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DRAFT BASIC ASSESSMENT REPORT

FOR THE

THE PROPOSED MAINTENANCE ACTIVITIES OF TRUNK ROAD 33/4 BETWEEN KM 4.6 AND KM 14.4, MEIRINGSPOORT, WESTERN CAPE PROVINCE

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the amended (April 2017) Environmental Impact Assessment Regulations, 2014

PREPARED FOR: *Western Cape Government: Department of transport and Public Works*
PO Box 2603
Cape Town
8000

DATE: 4 November 2019

SES REF NO: DBAR/MMP/WHS/08/19
DEA REF.NO.: TBC

BASIC ASSESSMENT REPORT
IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED)

PROJECT TITLE

The Proposed Maintenance Activities of Trunk Road 33/4 between km 4.6 and km 14.4, Meiringspoort, Western Cape Province

4 November 219

REPORT TYPE CATEGORY	REPORT REFERENCE NUMBER	DATE OF REPORT
Pre-Application Basic Assessment Report (if applicable)[1]	-	-
Draft Basic Assessment Report[2]	tbc	4 November 2019
Final Basic Assessment Report[3] or, if applicable Revised Basic Assessment Report[4] (strikethrough what is not applicable)		

DEPARTMENTAL REFERENCE NUMBER(S)

Pre-application reference number:	
File reference number (EIA):	
NEAS reference number (EIA):	
File reference number (Waste):	
NEAS reference number (Waste):	
File reference number (Air Quality):	
NEAS reference number (Air Quality):	
File reference number (Other):	HWC RoD Case Number: 19072406SB0726E
NEAS reference number (Other):	

TABLE OF CONTENTS:

ACRONYMS USED IN THIS BASIC ASSESSMENT REPORT AND APPENDICES:

ASR	Alkali- Silica Reaction
BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
DEA	National Department of Environmental Affairs
DWS	National Department of Water and Sanitation
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESA	Ecological Support Area
HWC	Heritage Western Cape
I&APs	Interested and Affected Parties
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:AQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
NEM:ICMA	National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
PPP	Public Participation Process

DETAILS OF THE APPLICANT

Applicant / Organisation / Organ of State:	Western Cape Government: Department of transport and Public Works		
Contact person:	Johannes Neethling		
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E-mail:	Johannes.neethling2@westercape.gov.za		

DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

Name of the EAP organisation:	Sharples Environmental Services cc		
Person who compiled this Report:	Michael Jon Bennett		
EAP Reg. No.:			
Contact Person (if not author):	John Sharples		
Postal address:	PO Box 9087		
Telephone:	044 873 49 23	Postal Code:	6530
Cellular:	-	Fax:	086 575 2869
E-mail:	michael@sescc.net		
EAP Qualifications:	University of Cape Town, Bachelor of Science: Environmental and Geographic Science, Ocean and Atmospheric Science		

Please provide details of the lead EAP, including details on the expertise of the lead EAP responsible for the Basic Assessment process. Also attach his/her Curriculum Vitae to this BAR.

Michael Bennett (Consultant, Report Writer):
Michael studied at the University of Cape Town completing a Bachelor of Science degree majoring in both Environmental and Geographic Science and Ocean and Atmospheric Science. Michael joined SES in 2014 and has extensive experience in Environmental Impact Assessments and monitoring and has worked on over 50 environmental projects.

John Sharples (Managing Director of SES cc & Reviewer):
John started Sharples Environmental Services in 1998 and has overseen the company's growth and development since then. John also started the Cape Town office in 2010. John holds a Masters in Environmental Management from the University of the Free State as well as a Bachelors degree in Conservation. He has consulted for over 20 years running a team of highly trained and qualified consultants and prior to this gained 12 years of experience working for environmental organizations.

Sharples Environmental Services cc (SES) has been actively engaged since 1998 in the fields of environmental planning, assessment and management. Clients include private, corporate and public enterprises on a variety of differing land use applications ranging from large-scale residential estates and resorts to golf courses, municipal service infrastructure installations and the planning of major arterials. SES consultants have over 20+ years of combined experience and operate in the Southern, Eastern and Western Cape regions.

EXECUTIVE SUMMARY OF THE BASIC ASSESSMENT REPORT:

Sharples Environmental Services cc (SES) has been appointed to ensure compliance with the regulations the National Environmental Management Act, No. 107 of 1998, as amended and the amended Environmental Impact Assessment Regulations of 7 April 2017 for the Proposed Maintenance Activities of Trunk Road 33/4 between km 4.6 and km 14.4, Meiringspoort, Western Cape Province

The *Western Cape Government: Department of Transport and Public Works* proposes to undertake maintenance activities on Trunk Road 33 Section 4 (km 4.6 to km 14.4). This proposal forms part of a larger maintenance project from De Rust to Prince Albert, on Trunk Roads 33 and 34. The Section of the maintenance route falls within the Protected Swartberg Nature Reserve and the Proclaimed Meiringspoort World Heritage Site and as such the National Department of Environmental Affairs is the competent authority for this proposal.

Majority of the maintenance activities will be limited to the surface of the road, however some repairs to the structures may require movement and equipment to be placed within the watercourse to undertake a maintenance activity. In addition, sediment and rocks have accumulated around the

structures (up and downstream, as well as within) which needs to be removed to ensure the unhindered flow of water through the structures.

The repairs which will be undertaken within the stretch will consist of:

- Edge Break repairs
- Shoulder reconstruction
- New stone pitching side drains
- Bitumen treated Base and asphalt repairs
- Clear watercourse flow path
- Repair concrete spalling and cracking
- Repair damaged concrete deck soffit
- Reinstate previous poor concrete repairs
- Protect Alkali- Silica Reaction (ASR) Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

The following Activities will be triggered in terms of National Environmental Management Act, Act 107 of 1998, as amended and the amended Environmental Impact Assessment Regulations, GN No. R. 324 – 327 (7 April 2017).

Government Notice No. R. 327

19 - The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than cubic metres from a watercourse.

Government Notice No. R. 324

12 - The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.

23 – The expansion of – infrastructure where the physical footprint is expanded by 10 square metres or more. Where such expansion occurs within 32 metres from a watercourse. In a World Heritage Site.

Aquatic Study

According to the Freshwater Habitat Impact Assessment, the road is within a Protected Area called the Swartberg Nature Reserve. The major river systems that meander adjacent to the road are mainly classified as aquatic CBA1. Small patches of aquatic CBA2 is found in between. Some of the drainage lines in close proximity to the major rivers have been identified as aquatic ESA1.

The impact assessment was undertaken using the Risk Matrix which is specified in the Government Notice R509 of 2016 for section 21 (c) and (i) water uses (impeding or diverting flow or changing the bed, banks or characteristics of a watercourse) as defined under the NWA (1998). Determining if a water use licence is required is associated with the risk of impacting on the watercourse. A low risk of impact could be authorised in terms of a General Authorisations (GA). All of the activities associated with the proposed maintenance works have a low impact significance and Low risk rating. However, the result of the risk assessment assumes that all of the recommended mitigation measures will be stringently implemented and monitored appropriately.

The construction will be limited to certain activities within the road reserve and within previously disturbed habitat. Minimal new impacts are anticipated, and most can be completely avoided. It is therefore recommended that the proposed project be authorised under a General Authorisation (GA).

ANTICIPATED IMPACTS

Negative Impacts

Erosion of the site and surroundings

Excessive vegetation clearance and soil disturbances could result in the erosion of the site and surroundings. This impact could also result from cleared or disturbed areas (not undertaken

excessively) being left exposed or vulnerable for extended periods of time. Mitigation measures proposed within this Draft BAR and the corresponding EMPr will however completely mitigate this impact by limiting the disturbance footprint and ensuring that rehabilitation must be undertaken as soon as possible.
Significance of Impact post mitigation: Insignificant

Contamination of the Groot River and/or soil
Small volumes of construction waste will be generated during the construction period of the proposal. It is also likely that effluents containing oil, hydraulic fluid, cement wash, grease, non-biodegradable chemicals and other substances may be released and contaminate the surrounding environment. Mitigation measures proposed within this Draft BAR and the corresponding EMPr will however completely mitigate this impact.
Significance of Impact post mitigation: Insignificant

Stream Flow and Hydrological Modifications
In order to undertake the proposal, it may be necessary to divert water around or through the proposed sites which will temporarily impact on the flow regime of the river system in the vicinity of the site. Mitigation measures proposed within this Draft BAR and the corresponding EMPr will assist to minimise this temporary impact.
Significance of Impact post mitigation: Low

Noise generated by construction activities
Noise pollution will be present during the construction phase due to the nature of construction however it is not foreseen that the impact will be of any significance due to the location of the proposed site and its proximity to surrounding noise receptors. The site has no nearby noise receptors such as residential areas.
Significance of Impact post mitigation: Insignificant

Facilitated invasion by alien flora
Alien invasive plant encroachment into disturbed areas can outcompete indigenous vegetation and reduce terrestrial and aquatic biodiversity. While mitigation measures will help to mitigate this impact to acceptable levels, continually alien clearing from the proponent will ensure the effectiveness of the mitigation measures. The effectiveness of the mitigation measures proposed will also depend on the proponent's commitment to periodic alien vegetation removal from within the site.
Significance of Impact post mitigation: Insignificant

Positive Impacts

Increase in temporary job opportunities
Temporary jobs opportunities will be created during the construction phase of the development. As is normal practice with developments, preference will be given to local, previously disadvantaged individuals in order to satisfy the labour force needed to undertake the proposed expansion. Mitigation interns of this positive impact is to ensure that preference is given to local labourers from a previously disadvantaged background.
Significance of Impact post mitigation: Low

Capital expenditure
It is expected that construction related costs (services and materials) will benefit the local enterprises (where possible). This will only apply to materials and services that can be sourced locally.
Significance of Impact: Low-medium

Road Safety levels are maintained
The maintenance of the road will ensure that the acceptable safety levels are maintained for road users.
Significance of Impact: High

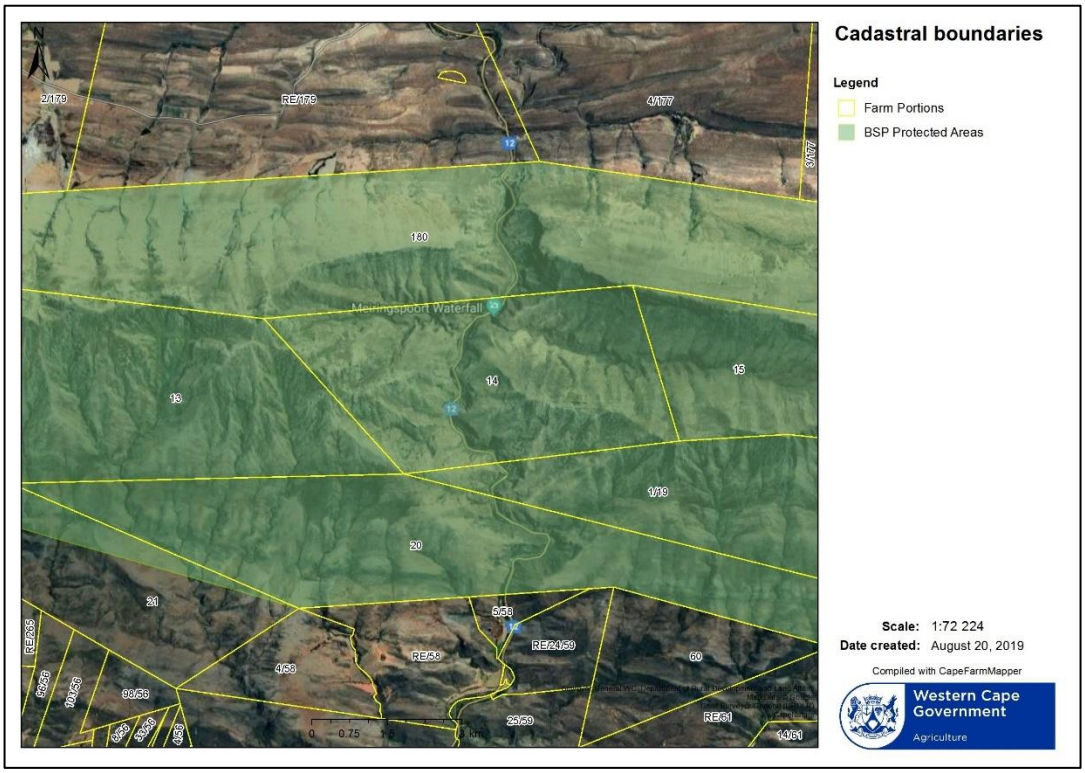
Conclusion

The potential negative environmental impacts have been weighed up against the positive socio-economic factors within the body of this BAR. It has been deduced that the negative environmental impacts can be minimized if not completely mitigated and are outweighed by the positive socio-economic factors associated with this proposed expansion.

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), the EIA Regulations (Government Notice No. R 324 - 327 in the Government Gazette of 7 April 2017) and the collective knowledge of SES, SES is of the opinion that the listed activities pertaining to this Proposed Maintenance Activities of Trunk Road 33/4 between km 4.6 and km 14.4, Meiringspoort, should be granted Environmental Authorisation with the mitigation measure herein attached as conditions to the authorization.

SECTION A: PROJECT INFORMATION

1. ACTIVITY LOCATION

Location of all proposed sites:	The site is located within the SwartBerg Nature reserve, on Trunk Road 33/4 (N12) between km 4.6 and km 14.4, Meiringspoort, Western Cape
Farm / Erf name(s) and number(s) (including Portions thereof) for each proposed site:	The site is Trunk Road 33 Section 4 between km 4.6 and km 14.4, Located on Farm ERIN 180 Prince Albert and Farm ERIN 14, Portion 1 of Farm Betergevonden 19 and Farm De Uitvlugt 20, Oudtshoorn  *Figure 1: Cadastral Map*
Property size(s) for each proposed site:	Farm ERIN 180: 3623.42 ha Farm ERIN 14: 1471.59 ha Portion 1 of Farm Betergevonden 19: 1075.27 ha Farm De Uitvlugt 20: 1870.74 ha In terms of Proclamation No. 267 of 1971, the proclaimed road width is 32m. However, if any section of road has been fenced and the width is greater than the said (minimum) width then this can be taken as the road reserve width. If there are no fences, then the road reserve width will be 16m either side of the existing centre line.

Development footprint size(s) in m²:	Not Applicable – maintenance activities
Surveyor General (SG) 21 digit code for each proposed site:	Farm ERIN 180: C06100000000018000000 Farm ERIN 14: C05400000000001400000 Portion 1 of Farm Betergevonden 19: C05400000000001900001 Farm De Uitvlugt 20: C05400000000002000000

2. PROJECT DESCRIPTION

(a) Is the project a new development? If "NO", explain:

~~YES~~	**NO**

The proposal is for the maintenance of existing road infrastructure

(b) Provide a detailed description of the scope of the proposed development (project).

