercourses and wetlands, as deemed appropriate by the Engineer.
- Where wetland habitats (dams and quarries) are sited adjacent to the road upgrade portion, the construction area should avoid the wetland habitat. Although a separate issue, leakage from the water supply network and a borehole that has created wetland habitat (No. 18) should be repaired. If repaired, it is possible that this wetland habitat will desiccate and cease to exist.
- The various watercourse crossings should be designed in such manner that the natural flow of the various watercourses is taken into consideration, as well as the 1:100 year flood line or other flood line, as deemed appropriate by the Hydrological Engineer.
- Appropriate erosion control measures should be installed (e.g. grassed gabion structures), if and as deemed appropriate by the Hydrological Engineer.

Impact A4: Pollution of surface water and groundwater (hydrological processes and biodiversity loss):

- Implementation of the aquatic buffers, as indicated above, where possible.
- The Environmental Management Programme to identify procedures for solid waste disposal (e.g. bins, no littering or burning policy) and the maintenance of ablution facilities, including the disposal of liquid and hazardous waste at a licensed waste disposal site.
- Strict management of potential sources of chemical pollution (e.g. bitumen, hydrocarbons from vehicles and machinery, cement) i.e. waste management procedures (storage, disposal).
- Emergency spill kits to be made available at the construction site, in the event of accidental spillages.

- Immediate containment, removal and storage of spilled hazardous materials.
- Chemicals and hazardous waste storage areas should be in storage facilities at the construction camp.
- Hazardous and chemical wastes (includes old containers) should be disposed of at licensed waste disposal site.
- During construction, the construction camp, with ablution, sanitation, and waste facilities should not be located within 100 m from the aquatic features (or within the 1:100 year flood line, if known).
- Maintenance and re-fuelling of vehicles or equipment should take place on bunded surfaces in designated areas at the construction camp, although maintenance procedures should preferably take place at the closest town.
- All above specifications and procedures to be indicated in the Environmental Management Programme.
- Audit reporting by the Environmental Control Officer during site establishment (to avoid buffer areas).

STORMWATER AND EROSION MITIGATION:

See mitigation under Impact A3 above.

PALEONTOLOGICAL MITIGATION:

Should substantial fossil remains such as vertebrate bones and teeth, plant-rich fossil lenses or dense fossil burrow assemblages be exposed during construction a chance-find procedure should be implemented. The ECO / Site Engineer should take the appropriate action, which includes:

- Stopping work in the immediate vicinity and fencing off the area with tape to prevent further access;
- Reporting the discovery to the provincial heritage agency, ECPHRA (i.e. The Eastern Cape Provincial Heritage Resources Authority. Contact details: Mr Sello Mokhanya, 74 Alexander Road, King Williams Town 5600; smokhanya@ecphra.org.za);
- Appointing a palaeontological specialist to inspect, record and (if warranted) sample or collect the fossil remains;
- Implementing any further mitigation measures proposed by the palaeontologist; and
- Allowing work to resume only once clearance is given in writing by the relevant authorities.

ARCHAEOLOGICAL MITIGATION:

- If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum and/or the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) so that systematic and professional investigation/ excavation can be undertaken.
- Construction managers/foremen and/or the Environmental Control Officer (ECO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.

SOCIO-ECONOMIC MITIGATION:

- As there is a very high unemployment rate in the area, local contractors and labour should be considered for the construction phase. Local labour will be used through facilitation by a Public Liaison Officer (PLO).

NOISE MITIGATION:

- Construction activities should be kept to normal working hours (i.e. 6:00 to 18:00, Monday to Saturday) according to the Noise Control Regulations in terms of the Environmental Conservation Act (Act 73 of 1989).

AIR QUALITY MITIGATION:

- Dust suppression techniques, such as wetting or covering potential dust sources should be implemented to minimise the dust impact;
- No over-watering of the mining area or road surfaces should occur; and
- In open areas which are very exposed to wind, wind screens should be used to reduce wind and also dust at the site.