The *Western Cape Government: Department of Transport and Public Works* proposes to undertake maintenance activities on Trunk Road 33 Section 4 (km 4.6 to km 14.4). This proposal forms part of a larger maintenance project from De Rust to Prince Albert, on Trunk Roads 33 and 34. The Section of the maintenance route falls within the Protected Swartberg Nature Reserve and the Proclaimed Meiringspoort World Heritage Site and as such the National Department of Environmental Affairs is the competent authority for this proposal.

Majority of the maintenance activities will be limited to the surface of the road, however some repairs to the structures may require movement and equipment to be placed within the watercourse to undertake a maintenance activity. In addition, sediment and rocks have accumulated around the structures (up and downstream as well as within) which needs to be removed to ensure the unhindered flow of water through the structures.
From the Inception Report and accompanying Strip Charts for TR33/4, the repairs which will be undertaken within the stretch will consist of:

- Edge Break repairs
- Shoulder reconstruction
- New stone pitching side drains
- Bitumen treated Base and asphalt repairs
- Clear watercourse flow path
- Repair concrete spalling and cracking
- Repair damaged concrete deck soffit
- Reinstate previous poor concrete repairs
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

(c) Please indicate the following periods that are recommended for inclusion in the environmental authorisation:

(i)	the period within which commencement must occur,	Second or Third Quarter of 2020
(ii)	the period for which the environmental authorisation should be granted and the date by which the activity must have been concluded, where the environmental authorisation does not include operational aspects;	**5 years**
(iii)	the period that should be granted for the non-operational aspects of the environmental authorisation; and	**3 year**
(iv)	the period that should be granted for the operational aspects of the environmental authorisation.	**Indefinite**

.

(d) List all the listed activities triggered and being applied for.

EIA Regulations Listing Notices 1 and 3 of 2014 (as amended):

Listed Activity No(s):	Describe the relevant Basic Assessment Activity(ies) in writing as per Listing Notice 1 (GN No. R. 983)	Describe the portion of the development that relates to the applicable listed activity as per the project description.	Identify if the activity is development / development and operational / decommissioning / expansion / expansion and operational.
19	**The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;** **but excluding where such infilling, depositing, dredging, excavation, removal or moving—** (a) will occur behind a development setback; **(b) is for maintenance purposes undertaken in accordance with a maintenance management plan;** [or] (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	Maintenance activities conducted to the bridges may require more the disturbance of more than 10 cubic meters of material. In addition, the clearance of deposited material hindering the flow of water through the culverts and bridges will be required and as such will trigger this activity.	Construction/maintenance
30	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	The Department has not identified or gazetted any threatening processes in terms of NEMBA Section 53 and as such this activity does not apply.	Not Applicable
Listed Activity No(s):	Describe the relevant Basic Assessment Activity(ies) in writing as per Listing Notice 3 (GN No. R. 985)	Describe the portion of the development that relates to the applicable listed activity as per the project description.	Identify if the activity is development / development and operational / decommissioning / expansion / expansion and operational.
12	**The clearance of an area of 300 square metres or more of indigenous vegetation except where such**	Some 4km of road verge/shoulder are proposed to be cleared. Due to the nature of the site,	Development

	clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. i. Western Cape i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within critical biodiversity areas identified in bioregional plans; iii. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas; iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or v. On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.	the clearance of vegetation growing too close to the road edges become a danger to motorists and as such need to be cleared. In addition vegetation hindering the effectiveness of the structures will also be removed.	
23	**The expansion of—** (i) dams or weirs where the dam or weir is expanded by 10 square metres or more; or **(ii) infrastructure or structures where the physical footprint is expanded by 10 square metres or more;** **where such expansion occurs—**	The Trunk Road 33/4 has been classified as a World Heritage Site Between km 4.6 and km 14.4. Although the activities are maintenance in nature, it is likely that the total footprint increase resulting from activities undertaken on side drains, edge breaks and erosion protection	Expansion

	(a) within a watercourse; (b) in front of a development setback adopted in the prescribed manner; or (c) if no development setback has been adopted, **within 32 metres of a watercourse, measured from the edge of a watercourse;** excluding the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour. **i. Western Cape** i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; **(cc) World Heritage Sites;** (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas listed in terms of an international convention; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; or (hh) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined.	stone pitching will likely trigger this activity.	

Waste management activities in terms of the NEM: WA (GN No. 921):

Category A Listed Activity No(s):	Describe the relevant Category A waste management activity in writing as per GN No. 921	Describe the portion of the development that relates to the applicable listed activity as per the project description

	Not Applicable	

Note: If any waste management activities are applicable, the **Listed Waste Management Activities Additional Information Annexure** must be completed and attached to this Basic Assessment Report as **Appendix I.**

Atmospheric emission activities in terms of the NEM: AQA (GN No. 893):

Listed Activity No(s):	Describe the relevant atmospheric emission activity in writing as per GN No. 893	Describe the portion of the development that relates to the applicable listed activity as per the project description.
	Not Applicable	

(e) Provide details of all components (including associated structures and infrastructure) of the proposed development and attach diagrams (*e.g.,* architectural drawings or perspectives, engineering drawings, process flowcharts, *etc*.).

Buildings Provide brief description below:	~~YES~~	**NO**
Not Applicable		
Infrastructure (*e.g.,* roads, power and water supply/ storage) Provide brief description below:	YES	NO
The proposal will entail the maintenance of existing road infrastructure, Trunk Road 33/4. Majority of the maintenance activities will be limited to the surface of the road, however some repairs to the structures may require movement and equipment to be placed within the watercourse to undertake a maintenance activity. In addition, sediment and rocks have accumulated around the structures (up and downstream as well as within) which needs to be removed to ensure the unhindered flow of water through the structures. From the Inception Report and accompanying Strip Charts for TR33/4, the repairs which will be undertaken within the stretch will consist of: • Edge Break repairs • Shoulder reconstruction • New stone pitching side drains • Bitumen treated Base and asphalt repairs • Clear watercourse flow path • Repair concrete spalling and cracking • Repair damaged concrete deck soffit • Reinstate previous poor concrete repairs • Protect ASR Damaged and/or weathered concrete surfaces • Seal deck expansion joints		
Processing activities (*e.g.,* manufacturing, storage, distribution) Provide brief description below:	~~YES~~	**NO**
Storage facilities for raw materials and products (*e.g.,* volume and substances to be stored) Provide brief description below:	~~YES~~	**NO**
Storage and treatment facilities for effluent, wastewater or sewage: Provide brief description below:	~~YES~~	**NO**
Storage and treatment of solid waste Provide brief description below:	~~YES~~	**NO**
Facilities associated with the release of emissions or pollution. Provide brief description below:	~~YES~~	**NO**
Other activities (*e.g.,* water abstraction activities, crop planting activities) – Provide brief description below:	~~YES~~	**NO**

3. PHYSICAL SIZE OF THE PROPOSED DEVELOPMENT

(a) Property size(s): Indicate the size of all the properties (cadastral units) on which the development proposal is to be undertaken	In terms of Proclamation No. 267 of 1971, the proclaimed road width is 32m. However, if any section of road has been fenced and the width is greater than the said (minimum) width then this can be taken as the road reserve width. If there are no fences, then the road reserve width will be 16m either side of the existing centre line.	0 m^2
(b) Size of the facility: Indicate the size of the facility where the development proposal is to be undertaken	Within the proclaimed Trunk Road 33, Section 4, Road Reserve	0 m^2
(c) Development footprint: Indicate the area that will be physically altered as a result of undertaking any development proposal (*i.e.,* the physical size of the development together with all its associated structures and infrastructure)	Not Applicable – Proposal is for the maintenance of existing infrastructure.	0 m^2
(d) Size of the activity: Indicate the physical size (footprint) of the development proposal		0 m^2
(e) For linear development proposals: Indicate the length (L) and width (W) of the development proposal	9.8 km	0 m
	Proclaimed road reserve = 32 meters or up to the fence line, whichever is greater	0 m
(f) For storage facilities: Indicate the volume of the storage facility		0 m^3
(g) For sewage/effluent treatment facilities: Indicate the volume of the facility (Note: the maximum design capacity must be indicated		0 m^3

4. SITE ACCESS

(a) Is there an existing access road?	**YES**	~~NO~~
(b) If no, what is the distance in (m) over which a new access road will be built?		m

(c) Describe the type of access road planned:

Access will be directly from the Trunk Road 33.

5. DESCRIPTION OF THE PROPERTY(IES) ON WHICH THE LISTED ACTIVITY(IES) ARE TO BE UNDERTAKEN AND THE LOCATION OF THE LISTED ACTIVITY(IES) ON THE PROPERTY

5.1 Provide a description of the property on which the listed activity(ies) is/are to be undertaken and the location of the listed activity(ies) on the property, as well as of all alternative properties and locations (duplicate section below as required).

The proposed maintenance route is located within the Trunk Road 33 Road Reserve. Trunk Road 33 Section 4 passes through the Protected Swartberg Nature Reserve and the proclaimed Meiringspoort World Heritage site. The properties are undeveloped due to the conservational zoning of the sites. The Groot River has cut through the Swartberg Mountain range creating the Meiringspoort, as such the Groot River and TR33/4 is surrounded by steep, rocky, mountainous topography.

5.2 Provide a description of the area where the aquatic or ocean-based activity(ies) is/are to be undertaken and the location of the activity(ies) and alternative sites (if applicable).

Meiringspoort is a relatively narrow pass that traverses the Groot River a number of times as it meanders through the Meiringspoort. All activities will be contained within the existing proclaimed road reserve and to the immediate vicinity of the culverts receiving maintenance activities.

No maintenance activities are required to any of the major culverts within the Protected Area (km 4.6 to km 14.4 of Trunk Road 33, Section 4) however maintenance activities are proposed on 15 bridges within the stretch. They are as follows;

1) Meiringspoort Causeway No 4 B2689 at Km 5.80
- Clear watercourse flow path
- Repair concrete spalling and cracking
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

2) Meiringspoort Causeway No 5 B2698A at Km 6.03
- Clear watercourse flow path
- Repair concrete cracking
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

3) Meiringspoort Causeway No 6 B2698B at Km 6.31
- Clear watercourse flow path
- Repair concrete cracking
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

4) Meiringspoort Causeway No 7 B2698C at Km 6.82
- Clear watercourse flow path
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

5) Meiringspoort Causeway No 8 B2690 at Km 7.73
- Clear watercourse flow path
- Repair concrete spalling and cracking
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

6) Meiringspoort Causeway No 9 B2690A at Km 8.49
- Repair concrete spalling and cracking
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

7) Meiringspoort Causeway No 10 B2691 at Km 8.76
- Clear watercourse flow path
- Repair concrete spalling and cracking
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

8) Meiringspoort Causeway No 11 B2691A at Km 9.25
- Repair concrete spalling and cracking
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

9) Meiringspoort Causeway No 12 B2692 at Km 9.54
- Repair concrete spalling and cracking
- Reinstate previous poor concrete repairs
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

10) Meiringspoort Causeway No 13 B2692A at Km 9.85
- Clear watercourse flow path
- Repair concrete spalling and cracking
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

11) Meiringspoort Causeway No 14 B2693 at Km 10.15
- Clear watercourse flow path
- Repair concrete spalling
- Seal deck expansion joints

12) Meiringspoort Causeway No 15 B2694 at Km 11.05
- Clear watercourse flow path
- Repair concrete cracking
- Repair damaged concrete deck soffit
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

13) Meiringspoort Causeway No 16 B2695 at Km 11.43

- Repair concrete spalling
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

14) Meiringspoort Causeway No 17 B2695A at Km 11.70

- Clear watercourse flow path
- Repair concrete spalling
- Reinstate previous poor concrete repairs
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

15) Meiringspoort Causeway No 18 B2696 at Km 14.10

- Repair concrete spalling and cracking
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

	Latitude (S): (deg.; min.; sec)			**Longitude (E):** (deg.; min.; sec)		
Coordinates of the boundary /perimeter of all proposed aquatic or ocean-based activities (sites) (if applicable):	°	'	"	°	'	"
	°	'	"	°	'	"
	°	'	"	°	'	"
	°	'	"	°	'	"

5.3 For a linear development proposal, please provide a description and coordinates of the corridor in which the proposed development will be undertaken (if applicable).

The maintenance activities will be undertaken on Trunk Road 33, Section 4

For linear activities:	**Latitude (S):** (deg.; min.; sec)			**Longitude (E):** (deg.; min.; sec)		
• Starting point of the activity **(SOUTHERN MOST POINT)**	33°	27'	3.67"	22°	33'	32.53"
• Middle point of the activity	33°	25'	0.43"	22°	33'	0.56"
• End point of the activity **(NORTHERN MOST POINT)**	33°	23'	11.15"	22°	33'	35.97"

SECTION B: DESCRIPTION OF THE RECEIVING ENVIRONMENT

Site/Area Description

1. GRADIENT OF THE SITE

Indicate the general gradient of the sites (highlight the appropriate box).

Flat	**Flatter than 1:10**	**1:10 – 1:4**	~~Steeper than 1:4~~

2. LOCATION IN LANDSCAPE

(a) Indicate the landform(s) that best describes the site (highlight the appropriate box(es).

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

(b) Provide a description of the location in the landscape.

TR33/4 is located within a narrow valley, the Meiringspoort. The TR33/4 follows the relatively flat path eroded by the Groot River and traverses the river several times through this stretch.

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

(a) Is the site(s) located on or near any of the following (highlight the appropriate boxes)?

Shallow water table (less than 1.5m deep)	**YES**	~~NO~~
Seasonally wet soils (often close to water bodies)	**YES**	~~NO~~
Unstable rocky slopes or steep slopes with loose soil	**YES**	~~NO~~
Dispersive soils (soils that dissolve in water)	~~YES~~	**NO**
Soils with high clay content	~~YES~~	**NO**
Any other unstable soil or geological feature	~~YES~~	**NO**
An area sensitive to erosion	**YES**	~~NO~~
An area adjacent to or above an aquifer.	~~YES~~	**NO**
An area within 100m of a source of surface water	**YES**	~~NO~~
An area within 500m of a wetland	**YES**	~~NO~~
An area within the 1:50 year flood zone	**YES**	~~NO~~
A water source subject to tidal influence	~~YES~~	**NO**

(b) Indicate the type of geological formation underlying the site.

~~Granite~~	**Shale**	**Sandstone**	**Quartzite**	~~Dolomite~~	~~Dolerite~~	~~Other (describe)~~
Provide a description.						
Land Type: Ic60 Soil: Very rocky with little or no soil Geology: Quartzitic sandstone and subordinate shale of the Table Mountain Group, Cape Supergroup						

4. SURFACE WATER

(a) Indicate the surface water present on and or adjacent to the site and alternative sites (highlight the appropriate boxes)?

Perennial River	**YES**	~~NO~~
Non-Perennial River	~~YES~~	**NO**
Permanent Wetland	~~YES~~	**NO**
Seasonal Wetland	~~YES~~	**NO**
Artificial Wetland	~~YES~~	**NO**
Estuarine / Lagoon	~~YES~~	**NO**

(b) Provide a description.

A fresh Water Habitat Assessment Report was compiled by Debbie Fordham (attached as Appendix G). According to the report, the maintenance route is located within the Southern Folded Mountains Ecoregion and the Breede-Gouritz water management area. The road stretches over three quaternary catchments, starting in J33C on the Prince Albert side, continuing through J33D and into J33E at De Rust. The Mean Annual Precipitation increases in the same direction, starting at approximately 300 mm closest to Prince Albert, increasing in the mountainous area of the Swartberg and peaking at approximately 450 mm in the area of De Rust. The Meiringspoort portion of the road is closed annually for a short period of time due to flash floods that overtop the culverts and leave the road surface covered in debris. Flooding is an integrate part of the natural dynamic of these Karoo rivers.

The middle portion of the road is within a Protected Area called the Swartberg Nature Reserve. The major river systems that meander adjacent to the road are mainly classified as aquatic CBA1. Small patches of aquatic CBA2 is found in between. Some of the drainage lines in close proximity to the major rivers have been identified as aquatic ESA1.

The impact assessment was undertaken using the Risk Matrix which is specified in the Government Notice R509 of 2016 for section 21 (c) and (i) water uses (impeding or diverting flow or changing the bed, banks or characteristics of a watercourse) as defined under the NWA (1998). Determining if a water use licence is required is associated with the risk of impacting on the watercourse. A low risk of impact could be authorised in terms of a General Authorisations (GA). All of the activities associated with the proposed maintenance works have a low impact significance and Low risk rating. However, the result of the risk assessment assumes that all of the recommended mitigation measures will be stringently implemented and monitored appropriately.

The construction will be limited to certain activities within the road reserve and within previously disturbed habitat. Minimal new impacts are anticipated, and most can be completely avoided. It is therefore recommended that the proposed project be authorised under a General Authorisation (GA).

5. THE SEAFRONT / SEA

(a) Is the site(s) located within any of the following areas? (highlight the appropriate boxes).
If the site or alternative site is closer than 100m to such an area, please provide the approximate distance in (m).

AREA	**YES**	**NO**
An area within 100m of the high water mark of the sea	~~YES~~	**NO**
An area within 100m of the high water mark of an estuary/lagoon	~~YES~~	**NO**
An area within the littoral active zone	~~YES~~	**NO**
An area in the coastal public property	~~YES~~	**NO**
Major anthropogenic structures	~~YES~~	**NO**
An area within a Coastal Protection Zone	~~YES~~	**NO**
An area seaward of the coastal management line	~~YES~~	**NO**
An area within the high risk zone (20 years)	~~YES~~	**NO**

An area within the medium risk zone (50 years)	~~YES~~	**NO**
An area within the low risk zone (100 years)	~~YES~~	**NO**
An area below the 5m contour	~~YES~~	**NO**
An area within 1km from the high water mark of the sea	~~YES~~	**NO**
A rocky beach	~~YES~~	**NO**
A sandy beach	~~YES~~	**NO**

(b) If any of the answers to the above is "YES" or "UNSURE", specialist input may be requested by the Department. (The 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

6. BIODIVERSITY

(a) Highlight the applicable biodiversity planning categories of all areas on preferred and alternative sites and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category. Also describe the prevailing level of protection of the Critical Biodiversity Area ("CBA") and Ecological Support Area ("ESA") (how many hectares / what percentages are formally protected).

Systematic Biodiversity Planning Category	~~CBA~~	~~ESA~~	~~Other Natural Area ("ONA")~~	~~No Natural Area Remaining ("NNR")~~	**Protected Area and World Heritage Site**
If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan and the conservation management objectives	The Western Cape Biodiversity Spatial Plan Handbook, 2017, accompanying GIS shape files only provide reasoning for the Protected Areas classification for the section of the Proposed Maintenance route which falls within the Oudtshoorn Municipality. The data attached to the overlay provides a summary of the overlay and reads as follows; Ecological processes (447.09), River Type (36.97), SA Vegetation Type (6727.97), Threatened Plant (1), Threatened SA Vegetation Type (14.83), Threatened Vertebrate (6745.8), Water resource protection (6688.89), Wetland Type (33.5). The information the lists 18 Features, and are as follows; Feature 1: Amphibian wetland guild Feature 2: Cape Mountain Zebra Feature 3: FEPA River Corridor Feature 4: Kango Conglomerate Fynbos (LT) Feature 5: Kango Limestone Renosterveld (VU) Feature 6: South Swartberg Sandstone Fynbos (LT) Feature 7: Southern Folded Mountains Permanent Mountain River Feature 8: Southern Folded Mountains Permanent Upper Foothill River Feature 9: Swartberg Altimontane Sandstone Fynbos (LT) Feature 10: Threatened Bird Feature 11: Threatened Plant Feature 12: Upland-lowland interface Feature 13: Water source protection- Gouritz Feature 14: Watercourse protection- Southern Folded Mountains Feature 15: Western Fynbos Renosterveld Conglomerate Fynbos Seep Wetland Feature 16: Western Fynbos Renosterveld Limestone Renosterveld Seep Wetland Feature 17: Western Fynbos Renosterveld Sandstone Fynbos Floodplain Wetland Feature 18: Western Fynbos Renosterveld Sandstone Fynbos Seep Wetland				
Describe the site's CBA/ESA quantitative values (hectares/percentage) in relation to the prevailing level of protection of CBA and ESA (how many hectares / what percentages are formally protected locally and in the province)	Approximately 1 843 029 ha (14%) of Protected Areas in the Western Cape, no expected loss of resource (Protected Areas) as the proposal is for the maintenance of existing infrastructure within the proclaimed road reserve.				

(b) Highlight and describe the habitat condition on site.

Habitat Condition	Percentage of habitat condition class (adding up to 100%) and area of each in square metre (m^2)		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	%	m^2	
Near Natural (includes areas with low to moderate level of alien invasive plants)	%	m^2	
Degraded (includes areas heavily invaded by alien plants)	%	m^2	
Transformed (includes cultivation, dams, urban, plantation, roads, *etc.*)	100%	m^2	The site consists of a road which traverses a river (Groot River) many times, as such the site was previously disturbed for the construction of the road. The road shoulders have some vegetation which has re-established itself and in places (culverts and bridges) the river flows through culverts and bridges beneath the trunk road.

(c) Complete the table to indicate:
(i) the type of vegetation present on the site, including its ecosystem status; and
(ii) whether an aquatic ecosystem is present on/or adjacent to the site.

Terrestrial Ecosystems		Description of Ecosystem, Vegetation Type, Original Extent, Threshold (ha, %), Ecosystem Status
Ecosystem threat status as per the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	~~Critically~~	
	~~Endangered~~	
	~~Vulnerable~~	
	Least Threatened	Two Vegetation types are found along the proposed maintenance route, Central Inland Shale Band Vegetation and South Swartberg Sandstone Fynbos, **both** have a conservational status of **Least Threatened** **FFb 3 Central Inland Shale Band Vegetation** **Distribution:** Western Cape Province: Shale bands of the Klein and Groot Swartberge, Touwsberg, Sandberg, Rooiberg, Gamkaberg and Kammanassie. Altitude 500–1 800 m. **Vegetation & Landscape Features:** A narrow 80–200 m (wider in places), linear, smooth and flat feature of high-altitude slopes or mountain ridges. Vegetation diverse, from karoo shrublands at lower altitudes, to renosterveld and fynbos shrublands. Fynbos includes all structural types including graminoid fynbos, and usually waboomveld and asteraceous fynbos at lowest altitudes. **Geology & Soils:** Clays derived from shale of the Cedarberg Formation. Land types mainly Ic and Ib. **Climate:** MAP 140–980 mm (mean: 460 mm), relatively even with a bimodal peak in March and November and a low in December–January. Mean daily maximum and minimum temperatures 28.2°C and 1.7°C for January and July, respectively. Frost incidence 10–40 days per year. See also

climate diagram for FFb 3 Central Inland Shale Band Vegetation (Figure 4.77).

Important Taxa: ([A]Altimontane shale bands) Small Tree: *Protea nitida*. Tall Shrubs: *Cliffortia burchellii*, *Leucadendron rubrum*, *Protea eximia*, *P. punctata*, *P. repens*. Low Shrubs: *Anthospermum galioides* subsp. *galioides*, *Aspalathus juniperina* subsp. *monticola*, *Cliffortia tuberculata*, *Leucadendron album*, *L. salignum*, *L. spissifolium* subsp. *fragrans*, *Leucospermum wittebergense*, *Metalasia pallida*, *M. rhoderoides*, *Protea lorifolia*, *Stoebe plumosa*. Herbs: *Corymbium glabrum*, *Cotula andreae*[A]. Geophytic Herb: *Aristea pusilla* subsp. *pusilla*. Graminoids: *Willdenowia teres* (d), *Hypodiscus aristatus*, *H. synchroolepis*, *Ischyrolepis nana*, *Merxmuellera stricta*, *Tetraria ustulata*.

Endemic Taxa: ([A]Altimontane shale bands) Low Shrub: *Acmadenia baileyensis*. Succulent Shrub: *Lampranthus swartbergensis*[A].

Conservation: Least threatened. The target of 27% has been achieved since 68% of the unit already protected in statutory reserves such as Groot Swartberg, Kammanassie, Towerkop, Swartberg East, Gamkaberg and Rooiberg. Additionally almost 25% is protected in mountain catchment areas such as Kammanassie, Klein Swartberg, Rooiberg, Swartberg-oos and Groot Swartberg. Only about 1% transformed so far. Woody aliens include *Pinus pinaster*, *P. radiata*, *P. halepensis* and *Hakea sericea*. Erosion very low and low.

FFs 24 South Swartberg Sandstone Fynbos

Distribution: Western and Eastern Cape Provinces: Southern slopes of the Anysberg, Klein and Groot Swartberg to Slypsteenberg and Resbosrand in the east. Also includes the southern slope of the Touwsberg. Altitude 550 m to the lower boundary of the FFs 31 Swartberg Altimontane Sandstone Fynbos at about 1 800 m.

Vegetation & Landscape Features: Steep, very steep, and precipitous south-facing slopes, deeply dissected in parts, of rugged mountain ranges. Vegetation is a medium tall shrubland and heathland. Proteoid and restioid fynbos dominate, with ericaceous fynbos at higher altitudes and scrub fynbos at lower altitudes.

Geology & Soils: Acidic lithosol soils derived from Ordovician sandstones of the Table Mountain Group (Cape Supergroup). Land types mainly Ib and Ic.

Climate: MAP 170–850 mm (mean: 475 mm), peaking slightly in March, but otherwise even with a low from December to February. Mean daily maximum and minimum temperatures 28.5°C and 2.0°C for January and July, respectively. Frost incidence 10–30 days per year. See also climate diagram for FFs 24 South Swartberg Sandstone Fynbos (Figure 4.21).

Important Taxa: Small Tree: *Protea nitida*. Tall Shrubs: *Phylica paniculata* (d), *Protea eximia* (d), *P. punctata* (d), *P. repens* (d), *Euryops tenuissimus* subsp. *tenuissimus*, *E. virgineus*, *Leucadendron eucalyptifolium*, *L. rubrum*, *Metalasia densa*. Low Shrubs: *Erica andreaei* (d), *E. fimbriata* (d), *E. petraea* (d), *Leucadendron album* (d), *L. comosum* subsp.

		comosum (d), *Agathosma capensis*, *A. mundtii*, *Anthospermum aethiopicum*, *Aspalathus congesta*, *A. pachyloba* subsp. *villicaulis*, *A. patens*, *Brunia nodiflora*, *Cliffortia robusta*, *C. setifolia*, *C. tuberculata*, *Cyclopia burtonii*, *Disparago ericoides*, *Erica discolor* variant '*speciosa*', *E. esterhuyseniae*, *E. hispidula*, *E. melanthera*, *E. nervata*, *E. strigilifolia*, *E. tenuis*, *E. uberiflora*, *E. umbelliflora*, *E. zwartbergensis*, *Euryops bolusii*, *E. rehmannii*, *Heliophila rimicola*, *Leucadendron barkerae*, *L. dregei*, *L. salignum*, *L. spissifolium* subsp. *fragrans*, *Leucospermum cuneiforme*, *L. wittebergense*, *Metalasia strictifolia*, *Otholobium swartbergense*, *Paranomus centaureoides*, *Passerina obtusifolia*, *Pelargonium ovale*, *Protea intonsa*, *P. lorifolia*, *P. montana*, *P. venusta*, *Stoebe cinerea*, *Syncarpha paniculata*, *Ursinia scariosa* subsp. *scariosa*. Succulent Shrub: *Crassula obtusa*. Geophytic Herbs: *Cheilanthes eckloniana*, *Geissorhiza delicatula*, *Moraea monticola*. Graminoids: *Cannomois scirpoides* (d), *Cymbopogon pospischilii* (d), *Hypodiscus striatus* (d), *Ischyrolepis distracta* (d), *Merxmuellera stricta* (d), *Restio triticeus* (d), *Tetraria cuspidata* (d), *T. ustulata* (d), *Willdenowia teres* (d), *Brachiaria serrata*, *Hypodiscus albo-aristatus*, *H. synchroolepis*, *Rhodocoma fruticosa*, *Tetraria involucrata*, *Themeda triandra*. **Endemic Taxa:** ([W]Wetlands) Tall Shrubs: *Cliffortia conifera*, *Hymenolepis cynopus*, *Liparia racemosa*, *Protea aristata*, *Stirtonanthus chrysanthus*, *S. taylorianus*. Low Shrubs: *Adenandra dahlgrenii*, *Agathosma purpurea*, *Anderbergia epaleata*, *Anisothrix integra*, *Aspalathus ramosissima*, *Cliffortia aculeata*, *C. cervicornu*, *C. crassinervis*, *C. montana*, *C. verrucosa*, *Erica astroites*[W], *E. atromontana*, *E. chionodes*[W], *E. jananthus*, *E. kirstenii*, *E. phaeocarpa*, *E. umbratica*, *E. viridiflora* subsp. *redacta*, *Helichrysum saxicola*, *Leucospermum secundifolium*, *Liparia confusa*, *Muraltia carnosa*, *M. elsieae*, *Nivenia parviflora*, *N. stenosiphon*, *Otholobium rubicundum*, *Phylica costata*, *P. nigromontana*, *P. sericea*, *P. stokoei*, *Phymaspermum appressum*, *Selago adenodes*, *S. exigua*, *S. oppositifolia*. Succulent Shrubs: *Lampranthus affinis*, *Sceletium strictum*. Herbs: *Berkheya francisci*, *Heliophila ephemera*, *Lobelia eurypoda* var. *fissurarum*, *Osteospermum asperulum*, *Sutera tenuicaulis*. Geophytic Herbs: *Geissorhiza nigromontana*[W], *G. uliginosa*[W], *Gladiolus aquamontanus*, *G. nigromontanus*, *Moraea exiliflora*. Succulent Herb: *Crassula peculiaris*. Graminoids: *Ficinia petrophila*, *Restio rarus*. **Conservation:** Least threatened. Target 27%. Some 47% statutorily conserved in the Groot Swartberg, Swartberg East and Anysberg Nature Reserves, with an additional 35% conserved in mountain catchment areas (Klein Swartberg, Groot Swartberg, Swartberg-oos). Only very small portion has been transformed. Alien woody species worth mentioning are *Pinus pinaster* and *P. radiata*. Erosion very low. **Remarks:** The Klein Swartberg portion deserves to be recognised as a centre of endemism in its own right and should perhaps have been separated as a unit herein. However, at this stage it is not clear how much of this is an effect of altitude, since many near-endemics to this portion have been found at higher peaks to the east, most notably Blesberg (including FFs 31 Swartberg Altimontane Sandstone Fynbos). The logical boundary (based on Proteaceae) is the Gamka River gap. In the west there appear to be few species confined to Anysberg, with one confined to Touwsberg. In the east Antoniesberg shares marginally more species with FFs 28 Kouga Grassy

		Sandstone Fynbos than with Swartberg and has been linked with the former, although the eastern Groot Swartberg also tends to share many species with the Kouga Mountains.