WASTE MANAGEMENT MITIGATION:

- Standard waste management practices should be implemented; and
- All waste should be removed from the site on a regular basis and disposed of at a registered landfill site.

EXISTING SERVICES MITIGATION:

- Existing services should not be damaged in any way. Care should be taken when construction activities approach any services or during the relocation thereof; and
- If any incidents happen that result in the disconnection of services, immediate action should be taken to notify the relevant parastatal / owner and to ensure a quick repair / reconnection.

TRAFFIC FLOW AND SAFETY MITIGATION:

- In order to accommodate traffic during the construction period, the road will be upgraded in full widths over most of the length except at narrow and steep sections where the road will be built in half-widths. At chainage km 12.9 the old culvert will be utilized as a detour.
- Motorists travelling in both directions must be warned of the construction works on the road.
- Signs should be erected indicating the maximum stopping time (10 minutes) and the maximum speed limit in the work areas (60 km/hr).

Mitigation recommended for the operational phase:

AQUATIC MITIGATION:

Impact A3: Sedimentation and erosion (hydrological processes and pattern) (see Aquatic Specialist Report in Appendix D):

- Compile and implement a stormwater and erosion control plan, for the road upgrade portion, that does not unnecessarily increase flows into aquatic features (watercourses and wetlands), for example: the establishment of grassed v-drains that encourages infiltration along the road reserve, as deemed appropriate by the Engineer.
- Compile and implement a stormwater and erosion control plan, for the quarry sites, that does not unnecessarily increase flows into aquatic features (watercourses and wetlands), for example: the establishment of narrow linear retention swales (with indigenous grass) and vegetated buffer strips that encourages infiltration before reaching any watercourses and wetlands, as deemed appropriate by the Engineer.
- If possible, once the quarries are decommissioned, areas that have not been exposed to hard rock should be rehabilitated with indigenous vegetation. Adequate stormwater and

erosion control measures should be maintained. Refer general rehabilitation specifications as indicated above Impact 1.

Mitigation recommended for the decommissioning phase:

AQUATIC MITIGATION:

- Rehabilitation of disturbed areas post construction with indigenous species. Rehabilitation is essential in this region due to extensive donga and gully erosion. If necessary, cordon off rehabilitation areas.
- If possible, once the quarries are decommissioned, areas that have not been exposed to hard rock should be rehabilitated with indigenous grasses/vegetation. Adequate stormwater and erosion control measures should be maintained. Specifications should include:
 - Labour intensive methods may be preferred for job creation, alternatively hydro-seeding could be the applied methodology.
 - Adequate ripping and scarifying, contour shaping, composting, watering and weed control should be implemented.
 - At least 80 % establishment should be achieved.
 - If necessary, cordon off rehabilitation areas during the establishment phase e.g. to prevent livestock grazing.
 - The following mix of grass species could be used (based on availability and can be adapted by the Contractor):

GRASS SPECIES	COMMON NAME	APPLICATION RATE (kg/ha)
<i>Chloris gayana</i>	Rhodes grass	2
<i>Cymbopogon excavatus</i>	Broad leaved turpentine grass	1
<i>Cymbopogon plurinodis</i>	Narrow-leaved turpentine grass	1
<i>Cynodon dactylon</i>	Couch grass	4
<i>Digitaria eriantha</i>	Smutsfinger grass	3
<i>Eragrostis curvula</i>	Weeping lovegrass	3
<i>Hyparrhenia hirta</i>	Common thatching grass	2
<i>Panicum maximum</i>	Guinea grass	2
<i>Setaria sphacelata</i>	Common bristle grass	1
<i>Themeda triandra</i>	Red grass	3
TOTAL		22

- Other indigenous species could be used in the rehabilitation of the quarries, including Threatened and/or Protected species known to occur in the habitat types.
- Audit reporting is required by a qualified Environmental Control Officer.
- Compile and implement a stormwater and erosion control plan, for the quarry sites, that does not unnecessarily increase flows into aquatic features (watercourses and wetlands), for example: the establishment of narrow linear retention swales (with indigenous grass) and vegetated buffer strips that encourages infiltration before reaching any watercourses and wetlands, as deemed appropriate by the Engineer.