Aquatic Ecosystems						
Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
YES	~~NO~~	~~UNSURE~~	~~YES~~	**NO**	~~YES~~	**NO**

(d) Provide a description of the vegetation type and/or aquatic ecosystem present on the site, including any important biodiversity features/information identified on the site (e.g. threatened species and special habitats). Clearly describe the biodiversity targets and management objectives in this regard.

Vegetation

Two Vegetation types are found along the proposed maintenance route, Central Inland Shale Band Vegetation and South Swartberg Sandstone Fynbos, **both** have a conservational status of **Least Threatened.**

Central Inland Shale Band Vegetation

This vegetation unit is found in the Western Cape Province in shales bands of the Klein and Groot Swartberge, Touwsberg, Sandberg, Rooiberg, Gamkaberg and Kammanassie. This vegetation unit is characterised by a narrow 80–200 m (wider in places), linear, smooth and flat feature of high-altitude slopes or mountain ridges. Vegetation diverse, from karoo shrublands at lower altitudes, to renosterveld and fynbos shrublands. Fynbos includes all structural types including graminoid fynbos, and usually waboomveld and asteraceous fynbos at lowest altitudes.

As mentioned above this vegetation unit has a conservational status of Least Threatened. The target of 27% has been achieved since 68% of the unit already protected in statutory reserves such as Groot Swartberg, Kammanassie, Towerkop, Swartberg East, Gamkaberg and Rooiberg. Additionally almost 25% is protected in mountain catchment areas such as Kammanassie, Klein Swartberg, Rooiberg, Swartberg-oos and Groot Swartberg. Only about 1% transformed so far.

South Swartberg Sandstone Fynbos

This vegetation unit is found in the Western and Eastern Cape Provinces on the southern slopes of the Anysberg, Klein and Groot Swartberg to Slypsteenberg and Resbosrand in the east. Also includes the southern slope of the Touwsberg.

This vegetation unit is characterised by steep, very steep, and precipitous south-facing slopes, deeply dissected in parts, of rugged mountain ranges. Vegetation is a medium tall shrubland and heathland. Proteoid and restioid fynbos dominate, with ericaceous fynbos at higher altitudes and scrub fynbos at lower altitudes.

This vegetation unit has a conservational status of Least Threatened. With a conservational target of 27%, some 47% statutorily conserved in the Groot Swartberg, Swartberg East and Anysberg Nature Reserves, with an additional 35% conserved in mountain catchment areas (Klein Swartberg, Groot Swartberg, Swartberg-oos). Only very small portion has been transformed.

Aquatic

A fresh Water Habitat Assessment Report was compiled by Debbie Fordham (attached as Appendix G). According to the report, the maintenance route is located within the Southern Folded Mountains Ecoregion and the Breede-Gouritz water management area. The road stretches over three quaternary catchments, starting in J33C on the Prince Albert side, continuing through J33D and into J33E at De Rust. The Mean Annual Precipitation increases in the same direction, starting at approximately 300 mm closest to Prince Albert, increasing in the mountainous area of the Swartberg and peaking at approximately 450 mm in the area of De Rust. The Meiringspoort portion of the road is closed annually for a short period of time due to flash floods that overtop the culverts and leave the road surface covered in debris. Flooding is an integrate part of the natural dynamic of these Karoo rivers.
The river flowing adjacent to the entire section of road was classified by the NFEPA project as Fish FSA rivers. The northern part of the trunk road is next to the Groot River that becomes the Meirings River just south of Klaarstroom. The wetland areas in the vicinity of the study area are all non FEPA wetlands.

The middle portion of the road is within a Protected Area called the Swartberg Nature Reserve. The major river systems that meander adjacent to the road are mainly classified as aquatic CBA1. Small patches of aquatic CBA2 is found in between. Some of the drainage lines in close proximity to the major rivers have been identified as aquatic ESA1.

7. LAND USE OF THE SITE

Note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed development.

~~Untransformed area~~	~~Low density residential~~	~~Medium density residential~~	~~High density residential~~	~~Informal residential~~
~~Retail~~	~~Commercial & warehousing~~	~~Light industrial~~	~~Medium industrial~~	~~Heavy industrial~~
~~Power station~~	~~Office/consulting room~~	~~Military or police base/station/compound~~	~~Casino/entertainment complex~~	**Tourism** ~~and Hospitality facility~~
~~Open cast mine~~	~~Underground mine~~	~~Spoil heap or slimes dam~~	~~Quarry, sand or borrow pit~~	~~Dam or reservoir~~
~~Hospital/medical centre~~	~~School~~	~~Tertiary education facility~~	~~Church~~	~~Old age home~~
~~Sewage treatment plant~~	~~Train station or shunting yard~~	~~Railway line~~	~~Major road (4 lanes and more)~~	~~Airport~~
~~Harbour~~	~~Sport facilities~~	~~Golf course~~	~~Polo fields~~	~~Filling station~~
~~Landfill or waste treatment site~~	~~Plantation~~	~~Agriculture~~	**River, stream or wetland**	**Nature conservation area**
~~Mountain, koppie or ridge~~	~~Museum~~	~~Historical building~~	~~Graveyard~~	~~Archaeological site~~
Other land uses (describe):	Trunk Road 33			

(a) Provide a description.

The stretch of road for this proposal is a section of Trunk Road 33, Section 4 (N12), it has a proclaimed road reserve and extends through the Meiringspoort World Heritage Site.

8. LAND USE CHARACTER OF THE SURROUNDING AREA

(a) Highlight the current land uses and/or prominent features that occur within +/- 500m radius of the site and neighbouring properties if these are located beyond 500m of the site.

Untransformed area	~~Low density residential~~	~~Medium density residential~~	~~High density residential~~	~~Informal residential~~
~~Retail~~	~~Commercial & warehousing~~	~~Light industrial~~	~~Medium industrial~~	~~Heavy industrial~~
~~Power station~~	~~Office/consulting room~~	~~Military or police base/station/compound~~	~~Casino/entertainment complex~~	~~Tourism and Hospitality facility~~
~~Open cast mine~~	~~Underground mine~~	~~Spoil heap or slimes dam~~	~~Quarry, sand or borrow pit~~	~~Dam or reservoir~~
~~Hospital/medical centre~~	~~School~~	~~Tertiary education facility~~	~~Church~~	~~Old age home~~
~~Sewage treatment plant~~	~~Train station or shunting yard~~	~~Railway line~~	~~Major road (4 lanes and more)~~	~~Airport~~
~~Harbour~~	~~Sport facilities~~	~~Golf course~~	~~Polo fields~~	~~Filling station~~
~~Landfill or waste treatment site~~	~~Plantation~~	~~Agriculture~~	**River, stream or wetland**	**Nature conservation area**
Mountain, koppie or ridge	~~Museum~~	~~Historical building~~	~~Graveyard~~	~~Archaeological site~~
Other land uses (describe):				

(b) Provide a description, including the distance and direction to the nearest residential area, industrial area, agri-industrial area.

The section of TR33/4 which forms part of this Basic Assessment Report cuts through the Swartberg Mountain range, know as Meiringspoort. The pass has been classified as a World Heritage Site and falls within the Swartberg Nature Reserve. Apart from the ablution and tourism (parking areas, waterfall, picnic spots) facilities along the Trunk Road the surrounding landuse is that of conservation and is untransformed from its natural state.

9. SOCIO-ECONOMIC ASPECTS

a) Describe the existing social and economic characteristics of the community in the vicinity of the proposed site, in order to provide baseline information (for example, population characteristics/demographics, level of education, the level of employment and unemployment in the area, available work force, seasonal migration patterns, major economic activities in the local municipality, gender aspects that might be of relevance to this project, *etc.*).

The proposed maintenance route is split into two local municipalities, Oudtshoorn and Prince Albert. The following statistics were extracted from Stats SA (2011).

Table 1: Municipal demographics (Stats SA, 2011)

Category	Oudtshoorn	Prince Albert
Total population	95,933	13,136
Young (0-14)	28,7%	29,6%
Working Age (15-64)	64,2%	64%
Elderly (65+)	7,2%	6,4%
Dependency ratio	55,8	56,2
Sex ratio	91,8	97,8
Growth rate (2001-2011)	1,25%	2,23%
Population density	27 persons/km^2	2 persons/km^2
Unemployment rate	25,3%	19,4%
Youth unemployment rate	35,9%	25,4%
No schooling aged 20+	4,5%	9,1%
Higher education aged 20+	6,7%	8,5%
Matric aged 20+	25,1%	16,9%
Number of households	21,910	3,578
Number of Agricultural households	2,235	590
Average household size	4,2	3,6
Female headed households	36,2%	44,9%
Formal dwellings	88,5%	93,9%
Housing owned/paying off	61,7%	56,8%
Flush toilet connected to sewerage	77,2%	63,6%
Weekly refuse removal	78%	73,4%
Piped water inside dwelling	74,5%	69,7%
Electricity for lighting	85,3%	86,4%

10. HISTORICAL AND CULTURAL ASPECTS

(a) Please be advised that if section 38 of the NHRA is applicable to your proposed development, you are requested to furnish this Department with written comment from Heritage Western Cape as part of your public participation process. Heritage Western Cape must be given an opportunity, together with the rest of the I&APs, to comment on any Pre-application BAR, a Draft BAR, and Revised BAR.

Section 38 of the NHRA states the following:
"*38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-*

(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of a site-
(i) exceeding 5 000m^2 in extent; or
(ii) involving three or more existing erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
(d) the re-zoning of a site exceeding 10 000m^2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,

must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development".

(b) The impact on any national estate referred to in section 3(2), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii), of the NHRA, must also be investigated, assessed and evaluated. Section 3(2) states the following:
"*3(2) Without limiting the generality of subsection (1), the national estate may include—*
(a) places, buildings, structures and equipment of cultural significance;
(b) places to which oral traditions are attached or which are associated with living heritage;
(c) historical settlements and townscapes;
(d) landscapes and natural features of cultural significance;
(e) geological sites of scientific or cultural importance;
(f) archaeological and palaeontological sites;
(g) graves and burial grounds, including—
(i) ancestral graves;
(ii) royal graves and graves of traditional leaders;
(iii) graves of victims of conflict;
(iv) graves of individuals designated by the Minister by notice in the Gazette;
(v) historical graves and cemeteries; and
(vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
(h) sites of significance relating to the history of slavery in South Africa;
(i) movable objects, including—
(i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens;
(ii) objects to which oral traditions are attached or which are associated with living heritage;
(iii) ethnographic art and objects;
(iv) military objects;
(v) objects of decorative or fine art;
(vi) objects of scientific or technological interest; and
(vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996)".

Is Section 38 of the NHRA applicable to the proposed development?	~~YES~~	~~NO~~	**UNCERTAIN**
If YES or UNCERTAIN, explain:	It was uncertain whether Section 38 (a) would apply to the proposal, however due to the World Heritage Site Status of the site a HWC NID was submitted to Heritage Western Cape. A Final Response to the submitted NID was issued (dated 7 August 2019, Case No. 19072406SB0726E) and Heritage Western Cape indicates that "since there is no reason to believe that the proposed maintenance and upgrades of Trunk Roads 33/4 and 34/2, between De Rust and Prince Albert, will impact on heritage resources, no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required."		
Will the development impact on any national estate referred to in Section 3(2) of the NHRA?	~~YES~~	**NO**	~~UNCERTAIN~~
If YES or UNCERTAIN, explain:			
Will any building or structure older than 60 years be affected in any way?	~~YES~~	**NO**	~~UNCERTAIN~~
If YES or UNCERTAIN, explain:			
Are there any signs of culturally or historically significant elements, as defined in section 2 of the NHRA, including Archaeological or paleontological sites, on or close (within 20m) to the site?	~~YES~~	**NO**	~~UNCERTAIN~~
If YES or UNCERTAIN, explain:			

11. APPLICABLE LEGISLATION, POLICIES, CIRCULARS AND/OR GUIDELINES

(a) Identify all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to the development proposal and associated listed activity(ies) being applied for and that have been considered in the preparation of the BAR.

LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	**ADMINISTERING AUTHORITY and how it is relevant to this application**	**TYPE Permit/license/authorisation/comment / relevant consideration** (*e.g.* rezoning or consent use, building plan approval, Water Use License and/or General Authorisation, License in terms of the SAHRA and CARA, coastal discharge permit, *etc.*)	**DATE** (if already obtained)**:**
DEA: Integrated Environmental Management Guideline: Guideline on need and desirability, 2017	Department of Environmental Affairs and Development Planning	Environmental Authorisation	TBC
DEA&DP EIA Guideline and Information Document Series: March 2013 - Generic terms of reference for EAPs and Project schedules			
DEA&DP EIA Guideline and Information Document Series: March 2013 - Guideline on public participation			
DEA&DP EIA Guideline and Information Document Series: March 2013 - Guideline on alternatives			
DEA&DP EIA Guideline and Information Document Series: March 2013 - Guideline on exemption applications			
Guideline for the review of specialist input in the EIA process: June 2005			
Guideline for Environmental Management Plans: June 2005			
Integrated Environmental Management Information Series 5: Impact Significance (2002)			
Integrated Environmental Management Information Series 7: Cumulative Effects Assessment (2004)			
The National Water Act, No. 36 of 1998	Breede-Gouritz Catchment Management Agency	General Authorisation	TBC
The National Heritage Resources Act, Act 25 of 1999	Heritage Western Cape	Comment/RoD already obtained, no further requirements/studies required	7 August 2019
Greater Oudtshoorn Spatial Development Framework, June 2015	Guideline	Consideration	-
Oudtshoorn Municipality Integrated Development Plan, 4th Generation 2017 - 2022	Guideline	Consideration	-
Prince Albert Local Municipality Spatial development Framework Report, February 2014	Guideline	Consideration	-
Prince Albert Municipality – 2019/20 Integrated Development Plan	Guideline	Consideration	-

(b) Describe how the proposed development **complies with and responds** to the legislation and policy context, plans, guidelines, spatial tools, municipal development planning frameworks and instruments.

LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	**Describe how the proposed development complies with and responds:**
National Environmental Management Act, Act 107 of 1998, as amended	NEMA is the guiding legislation that has been considered during the Environmental Impact Assessment process and the compilation of this Basic Assessment Report (BAR). Specifically, the principles of environmental management (section 2) and duty of care (section 28) have been integrated into this BAR and the Environmental Management Plan attached to this report.
Amended Environmental Impact Assessment Regulations, GN No. R. 324 – 327 (7 April 2017)	Guiding legislation consulted to determine *inter alia* the requirements regarding the contents of basic assessment reports and environmental management programmes and the public participation process that should be followed. All requirements stipulated in the regulations have been adhered to
National Water Act, Act 36 of 1998	Legislation consulted during the impact assessment process to determine the legal requirements relating to the management of water resources, applicable to the proposed development.
National Environmental Management: Biodiversity Act (NEMBA), Act 10 of 2004	Legislation considered by the EAP during the desktop assessment of the ecosystem status on site.
National Heritage Resources Act, Act 25 of 1999	Legislation consulted during the impact assessment process, to determine the legal requirements relating to the management of heritage resources,
Guideline on Public Participation (2013)	Guideline considered in the undertaking of the public participation for the proposed development. All relevant provisions contained in the guideline were adhered to in the basic assessment process as appropriate, except where an exemption/ deviation has been granted by the Competent Authority.
Guideline on Alternatives (2013)	Guideline considered when identifying and evaluating possible alternatives for the proposed development. Alternatives that were considered in the impact assessment process are reported on in this Basic Assessment Report (see section E)
Guideline on Need and Desirability (2013)	Guideline considered during the assessment of the Need and Desirability of the proposed development project.
Guideline on Environmental Management Plans (2005)	Guideline considered in the compilation of the EMP attached to this Basic Assessment Report.
Guideline for the Review of Specialist Input into the EIA Process (2005)	Guideline considered during the review and integration of specialist input into this Basic Assessment Report
External Guideline: Generic Water Use Authorization Application Process (2007)	Guideline considered during the process of applying for the required water use authorization
Integrated Environmental Management Information Series 5: Impact Significance (2002)	Guideline considering during the identification and evaluation of potential impacts associated with the proposed development, and the reporting thereof in this Basic Assessment Report
Integrated Environmental Management Information Series 7: Cumulative Effects Assessment (2004)	Guideline considering during the assessment of the cumulative effect of the identified impacts.

Note: Copies of any comments, permit(s) or licences received from any other Organ of State must be attached to this report as **Appendix E**.

Section C: PUBLIC PARTICIPATION

1. Please highlight the appropriate box to indicate whether the specific requirement was undertaken or whether there was an exemption applied for.

In terms of Regulation 41 of the EIA Regulations, 2014 (as amended) -			
(a) fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of -			
(i) the site where the activity to which the application relates, is or is to be undertaken; and	**YES**	~~EXEMPTION~~	
(ii) any alternative site	~~YES~~	~~EXEMPTION~~	**N/A**
(b) giving written notice, in any manner provided for in Section 47D of the NEMA, to –			
(i) the occupiers of the site and, if the applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	**YES**	~~EXEMPTION~~	~~N/A~~
(ii) owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	**YES**	~~EXEMPTION~~	
(iii) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;	**YES**	~~EXEMPTION~~	
(iv) the municipality (Local and District Municipality) which has jurisdiction in the area;	**YES**	~~EXEMPTION~~	
(v) any organ of state having jurisdiction in respect of any aspect of the activity; and	**YES**	~~EXEMPTION~~	
(vi) any other party as required by the Department;	**YES**	~~EXEMPTION~~	~~N/A~~
(c) placing an advertisement in -			
(i) one local newspaper; or	**YES**	~~EXEMPTION~~	
(ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;	~~YES~~	~~EXEMPTION~~	**N/A**
(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken	~~YES~~	~~EXEMPTION~~	**N/A**
(e) using reasonable alternative methods, as agreed to by the Department, in those instances where a person is desirous of but unable to participate in the process due to— (i) illiteracy; (ii) disability; or (iii) any other disadvantage.	~~YES~~	~~EXEMPTION~~	**N/A**
If you have indicated that "EXEMPTION" is applicable to any of the above, proof of the exemption decision must be appended to this report.			
Please note that for the NEM: WA and NEM: AQA, a notice must be placed in at least two newspapers circulating in the area where the activity applied for is proposed.			
If applicable, has/will an advertisement be placed in at least two newspapers?	~~YES~~	~~NO~~	
If "NO", then proof of the exemption decision must be appended to this report.			

2. Provide a list of all the State Departments and Organs of State that were consulted:

State Department / Organ of State	**Date request was sent:**	**Date comment received:**	**Support / not in support**
Department of Environmental Affairs	tbc	tbc	
Breede-Gourtiz Catchment Management Agency	-	3 September 2019	Support – GA registration
CapeNature Scientific Services: Land Use Advice	tbc	tbc	
Eden District Municipality	tbc	tbc	
Prince Albert Municipality	tbc	tbc	
Oudtshoorn Municipality	tbc	tbc	
Heritage Western Cape	26 July 2019	7 August 2019	Support – No further HWC studies required

3. Provide a summary of the issues raised by I&APs and an indication of the manner in which the issues were incorporated, or the reasons for not including them.

(The detailed outcomes of this process, including copies of the supporting documents and inputs must be included in a Comments and Response Report to be attached to the BAR (see note below) as **Appendix F**).

To be included into final BAR

4. Provide a summary of any conditional aspects identified / highlighted by any Organs of State, which have jurisdiction in respect of any aspect of the relevant activity.

To be included into final BAR

SECTION D: NEED AND DESIRABILITY

1. Is the development permitted in terms of the property's existing land use rights?	**YES**	~~NO~~	~~Please explain~~
The proposal will be undertaken within the proclaimed road reserve and is in line with the current landuse of the site.			
2. Will the development be in line with the following?			
(a) Provincial Spatial Development Framework ("**PSDF**").	**YES**	~~NO~~	Please explain
Prince Albert According to the Prince Albert Local Municipality Spatial Development Framework Report, dated 13 February 2014, "Maintenance on tarred roads & Potholes" as well as "storm water upgrades" is listed under Ward 2's Development needs. – The proposed is therefore directly in line with the Prince Albert Local Municipality Spatial Development Framework Report **Oudtshoorn** Although not explicitly mentioned in the GOSDF (Greater Oudtshoorn Spatial Development Framework) the maintenance of major roads into the municipality act as key entry points to Oudtshoorn and serve as economic enablers. As such the maintenance of these economic enablers (the N12/TR33 in this case) is essential.			
(b) Urban edge / edge of **built environment** for the area.	~~YES~~	**NO**	Please explain
The site is in a rural landscape			
(c) Integrated Development Plan and Spatial Development Framework 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
Prince Albert The IDP indicates that the maintenance of the roads within the municipal area remains a challenge with a limited operational budget. The neglect of several years has since culminated in a situation that requires more maintenance and capital expenditure than the limited budget of Prince Albert Municipality can afford. Poor maintenance of existing stormwater infrastructure which causes blockages of inlets and outlets, has been identified in the IDP as issues attributing to the stormwater problem. Within Ward 2, Strategic Objective 4 (SO 4) is: To provide quality, affordable and sustainable services on an equitable basis. The Description of Input indicates: Repair potholes and maintain all roads. Taking the above extracts from the Prince Albert Municipality 2019/20 Reviewed Integrated Development Plan into account, the proposed maintenance of the existing road and its associated infrastructure is therefore in line with the abovementioned IDP. **Oudtshoorn** Strategic Objective 3 of the Oudtshoorn Municipality Integrated development Plan (2017 – 2022, 4th Generation) reads as follows;			

SG 3:
Conducting Regional Bulk Infrastructure Planning and implement projects, Roads Maintenance and Public Transport

Outcome:
Implementing RAMMS and IPTS, enhancing mobility and connectivity and enabling improved access to services and opportunities through the maintenance and enhancing of road infrastructure network

In addition, the Report indicates in a table "Infrastructural Summary" that "Current condition of roads within the Municipality" - "Maintenance is required"

The proposal is therefore in line with the Oudtshoorn Municipality Integrated development Plan

(d) An Environmental Management Framework ("**EMF**") adopted by this 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
(e) Any **other** Plans (*e.g.,* Integrated Waste Management Plan (for waste management activities), *etc.*)).	~~YES~~	**NO**	Please explain
3. Is the land use (associated with the project being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (in other words, is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	**YES**	~~NO~~	~~Please explain~~
The proposal is for the maintenance of existing infrastructure and therefore the current landuse of the site will not be compromised. The proposal is within the time frames of the current IDP's and SDF's for both Oudtshoorn and Prince Albert Municipalities.			
4. Should development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occur on the proposed site at this point in time?	~~YES~~	**NO**	Please explain
5. Does the community/area need the project 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**	~~NO~~	Please explain
The communities located along and near Trunk Road 33 Section 4 benefit from the tourism knock-on aspects that the World Heritage Site attracts, such as tourist accommodation, stalls and craft shops. In addition the route is used daily for transportation of goods by trucks. These business rely directly on the through traffic of Meiringspoort and as such these business need the road to be maintained to make a living.			
6. Are the necessary **services** available together with adequate unallocated municipal capacity (at the time of application), or must additional capacity be created to cater for the project? (Confirmation by the relevant municipality in this regard must be attached to the BAR as **Appendix E**.)	~~YES~~	~~NO~~	Please explain
Not Applicable			
7. Is this project 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 BAR as **Appendix E**.)	**YES**	~~NO~~	~~Please explain~~
Maintenance of roads and stormwater infrastructure is provided for in both Municipal Infrastructure planning, as indicated above.			
8. Is this project part of a **national programme** to address an issue of national concern or importance?	~~YES~~	**NO**	Please explain
9. Do location factors favour this land use (associated with the development proposal and associated listed activity(ies) applied for) at this place? (This relates to the contextualisation of the proposed land use on the proposed site within its broader context.)	**YES**	~~NO~~	Please explain
The proposal is site/location specific			

10. Will the development proposal or the land use associated with the development proposal applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	~~YES~~	**NO**	Please explain
Although the site/road traverses the Groot River serval times, a Freshwater Habitat Impact Assessment has been compiled and no sensitive habitats, protected species or threatened species were identified within the maintenance stretch. In addition, the vegetation units associated with the proposed site are classified as Least threatened.			
11. Will the development impact on people's health and well-being (*e.g.,* in terms of noise, odours, visual character and 'sense of place', *etc.*)?	~~YES~~	**NO**	Please explain
The maintenance activities will comply with all relevant legislation and as such several items need to be put in place to define the construction areas and to warn and divert public using the road. Therefor during the construction phase the site will look like a construction site with demarcation, delineators, flag people, labourers, construction equipment, high visibility colours etc during the construction phase. This will temporarily detract from the sense of place and peacefulness of the pass, however this is an unavoidable aspect of contemporary health and safety requirements (high visibility jackets and demarcation, detracting from the natural colours and aesthetics of the natural environment) and will by no means impact on people's health or well-being.			
12. Will the proposed development or the land use associated with the proposed development applied for, result in unacceptable opportunity costs?	~~YES~~	**NO**	Please explain
It was explained during an EIA Regulations forum held at the provincial department that the cost to construct a road doubles approximately every 5 years and that if a road such as TR33 is left unmaintained for 10 years it would have to be reconstructed as the integrity would be compromised. As such there are massive opportunity costs associated with allowing the road and associated stormwater infrastructure to continue to degrade to the point where the infrastructure has to be rebuilt.			
13. What will the **cumulative impacts** (positive and negative) of the proposed land use associated with the development proposal and associated listed activity(ies) applied for, be?			
Positive: • Maintaining the road will ensure the supported business and livelihoods are not compromised. • Periodic maintenance injects capital into the local market and provide temporary labour jobs. • Tourism continues to thrive in the area. • The Western Cape maintains Meiringspoort's prestigious World Heritage Site classification. **Negative:** • The periodic disturbances could change the characteristics of the ecosystems within the Meiringspoort. • Alien vegetation establishes quickly when areas are physically disturbed.			
14. Is the development the **best practicable environmental option** for this land/site?	**YES**	~~NO~~	Please explain
The proposal in the only practicable environmental option.			
15. What will the benefits be to society in general and to the local communities?			Please explain
• The route is regarded as an Economic enabler by the local IDP's • Ensure continued tourism to the World Heritage Site • Safety for road users • Maintaining the road will ensure the supported business and livelihoods are not compromised. • Periodic maintenance injects capital into the local market and provide temporary labour jobs. • Tourism continues to thrive in the area.			
16. Any **other** need and desirability considerations related to the proposed development?			Please explain
None at this stage			
17. Describe how the **general objectives of Integrated Environmental Management** as set out in Section 23 of the NEMA have been taken into account:			
The general objective of integrated environmental management is to- (a) promote the integration of the principles of environmental management set out in section 2 into the making of all decisions which may have a significant effect on the environment; (b) identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management set out in section 2; (c) ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them; (d) ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment;			

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

(f) Identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section 2.

18 Describe how the **principles of environmental management** as set out in Section 2 of the NEMA have been taken into account:

These are achieved as follows:

a) Decision making based on the findings of the basic impact assessment process.

b) Impacts have been identified, predicted and evaluated in terms of environmental, socio-economic and cultural heritage environment. The risks, consequences and alternatives and options for mitigation have been evaluated. A number of impacts, positive and negative, have been identified (please refer to Section F) of this report. Mitigation measures have also been proposed to minimise those impacts that cannot be avoided.

c) This BAR process and the EMPr ensure that the effects of the activities on the environment receive adequate consideration before actions are taken in connection with them. Mitigation measures have been proposed where the impacts of the activities cannot be avoided in order to minimise the significance of the impacts.

d) There has been adequate and appropriate opportunity for public participation as per the legislated requirements that will lead to the decision being taken.

e) Environmental attributes have been considered in management and decision making by appointing specialists to assess the impacts.

f) The methods best suited to environmental management for this activity have been followed and recommended. Please refer to Section D.18 below.