SOCIO-ECONOMIC MITIGATION:

- As there is a very high unemployment rate in the area, local contractors and labour should be

BASIC ASSESSMENT REPORT

considered for this phase. Local labour will be used through facilitation by a Public Liaison Officer (PLO).

NOISE MITIGATION:

- Decommissioning activities should be kept to normal working hours (i.e. 6:00 to 18:00, Monday to Saturday) according to the Noise Control Regulations in terms of the Environmental Conservation Act (Act 73 of 1989).

AIR QUALITY MITIGATION:

- Dust suppression techniques, such as wetting or covering potential dust sources should be implemented to minimise the dust impact;
- No over-watering of the mining area or access road surfaces should occur; and
- In open areas which are very exposed to wind, wind screens should be used to reduce wind and also dust at the site.

WASTE MANAGEMENT MITIGATION:

- Standard waste management practices should be implemented; and
- All waste should be removed from the site on a regular basis and disposed of at a registered landfill site.

TRAFFIC FLOW AND SAFETY MITIGATION:

- Proper signs should be erected warning traffic of the ongoing activities and presence of heavy vehicles.

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.

Rob Gardiner

NAME OF EAP

SRK Consulting - Certified Electronic Signature
47515411910/Reg001
88643103-7496-GARR
This signature has been certified digitally. The Authority has given permission for its use for this document. The details are stored in the SRK Signature Database

SIGNATURE OF EAP

30 September 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

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

BASIC ASSESSMENT REPORT



Fig : Proof of on-site poster placed at the entrance gate of the Chris Hani Monument.

Appendix F: Impact Assessment

Impact Rating Methodology

A significance rating is allocated to each potential impact, based on consideration of the **probability, intensity, extent, duration** and **possible mitigation** of the potential impact. These terms are explained as follows:

- Probability: the likelihood of the impact occurring;
- Intensity: the 'severity' of the impact or extent to which ecological and social processes are altered;
- Extent: the scale of the impact on a local - national level;
- Duration: the length of time the impact will last, which may be anything from several days to the entire lifetime of the development; and
- Mitigation: ways in which an impact can be avoided, minimised or managed to reduce its environmental significance.

Each rating is based on observations made during the site visits and on professional judgement. Based on a synthesis of the above criteria, significance of an impact is rated as follows:

- High significance: where the impact would influence the decision to authorise the road upgrade regardless of any mitigation measures;
- Moderate significance: where the impact should influence the decision to upgrade the road, and where mitigation measures can, and must, be specified to reduce the overall impact; and
- Low significance: where the impact would not have any influence on the decision to authorise the upgrading of the road.

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information

SRK Report Distribution Record

Report No. 475139/2

Copy No.

Name/ Title	Company	Copy	Date	Authorised by
Keith Simon	KCS Consultants	1	01 October 2014	R. Gardiner
Steven Robertson	SANRAL	2	01 October 2014	R. Gardiner
Randall Moore	EC Department of Roads & Public Works	3	01 October 2014	R. Gardiner
Thando Booii	DEDEAT	4	01 October 2014	R. Gardiner
Lizna Fourie	Department of Water & Sanitation	5	01 October 2014	R. Gardiner
SRK PE Library	SRK Consulting	6	01 October 2014	R. Gardiner

Approval Signature:

SRK Consulting - Qualified Electronic Signature
 475139/2/1910/Rep 01
 8864 313-7496-GARR
 This signature has been certified electronically. The Author has given permission for its use for this document. The details are stored in the SRK Signature Database.

This report is protected by copyright vested in SRK (SA) (Pty) Ltd. It may not be reproduced or transmitted in any form or by any means whatsoever to any person without the written permission of the copyright holder, SRK.