SECTION E: DETAILS OF ALL THE ALTERNATIVES CONSIDERED

1. DETAILS OF THE IDENTIFIED AND CONSIDERED ALTERNATIVES AND INDICATE THOSE ALTERNATIVES THAT WERE FOUND TO BE FEASIBLE AND REASONABLE

Note: A full description of the investigation of alternatives must be provided and motivation if no reasonable or feasible alternatives exists.

(a) Property and **location/site** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

Due to the nature of the proposal being for the maintenance of existing infrastructure the only alternatives that exist are the proposed maintenance activities and the No-Go option (whereby no maintenance activities are undertaken).

(b) **Activity** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

(c) **Design or layout** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

(d) **Technology** alternatives (*e.g.,* to reduce resource demand and increase resource use efficiency) to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

(e) **Operational** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

(f) The option of **not implementing** the activity (the '*No-Go*' Option):

(g) **Other** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

(h) Provide a **summary** of all alternatives investigated and the outcome of each investigation:

(i) Provide a detailed **motivation for not further considering** the alternatives that were found not feasible and reasonable, including a description and proof of the investigation of those alternatives:

2. PREFERRED ALTERNATIVE

(a) Provide a **concluding statement** indicating the preferred alternative(s), including preferred location, site, activity and technology for the development.

The proposal will entail the maintenance of existing road infrastructure, Trunk Road 33/4.
Majority of the maintenance activities will be limited to the surface of the road, however some repairs to the structures may require movement and equipment to be placed within the watercourse to undertake a maintenance activity. In addition, sediment and rocks have accumulated around the structures (up and downstream as well as within) which needs to be removed to ensure the unhindered flow of water through the structures.

From the Inception Report and accompanying Strip Charts for TR33/4, the repairs which will be undertaken within the stretch will consist of:

- Edge Break repairs
- Shoulder reconstruction
- New stone pitching side drains
- Bitumen treated Base and asphalt repairs
- Clear watercourse flow path
- Repair concrete spalling and cracking
- Repair damaged concrete deck soffit
- Reinstate previous poor concrete repairs
- Protect ASR Damaged and/or weathered concrete surfaces
- Seal deck expansion joints

No maintenance activities are required to any of the major culverts within the Protected Area (km 4.6 to km 14.4 of Trunk Road 33, Section 4) however maintenance activities are proposed on 15 bridges within the stretch. They are as follows;

1) Meiringspoort Causeway No 4 B2689 at Km 5.80
• Clear watercourse flow path
• Repair concrete spalling and cracking
• Protect ASR Damaged and/or weathered concrete surfaces
• Seal deck expansion joints
2) Meiringspoort Causeway No 5 B2698A at Km 6.03
• Clear watercourse flow path
• Repair concrete cracking
• Protect ASR Damaged and/or weathered concrete surfaces
• Seal deck expansion joints
3) Meiringspoort Causeway No 6 B2698B at Km 6.31
• Clear watercourse flow path
• Repair concrete cracking
• Protect ASR Damaged and/or weathered concrete surfaces
• Seal deck expansion joints
4) Meiringspoort Causeway No 7 B2698C at Km 6.82
• Clear watercourse flow path
• Protect ASR Damaged and/or weathered concrete surfaces
• Seal deck expansion joints
5) Meiringspoort Causeway No 8 B2690 at Km 7.73
• Clear watercourse flow path
• Repair concrete spalling and cracking
• Protect ASR Damaged and/or weathered concrete surfaces

• Seal deck expansion joints

6) Meiringspoort Causeway No 9 B2690A at Km 8.49

• Repair concrete spalling and cracking
• Protect ASR Damaged and/or weathered concrete surfaces
• Seal deck expansion joints

7) Meiringspoort Causeway No 10 B2691 at Km 8.76

• Clear watercourse flow path
• Repair concrete spalling and cracking
• Protect ASR Damaged and/or weathered concrete surfaces
• Seal deck expansion joints

8) Meiringspoort Causeway No 11 B2691A at Km 9.25

• Repair concrete spalling and cracking
• Protect ASR Damaged and/or weathered concrete surfaces
• Seal deck expansion joints

9) Meiringspoort Causeway No 12 B2692 at Km 9.54

• Repair concrete spalling and cracking
• Reinstate previous poor concrete repairs
• Protect ASR Damaged and/or weathered concrete surfaces
• Seal deck expansion joints

10) Meiringspoort Causeway No 13 B2692A at Km 9.85

• Clear watercourse flow path
• Repair concrete spalling and cracking
• Protect ASR Damaged and/or weathered concrete surfaces
• Seal deck expansion joints

11) Meiringspoort Causeway No 14 B2693 at Km 10.15

• Clear watercourse flow path
• Repair concrete spalling
• Seal deck expansion joints

12) Meiringspoort Causeway No 15 B2694 at Km 11.05

• Clear watercourse flow path
• Repair concrete cracking
• Repair damaged concrete deck soffit
• Protect ASR Damaged and/or weathered concrete surfaces
• Seal deck expansion joints

13) Meiringspoort Causeway No 16 B2695 at Km 11.43

• Repair concrete spalling
• Protect ASR Damaged and/or weathered concrete surfaces
• Seal deck expansion joints

14) Meiringspoort Causeway No 17 B2695A at Km 11.70

• Clear watercourse flow path
• Repair concrete spalling
• Reinstate previous poor concrete repairs
• Protect ASR Damaged and/or weathered concrete surfaces
• Seal deck expansion joints

15) Meiringspoort Causeway No 18 B2696 at Km 14.10

• Repair concrete spalling and cracking
• Protect ASR Damaged and/or weathered concrete surfaces
• Seal deck expansion joints

SECTION F: ENVIRONMENTAL ASPECTS ASSOCIATED WITH THE ALTERNATIVES

1. DESCRIBE THE ENVIRONMENTAL ASPECTS ASSOCIATED WITH THE PROPOSED DEVELOPMENT AND ITS ALTERNATIVES, FOCUSING ON THE FOLLOWING:

(a) Geographical, geological and physical aspects:

1. Erosion of the development site and surroundings

During the construction phase excessive vegetation clearance and earthworks left unmanaged could result in the erosion of the site and/or the surroundings. This impact will however have a short-term duration. If all mitigation measures are implemented and the impact does not persist beyond the development phase.

2. Construction related disturbances i.e. noise

During the pre-construction phase (i.e. site establishment) and construction phase there will be an increase in noise generation as a result of the machinery and presence of construction workers. These impacts will however be of short-term duration i.e. only for the duration of the construction phase. These impacts can however be mitigated by the implementation of the Environmental Management Programme (EMPr). A copy of the draft EMPr has been attached in Appendix H of this report.

3. Flow and hydraulic modifications

In order to undertake the proposal, it may be necessary to divert water around or through the proposed sites which will temporarily impact on the flow regime of the river system in the vicinity of the site. Mitigation measures proposed within this Draft BAR and the corresponding EMPr will assist to minimise this temporary impact.

4. Contamination of the Groot River and soil

During the construction phase, construction activities will generate waste. In addition, fuel, oil, lubricants and other pollutants may leak from vehicles/ machinery and contaminate the soil. Pollution and soil contamination could also occur from chemical toilets, cement mixing directly on the soil and stormwater runoff may flow over the site camp area and carry contaminants into the river. Uncontrolled runoff could pick up contaminates and spread them into the Groot River contaminating the River. Mitigation measures proposed within this Draft BAR and the corresponding EMPr will assist to minimise this potential impact.

(b) Ecological aspects:

Will the proposed development and its alternatives have an impact on CBAs or ESAs? If yes, please explain: Also include a description of how the proposed development will influence the quantitative values (hectares/percentage) of the categories on the CBA/ESA map.	~~YES~~	**NO**
The properties the site is found on are protect however the site will be mainly limited to the existing road surface and/or within the previously disturbed proclaimed road reserve.		
Will the proposed development and its alternatives have an impact on terrestrial vegetation, or aquatic ecosystems (wetlands, estuaries or the coastline)? If yes, please explain:	**YES**	~~NO~~
Vegetation in the road reserve hindering the free flow of water through the culverts and bridges will be cleared. In addition several km's (approximately 4km, as necessary) of road shoulders will be cleared of vegetation posing a safety risk to motorists or the integrity of the infrastructure.		
Will the proposed development and its alternatives have an impact on any populations of threatened plant or animal species, and/or on any habitat that may contain a unique signature of plant or animal species? If yes, please explain:	~~YES~~	**NO**
No such species were identified in the Aquatic report and the vegetation units of the site are classified Least Threatened.		
Describe the manner in which any other biological aspects will be impacted:		
It is not foreseen that other biological aspects will be impacted which have not been mentioned in this Draft BAR or the Freshwater Habitat Impact Assessment.		
Will the proposed development also trigger section 63 of the NEM: ICMA?	~~YES~~	**NO**

(c) Social and Economic aspects:

What is the expected capital value of the project on completion?	R 101 706 969.71	
What is the expected yearly income or contribution to the economy that will be generated by or as a result of the project?	Not Applicable	
Will the project contribute to service infrastructure?	**YES**	~~NO~~

Is the project a public amenity?	~~YES~~	**NO**
How many new employment opportunities will be created during the development phase?	Unknown – State funded projects have strict requirements for employing local labour. This will therefore be managed and monitored from a client's level. This proposal is not labour intensive however a large number of temporary work opportunities will be generated.	
What is the expected value of the employment opportunities during the development phase?	Labour and Training – R 442 500 Emerging Contractor Development – R 1 621 675	
What percentage of this will accrue to previously disadvantaged individuals?	Unknown – managed by the client, but normally between 50 and 75%	
How will this be ensured and monitored (please explain):		
Ensured and monitored from the clients level.		
How many permanent new employment opportunities will be created during the operational phase of the project?	None	
What is the expected current value of the employment opportunities during the first 10 years?	N/A	
What percentage of this will accrue to previously disadvantaged individuals?	%	
How will this be ensured and monitored (please explain):		
State funded projects have strict requirements for employing local labour. This will therefore be managed and monitored from a clients level.		
Any other information related to the manner in which the socio-economic aspects will be impacted:		

(d) Heritage and Cultural aspects:

None – As confirmed by Heritage Western Cape's Record of Decision (dated 7 August 2019, Case No. 19072406SB0726E) in response to the Heritage Western Cape Notice Of Intent, dated 19 June 2019 (refer to Appendix E)

2. WASTE AND EMISSIONS

(a) Waste (including effluent) management

Will the development proposal produce waste (including rubble) during the development phase?	**YES**	~~NO~~
If yes, indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type?	Approximately 10 – 20 m^3	
Concrete, asphalt, re-bar, material wrappings. Solid waste will be a by-product of some of the maintenance activities as in some cases cracking concrete needs to be chipped away and repaired. As such rubble and possibly some steel re-enforcing will be produced from preparing the structure for repairs. In addition, empty cement bags, wrapping from steel re-enforcing, packaging for the epoxies' etc will be created. Large amounts of rubble or other solid waste is not expected from the proposal.		

Will the development proposal produce waste during its operational phase?	~~YES~~	**NO**
If yes, indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type?		m^3

Will the development proposal require waste to be treated / disposed of on site?	~~YES~~	**NO**
If yes, indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type per phase of the proposed development to be treated/disposed of?		m^3
If no, where and how will the waste be treated / disposed of? Please explain. Indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type per phase of the proposed development to be treated/disposed of?	Not Applicable	
Has the municipality or relevant authority confirmed that sufficient capacity exists for treating / disposing of the waste to be generated by the development proposal? If yes, provide written confirmation from the municipality or relevant authority.	YES	NO

Will the development proposal produce waste that will be treated and/or disposed of at another facility other than into a municipal waste stream?	YES	NO
If yes, has this facility confirmed that sufficient capacity exists for treating / disposing of the waste to be generated by the development proposal? Provide written confirmation from the facility.	YES	NO
Does the facility have an operating license? (If yes, please attach a copy of the licence.)	YES	NO

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

Describe the measures that will be taken to reduce, reuse or recycle waste:
An integrated waste management approach must be used that is based on waste minimization and must incorporate reduction, recycling, re-use and disposal where appropriate. Any solid waste shall be disposed of at a landfill licensed in terms of section 20 of the Environmental Conservation Act, 1989 (Act No. 73 of 1989). A system of waste separation at source must be implemented and the separated waste must be regularly transported to the various recycling companies.

(b) Emissions into the atmosphere

Will the development proposal produce emissions that will be released into the atmosphere?	~~YES~~	**NO**
If yes, does this require approval in terms of relevant legislation?	YES	NO
If yes, what is the approximate volume(s) of emissions released into the atmosphere?		m^3
Describe the emissions in terms of type and concentration and how these will be avoided/managed/treated/mitigated:		

3. WATER USE

(a) Indicate the source(s) of water for the development proposal by highlighting the appropriate box(es).

~~Municipal~~	~~Water board~~	~~Groundwater~~	**River, Stream, Dam or Lake**	~~Other~~	~~The project will not use water~~

(b) If water is to be extracted from a groundwater source, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:	Unknown at this stage	m^3

(c) Does the development proposal require a water use permit / license from DWS?	**YES**	~~NO~~
If yes, please submit the necessary application to the DWS and attach proof thereof to this application as an Appendix.		
Please note that the proposal is Generally Authorised and as such does not require the synchronisation with the EIA process as the proposed is authorised and only requires the registration of the water use prior to commencement of activities.		

(d) Describe the measures that will be taken to reduce water demand, and measures to reuse or recycle water:
No water is needed for the operational phase however negligible amounts of water may be required to keep curing structures moist or for compacting backfilled material around wing walls. No water will however leave the site and will remain part of the aquatic system.

4. POWER SUPPLY

(a) Describe the source of power *e.g.* municipality / Eskom / renewable energy source.

Power is only required for maintenance (construction) phase and will be sourced from portable generators.

(b) If power supply is not available, where will power be sourced?

Power only required for maintenance phase and will be sourced from portable generators.

5. ENERGY EFFICIENCY

(a) Describe the design measures, if any, that have been taken to ensure that the development proposal will be energy efficient:

Not Applicable

(b) Describe how alternative energy sources have been taken into account or been built into the design of the project, if any:

Not Applicable

6. TRANSPORT, TRAFFIC AND ACCESS

Describe the impacts in terms of transport, traffic and access.

Traffic will be temporarily hindered by the maintenance activities, all traffic diversions will comply with relevant legislation.

7. NUISANCE FACTOR (NOISE, ODOUR, etc.)

Describe the potential nuisance factor or impacts in terms of noise and odours.

These will be negligible as most noise and odour receptors will be in the form of road users in their cars. Some pull over/picnic spots will be affect by construction noise, this is however temporary in nature and will be limited to the construction phase. In addition, the meandering pattern of the Groot River, which the trunk road follows means that construction noises will not travel as far as a straight stretch of road and should be relatively contained to the working area.

Note: Include impacts that the surrounding environment will have on the proposed development.

8. OTHER

None foreseen at this stage

SECTION G: IMPACT ASSESSMENT, IMPACT AVOIDANCE, MANAGEMENT, MITIGATION AND MONITORING MEASURES

1. METHODOLOGY USED IN DETERMINING AND RANKING ENVIRONMENTAL IMPACTS AND RISKS ASSOCIATED WITH THE ALTERNATIVES

(a) Describe the **methodology** used in determining and ranking the nature, significance consequences, extent, duration and probability of potential environmental impacts and risks associated with the proposed development and alternatives.

The assessment criteria utilised in this environmental impact assessment is based on, and adapted from, the *Guideline on Impact Significance, Integrated Environmental Management Information Series 5* (Department of Environmental Affairs and Tourism (DEAT), 2002) and the *Guideline 5: Assessment of Alternatives and Impacts in Support of the Environmental Impact Assessment Regulations* (DEAT, 2006).

Determination of Extent (Scale):

Site specific	On site or within 100 m of the site boundary.
Local	The impacted area includes the whole or a measurable portion of the site, but could affect the area surrounding the development, including the neighbouring properties and wider municipal area.
Regional	The impact would affect the broader region (e.g. neighbouring towns) beyond the boundaries of the adjacent properties.
National	The impact would affect the whole country (if applicable).

Determination of Duration:

Temporary	The impact will be limited to the construction phase.
Short term	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than 6 months after the completion of the construction phase.
Medium term	The impact will last up to the end of the construction phase, where after it will be entirely negated in a period shorter than 2 years after the completion of construction activities.
Long term	The impact will continue for the entire operational lifetime of the development but will be mitigated by direct human action or by natural processes thereafter.
Permanent	This is the only class of impact that will be non-transitory. Such impacts are regarded to be irreversible, irrespective of what mitigation is applied.

Determination of Probability:

Improbable	The possibility of the impact occurring is very low, due either to the circumstances, design or experience.
Probable	There is a possibility that the impact will occur to the extent that provisions must therefore be made.
Highly probable	It is most likely that the impacts will occur at some stage of the development. Plans must be drawn up to mitigate the activity before the activity commences.
Definite	The impact will take place regardless of any prevention plans.

Determination of Significance (without mitigation):

No significance	The impact is not substantial and does not require any mitigation action.
Low	The impact is of little importance, but may require limited mitigation.
Medium	The impact is of sufficient importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.
Medium-High	The impact is of high importance and is therefore considered to have a negative impact. Mitigation is required to manage the negative impacts to acceptable levels.
High	The impact is of great importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.
Very High	The impact is critical. Mitigation measures cannot reduce the impact to acceptable levels. As such the impact renders the proposal unacceptable.

Determination of Significance (with mitigation):

No significance	The impact will be mitigated to the point where it is regarded to be insubstantial.
Low	The impact will be mitigated to the point where it is of limited importance.
Medium	Notwithstanding the successful implementation of the mitigation measures, the impact will remain of significance. However, taken within the overall context of the project, such a persistent impact does not constitute a fatal flaw.
High	Mitigation of the impact is not possible on a cost-effective basis. The impact continues to be of great importance, and, taken within the overall context of the project, is considered to be a fatal flaw in the project proposal.

Determination of Reversibility:

Completely Reversible	The impact is reversible with implementation of minor mitigation measures
Partly Reversible	The impact is partly reversible but more intense mitigation measures
Barely Reversible	The impact is unlikely to be reversed even with intense mitigation measures
Irreversible	The impact is irreversible and no mitigation measures exist

Determination of Degree to which an Impact can be Mitigated:

Can be mitigated	The impact is reversible with implementation of minor mitigation measures
Can be partly mitigated	The impact is partly reversible but more intense mitigation measures
Can be barely mitigated	The impact is unlikely to be reversed even with intense mitigation measures
Not able to mitigate	The impact is irreversible, and no mitigation measures exist

Determination of Loss of Resources:

No loss of resource	The impact will not result in the loss of any resources
Marginal loss of resource	The impact will result in marginal loss of resources
Significant loss of resources	The impact will result in significant loss of resources
Complete loss of resources	The impact will result in a complete loss of all resources

Determination of Cumulative Impact:

Negligible	The impact would result in negligible to no cumulative effects
Low	The impact would result in insignificant cumulative effects

Medium	The impact would result in minor cumulative effects
High	The impact would result in significant cumulative effects

Determination of Consequence significance:

Negligible	The impact would result in negligible to no consequences
Low	The impact would result in insignificant consequences
Medium	The impact would result in minor consequences
High	The impact would result in significant consequences

(b) Please describe any gaps in knowledge.

The competency of the contract team and their willingness to implement the EMPr is unknown at this stage but they will have to comply with the EA and the relevant legislation.

The assessment of this proposal was undertaken from information provided by the client, it is assumed that this information is accurate.

It is unknown if the site will be affected by flood damages before the Environmental Authorisation is issued, changing the condition of the site and possibly the scope of the maintenance works.

The weather during the construction phase cannot be predicted. Contractors surprised by inclement weather conditions could result in avoidable impacts accruing to the site.

(c) Please describe the underlying assumptions.

- It is assumed that all the information provided to compile this report and on which the report is based is correct and valid.
- It is assumed that the proposed mitigation measures as listed in this report and the EMPr (Appendix H) will be implemented and adhered to.
- The locations of the proposed infrastructure were extrapolated from data provided by the client.

From the Aquatic Report, the following assumptions and limitations are relevant:

- The locations of the proposed infrastructure were extrapolated from maps provided by the client.
- Regarding the 'clearing of the flow path', it is assumed that this is only part of basic maintenance work. It will only occur within the road reserve, directly within, up and downstream of the culvert, and no further. It is assumed that it only applies to finer sediments that have blocked the culverts and vegetation that has established upon these deposits. No other sediment removal or vegetation clearance is allowed. There is to be no recontouring of the stream bed or alterations to the channel, bed or bank dimensions or morphology. Only removal of finer sediments that have been deposited at the crossing location that is required for the direct maintenance of the road. Also, vegetation should be trimmed rather than cleared where possible.
- Aquatic ecosystems vary both temporally and spatially. Once-off surveys such as this are therefore likely to miss certain ecological information due to seasonality, thus limiting accuracy and confidence. The watercourses in the area have a highly dynamic nature and a single site visit presents only a snapshot that is assessed within the broader context.

- Infield soil and vegetation sampling was only undertaken within a specific focal area around the proposed development, while the remaining watercourses were delineated at a desktop level with limited accuracy.

- No detailed assessment of aquatic fauna/biota was undertaken.

- The vegetation information provided is based on observation not formal vegetation plots. As such species documented in this report should be considered as a list of dominant and/or indicator wetland/riparian species and only provide a very general indication of the composition of the riverine vegetation communities.

- The assessment of impacts and recommendation of mitigation measures was informed by the site-specific ecological concerns arising from the field survey and based on the assessor's working knowledge and experience with similar development projects. The degree of confidence is considered good.

- The study does not include flood line determination. However, it is highly likely that all of the proposed activities are within the 1 in 100 year floodline.

(d) Please describe the uncertainties.

- Aquatic ecosystems vary both temporally and spatially. Once-off surveys such as this are therefore likely to miss certain ecological information due to seasonality, thus limiting accuracy and confidence.
- The competency of the contract team and their willingness to implement the EMPr is unknown at this stage but they will have to comply with the EA and the relevant legislation.
- The assessment of this proposal was undertaken from information provided by the client, it is assumed that this information is accurate.
- It is unknown if the site will be affected by flood damages before the Environmental Authorisation is issued, changing the condition of the site and the scope of the maintenance works.
- The weather during the construction phase cannot be predicted. Contractors surprised by inclement weather conditions could result in avoidable impacts accruing to the site

(e) Describe adequacy of the assessment methods used.

The assessment methods used include criteria as set out in legislation and accompanying guidelines with particular reference to the Basic Assessment Report, as well as methodology employed by the specialist which is defined by laws and requirements in her trade. A minimum of standard methods required were employed to provide the information as set out in this document and are deemed as adequate to the proposed activity.

The following methods were employed:

- Site visits to the affected area were undertaken to determine the nature and sensitivity of the site, as well as to gain insight into the on-site processes and surrounding land-uses.
- A freshwater Habitat Assessment Report was conducted by a suitably experienced specialist i.e. Debbie Fordham (SES). According to the report the level of aquatic assessment undertaken was considered adequate for this study.
- The applicable legislation, guidelines and policies were considered.
- The assessment criteria are based on DEAT guidelines (refer to (b) below).
- The EAP consulted with the applicant and the consulting engineers to gain an understanding of the proposal.

Given the above, it is deemed that sufficient information has been obtained and included to meet the requirements of the amended 2014 EIA Regulations (GN. R. 326 of 7 April 2017).

2. IDENTIFICATION, ASSESSMENT AND RANKING OF IMPACTS TO REACH THE PROPOSED ALTERNATIVES INCLUDING THE PREFERRED ALTERNATIVE WITHIN THE SITE

(a) List the identified impacts and risks for each alternative.

Alternative 1:	**Proposed Maintenance of Trunk Road 33 Section 4, km 4.6 to km 14.4**
No-go Alternative:	**Status Quo remains unchanged**

(b) Describe the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed; may cause irreplaceable loss of resources; and can be avoided, managed or mitigated.

Alternative 1 :	
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Excessive Vegetation clearance and earthworks could result in erosion of the site and surroundings**
Nature of impact:	**Negative**
Extent and duration of impact:	**Site specific and medium to long term**
Consequence of impact or risk:	**Medium** • **Loss of topsoil** • **Loss of seed bank** • **Decrease in riverbank stability** • **Integrity of surround infrastructure could be negatively affected** • **Siltation of the Groot River downstream of the site**
Probability of occurrence:	**Probable**
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**
Degree to which the impact can be reversed:	**Completely reversible however easier to manage impact**
Indirect impacts:	• **Loss of topsoil** • **Integrity of surround infrastructure could be negatively affected** • **Siltation of the Groot River downstream of the site** • **Facilitated establishment of alien vegetation in eroding areas**
Cumulative impact prior to mitigation:	• **Alien vegetation establishment** • **Loss of land (erosion)** • **Compromised integrity of infrastructure** • **Loss of ecological habitat** • **Ecosystem stresses from increased (temporary turbidity)**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium**
Degree to which the impact can be avoided:	**Can be avoided**
Degree to which the impact can be managed:	**Can be managed**
Degree to which the impact can be mitigated:	**Can be mitigated**
Proposed mitigation:	• **Only the minimum require excavations and disturbances must be undertaken. No excessive excavations must be allowed.** • **Silt traps must be installed where possible to manage and reduce turbidity of the Groot River.** • **Turbidity must be managed by installing silt traps.** • **Earthworks and excavations must be undertaken as prescribed in Section 8.11 EMPr.** • **Disturbed areas should be revegetated once construction has taken place.**
Residual impacts:	• **Alien vegetation establishment on eroding areas bare of topsoil.** • **Loss of riverine flora and fauna as a result of sedimentation of the Groot River** • **Left uncontrolled erosion could affect the integrity of the surround infrastructure or buildings.**

Cumulative impact post mitigation:	**Negligible/None – the proposed mitigation measure, if implemented correctly will completely mitigate the potential cumulative impacts**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Insignificant**
OPERATIONAL PHASE	
Potential impact and risk:	**Erosion of the site and adjacent surroundings**
Nature of impact:	**Negative**
Extent and duration of impact:	**Local and medium to long term**
Consequence of impact or risk:	**Low - Medium** • **Degradation of the Riverbanks** • **Loss of riparian habitat** • **Integrity of surrounding infrastructure could be negatively affected** • **Siltation of the Groot River**
Probability of occurrence:	**Improbable**
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**
Degree to which the impact can be reversed:	**Completely reversible**
Indirect impacts:	• **Degradation of the Riverbank** • **Loss of riparian habitat** • **Integrity of surrounding infrastructure could be negatively affected** • **Siltation of the Groot River**
Cumulative impact prior to mitigation:	**Medium**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium-High**
Degree to which the impact can be avoided:	**Can be avoided**
Degree to which the impact can be managed:	**Can be managed**
Degree to which the impact can be mitigated:	**Can be fully mitigated**
Proposed mitigation:	• **It must be ensured that the stormwater management system is maintained.** • **Regular cleaning and maintenance of silt traps or siltation prevention measures**
Residual impacts:	• **Alien vegetation establishment on eroding areas bare of topsoil.** • **Loss of riverine flora and fauna as a result of sedimentation of the Groot River** • **Left uncontrolled erosion could affect the integrity of the surround infrastructure and/or buildings.** • **Loss of riparian habitat** • **Degradation of downstream aquatic habitat**
Cumulative impact post mitigation:	**Negligible**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Insignificant**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Not Applicable**
Nature of impact:	
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	

Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	

Alternative 1 :	
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Contamination of the Groot River and/or soil as a result of unmanaged development activities** - Contaminants such as oil, diesel, etc could spill into the watercourse contaminating the Groot River
Nature of impact:	**Negative**
Extent and duration of impact:	**Local and Temporary**
Consequence of impact or risk:	**High** • **Contamination of watercourse** • **Deterioration of water quality** • **Contamination of soil** • **Loss of fauna and flora**
Probability of occurrence:	**Probable**
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resources**
Degree to which the impact can be reversed:	**Partly reversible**
Indirect impacts:	**Loss of biota** **Loss of ecosystem functionality**
Cumulative impact prior to mitigation:	• **Contamination of watercourse** • **Deterioration of water quality** • **Contamination of soil** • **Loss of fauna and flora** • **Loss of ecosystem functionality** • **Contaminants washed into the ocean**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High**
Degree to which the impact can be avoided:	**Can be avoided**
Degree to which the impact can be managed:	**Can be managed**
Degree to which the impact can be mitigated:	**Can be mitigated**
Proposed mitigation:	• General management measures relating to the management of waste and hazardous substances stated in the EMPr must be implemented as and where applicable, in consultation with the ECO. In addition: **General Pollution Management:** • No pollution of surface water or ground water resources may occur due to any activity on the site. • No storm water runoff from any premises containing waste, or water containing waste emanating from construction activities may be discharged into the environment. Polluted stormwater must be contained on the site. • Cement batching / mixing may not take place directly on the soil surface, it must be done on an impervious lining that will prevent cement particles from contaminating the soil. **General Waste Management:**

	• Dedicated waste bins or skips must be provided on site and kept in a demarcated area on an impermeable surface. • Separate waste bins/skips must be provided for recyclable waste, general waste and hazardous waste. Recovered builder's rubble & green waste may be stockpiled on the ground within the site camp, or in separate skips until removal. • Waste must be placed in the appropriate waste bins/skips/ stockpiles. • Hazardous waste bins must be kept on an impermeable bunded surface capable of holding at least 110% of the volume of the bins. • Skips/ bins must be provided with secure lids or covering that will prevent scavenging and windblown waste or dust. • Waste bins/skips must be regularly emptied and must not be allowed to overflow. • Construction workers must be instructed not to litter and to place all waste in the appropriate waste bins provided on site. • The Contractor must ensure that all workers on site are familiar with the correct waste disposal procedures to be followed. • Waste generated on site must be classified and managed in accordance with the *National Environmental Management: Waste Act – Waste Classification and Management Regulations (GN No. R. 634 of August 2013)*. • Disposal of waste to landfill must be undertaken in accordance with the *National Environmental Management: Waste Act – National Norms and Standard for the Assessment of Waste for Landfill Disposal (GN No. R. 635 of August 2013)*. • All waste, hazardous as well as general, which result from the proposed activities must be disposed of appropriately at a licensed Waste Disposal Facility (WDF). **Pollution Management – hydrocarbons (oil, fuel etc.)** • Vehicles and machinery must be in good working order and must be regularly inspected for leaks. • If a vehicle or machinery is leaking pollutants it must, as soon as possible, be taken to an appropriate location for repair. The ECO has the authority to request that any vehicle or piece of equipment that is contaminating the environment be removed from the site until it has been satisfactorily repaired. • Repairs to vehicles/ machinery may take place on site, within a designated maintenance area at the site camp. Drip trays, tarpaulin or other impermeable layer must be laid down prior to undertaking repairs. • Refuelling of vehicles/ machinery may only take place at the site camp or vehicle maintenance yard. Where refuelling must occur, drip trays should be utilised to catch potential spills/ drips. • Drip trays must be utilised during decanting of hazardous substances and when refilling chemical/ fuel storage tanks. • Drip trays must be placed under generators (if used on site) water pumps and any other machinery on site that utilises fuel/ lubricant, or where there is risk of leakage/spillage. • Where feasible, fuel tanks should be elevated so that leaks are easily detected. • A spill kit to neutralise/treat spills of fuel/ oil/ lubricants must be available on site, and workers must be educated on how to utilise the spill kit. • Soil contaminated by hazardous substances must be excavated and disposed of as hazardous waste. **Pollution Management – Ablution facilities** • Chemical toilets should be kept at the site camp, on a level surface and secured from blowing over. • Toilets must be located well outside of any storm water drainage lines, and may not be linked to the storm water drainage system in any way. • Chemical toilets must be regularly emptied and the waste disposed of at an appropriate waste water disposal/ treatment site. Care must be taken to prevent spillages when moving or servicing chemical toilets. **Pollution Management – Hazardous Substances** • Any hazardous substances (materials, fuels, other chemicals etc.) that may be required on site must be stored according to

	the manufacturers' product-storage requirements, which may include a covered, waterproof bunded housing structure. • Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs should additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases. • Hazardous chemicals and fuels should be stored on bunded, impermeable surfaces with sufficient capacity to hold at least 110% of the capacity of the storage tanks.
Residual impacts:	If all mitigation measures are effectively implemented no residual impacts are expected
Cumulative impact post mitigation:	**Negligible/None – the proposed mitigation measure, if implemented correctly will completely mitigate the potential cumulative impacts**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Insignificant**
OPERATIONAL PHASE	
Potential impact and risk:	**Contamination of the Groot River and/or soil as a result of unmanaged development activities** - Contaminants such as oil, diesel, etc not cleared from the working area after maintenance activities conclude could spill into the watercourse contaminating the Groot River
Nature of impact:	**Negative**
Extent and duration of impact:	**Local and Temporary to medium term (dependant on the contaminant source and extent)**
Consequence of impact or risk:	**High** • **Contamination of watercourse** • **Deterioration of water quality** • **Contamination of soil** • **Loss of fauna and flora**
Probability of occurrence:	**Improbable**
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resources**
Degree to which the impact can be reversed:	**Partly reversible**
Indirect impacts:	**Loss of biota** **Loss of ecosystem functionality**
Cumulative impact prior to mitigation:	• **Contamination of watercourse** • **Deterioration of water quality** • **Contamination of soil** • **Loss of fauna and flora** • **Loss of ecosystem functionality** • **Contaminants washed into the ocean**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium**
Degree to which the impact can be avoided:	**Can be avoided**
Degree to which the impact can be managed:	**Can be managed**
Degree to which the impact can be mitigated:	**Can be mitigated**
Proposed mitigation:	• **An ECO must be appointed to monitor the construction phase and report on the level of compliance with the EA and the EMPr.** • **Comply with the EA and the EMPr**
Residual impacts:	**None Expected**
Cumulative impact post mitigation:	**None Expected**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Insignificant**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Not Applicable**

Nature of impact:	
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	

Alternative 1 :	
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Stream Flow and Hydrological Modifications**
Nature of impact:	**Negative**
Extent and duration of impact:	**local and Temporary**
Consequence of impact or risk:	**Low** • **Channelization of the stream through diversion pipes during the construction phase** • **Stream deflection from berms** • **Change in river flow dynamics**
Probability of occurrence:	**Probable**
Degree to which the impact may cause irreplaceable loss of resources:	**No loss of resource**
Degree to which the impact can be reversed:	**Completely reversible**
Indirect impacts:	**Scouring of opposite riverbank** **Increased stream flow directly down stream of activity** **Ecosystem stress from changes in flow regime**
Cumulative impact prior to mitigation:	**Low – Insignificant**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Insignificant**
Degree to which the impact can be avoided:	**Can be avoided**
Degree to which the impact can be managed:	**Can be managed**
Degree to which the impact can be mitigated:	**Can be mitigated**
Proposed mitigation:	**Temporary structures (berms and access) must be created in such a way to prevent channelizing and deflecting of the Groot River stream.**
Residual impacts:	**Increase in flow velocity through the structures as they will be cleared of built up sediment and rocks**
Cumulative impact post mitigation:	**Negligible**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Stream Flow and Hydrological Modifications**
Nature of impact:	**Negative**
Extent and duration of impact:	**local and Temporary**
Consequence of impact or risk:	**Low**

	• **Change in river flow dynamics: stream flow will increase in velocity in the vicinity of the culverts and bridges as the barrels of the structures will be cleared of built up material as well as cleared within the river to maintain a smooth profile and minimise material build up in future**
Probability of occurrence:	**Probable**
Degree to which the impact may cause irreplaceable loss of resources:	**No loss of resource**
Degree to which the impact can be reversed:	**Completely reversible**
Indirect impacts:	**Scouring of opposite riverbank** **Increased stream flow in the vicinity of the structures** **Ecosystem stress from changes in flow regime**
Cumulative impact prior to mitigation:	**Low – Insignificant**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Insignificant**
Degree to which the impact can be avoided:	**Can be avoided**
Degree to which the impact can be managed:	**Can be managed**
Degree to which the impact can be mitigated:	**Can be mitigated**
Proposed mitigation:	• **Temporary structures (berms and access) must be created in such a way to prevent channelizing and deflecting of the Groot River stream.** • **Clearing of the river profile in the vicinity of the structure must be the minimal possible to achieve the goal so as not to modify the profile of the river extensively.**
Residual impacts:	**Increase in flow velocity through the structures as they will be cleared of built up sediment and rocks**
Cumulative impact post mitigation:	**Negligible**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Insignificant**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Not Applicable**
Nature of impact:	
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	

Alternative 1 :	
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**NOISE GENERATED BY CONSTRUCTION ACTIVITIES: Construction related noise cause nuisance to the surrounding environment.**

Nature of impact:	**Negative**
Extent and duration of impact:	**Local and temporary**
Consequence of impact or risk:	**Negligible** • **Disruption to surrounding land users during the construction phase**
Probability of occurrence:	**Definite**
Degree to which the impact may cause irreplaceable loss of resources:	**No loss of resource**
Degree to which the impact can be reversed:	**Barely reversible**
Indirect impacts:	**Noise pollution and disruptions to sense of place to surrounding landusers**
Cumulative impact prior to mitigation:	**Low**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low**
Degree to which the impact can be avoided:	**Not avoidable**
Degree to which the impact can be managed:	**Can be managed by only allowing unavoidable noise impacts**
Degree to which the impact can be mitigated:	**Can barely be mitigated**
Proposed mitigation:	• Construction should only be allowed during normal construction working hours. • A register will be kept on site in order to report any complaints received. • No unnecessary noise disturbances should be allowed to emanate from the construction site (i.e. loud music, staff shouting on site).
Residual impacts:	**None expected**
Cumulative impact post mitigation:	**Negligible**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Insignificant**
OPERATIONAL PHASE	
Potential impact and risk:	**Noise impacts from the construction phase will not have an operational aspect**
Nature of impact:	**Not Applicable**
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Not Applicable**
Nature of impact:	
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	

Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	

Alternative 1 :	
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**FACILITATED INVASION OF ALIEN FLORA:** Alien species are fast growing and establish rapidly in disturbed areas. Disturbance associated with the maintenance of Trunk Road 33, Section 4, through Meiringspoort could facilitate the further spread of these species
Nature of impact:	**Negative**
Extent and duration of impact:	**Local and Long term**
Consequence of impact or risk:	**Medium** • **Loss of biodiversity** • **Increase in water consumption** • **Decrease in soil stability** • **Decrease in Riverbank stability**
Probability of occurrence:	**Probable**
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**
Degree to which the impact can be reversed:	**Can be partly reversed**
Indirect impacts:	**Facilitated spread of alien vegetation downstream as seeds spread via the Groot River**
Cumulative impact prior to mitigation:	**Medium**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium**
Degree to which the impact can be avoided:	**Can be avoided**
Degree to which the impact can be managed:	**Can be and must be mitigate**
Degree to which the impact can be mitigated:	**Can be mitigated**
Proposed mitigation:	• Disturbed areas should be revegetated with appropriate indigenous vegetation as soon as practicable. • Control of alien invasive plant species should be undertaken • Use should be made of manual removal and the application of appropriate herbicides, where necessary. Manual removal should not be carried out by any machinery larger than a chainsaw. • Routine alien clearing in Meiringspoort should be undertaken for the lifetime of the structures (indefinite).
Residual impacts:	**Even after mitigation and/or alien vegetation removal, alien seeds could still lay dormant within the seed bank until the ground is disturbed once more**
Cumulative impact post mitigation:	**Very low**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Insignificant**
OPERATIONAL PHASE	

Potential impact and risk:	**FACILITATED INVASION OF ALIEN FLORA:** Alien species are fast growing and establish rapidly in disturbed areas. Disturbance associated with the maintenance of Trunk Road 33, Section 4, through Meiringspoort could facilitate the further spread of these species
Nature of impact:	**Negative**
Extent and duration of impact:	**Local and Long term**
Consequence of impact or risk:	**Medium** • **Loss of biodiversity** • **Increase in water consumption** • **Decrease in soil stability** • **Decrease in Riverbank stability**
Probability of occurrence:	**Probable**
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**
Degree to which the impact can be reversed:	**Can be partly reversed**
Indirect impacts:	• **Facilitated spread of alien vegetation downstream as seeds spread via the Groot River** • **Decrease in tourism attraction of the area as alien vegetation takes over decreasing biodiversity**
Cumulative impact prior to mitigation:	**Medium**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium**
Degree to which the impact can be avoided:	**Can be avoided**
Degree to which the impact can be managed:	**Can be and must be mitigate**
Degree to which the impact can be mitigated:	**Can be mitigated**
Proposed mitigation:	• Disturbed areas should be revegetated with appropriate indigenous vegetation as soon as practicable. • Control of alien invasive plant species should be undertaken regularly • An ECO must be appointed for the entire construction phase to monitor alien clearing and prevention measures
Residual impacts:	**Even after mitigation and/or alien vegetation removal, alien seeds could still lay dormant within the seed bank until the ground is disturbed once more**
Cumulative impact post mitigation:	**Very low**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Insignificant**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Not Applicable**
Nature of impact:	
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	

Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	

Alternative 1 :	
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Increase in temporary job opportunities –** Temporary job (labour) opportunities will result from the construction phase.
Nature of impact:	**Positive**
Extent and duration of impact:	**Local and Temporary**
Consequence of impact or risk:	**High** • **Income for those employed during the construction phase.**
Probability of occurrence:	**Definite**
Degree to which the impact may cause irreplaceable loss of resources:	**N/A**
Degree to which the impact can be reversed:	**N/A**
Indirect impacts:	**Quality of life for labourers is temporarily uplifted** **Capital influx for households**
Cumulative impact prior to mitigation:	**Low**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low**
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	**Historically Dissadvantaged Individuals should be employed as per the department standards**
Residual impacts:	
Cumulative impact post mitigation:	**Low**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Not Applicable**
Nature of impact:	
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Not Applicable**
Nature of impact:	

Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	

Alternative 1 :	
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Capital expenditure due to construction costs** It is anticipated that construction related costs will be in the region of R (to be included into Final BAR), which would mainly be spent in the Oudtshoorn Municipal Area.
Nature of impact:	**Positive**
Extent and duration of impact:	**Regional and Temporary**
Consequence of impact or risk:	**High** • **Capital influx for businesses involved, and knock on effect as the businesses that will supply services (such as toilets) and materials (such as paving and fill materials) for the development will benefit from the capital influx**
Probability of occurrence:	**Definite**
Degree to which the impact may cause irreplaceable loss of resources:	**No loss of resource**
Degree to which the impact can be reversed:	**N/A**
Indirect impacts:	**Growth for business involved in the development and general influx of capital into the construction sector support industries (services such a portable toilet companies, etc)**
Cumulative impact prior to mitigation:	**N/A**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low-medium**
Degree to which the impact can be avoided:	**N/A**
Degree to which the impact can be managed:	**Can be managed by encouraging proponent to support local business**
Degree to which the impact can be mitigated:	**N/A**
Proposed mitigation:	**Local business should be supported as far as possible**
Residual impacts:	**Certain services or materials may need to be sourced from outside of the Oudtshoorn Municipal area**
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low-medium**
OPERATIONAL PHASE	
Potential impact and risk:	**Not Applicable**

Nature of impact:	
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Not Applicable**
Nature of impact:	
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	

Alternative 1 :	
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Maintained road safety** The proposed maintenance will ensure that acceptable levels of safety are maintained.
Nature of impact:	**N/A**
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	

Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
OPERATIONAL PHASE	
Nature of impact:	**Positive**
Extent and duration of impact:	**Site specific and long term**
Consequence of impact or risk:	**High Significance** **Increased road safety for road users** **Decrease maintenance costs**
Probability of occurrence:	**Definite**
Degree to which the impact may cause irreplaceable loss of resources:	**No loss of resource**
Degree to which the impact can be reversed:	**N/A**
Indirect impacts:	**Road users can enjoy uninterrupted benefits of the World Heritage Site and important transport route**
Cumulative impact prior to mitigation:	**N/A**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low-medium**
Degree to which the impact can be avoided:	**N/A**
Degree to which the impact can be managed:	**N/A**
Degree to which the impact can be mitigated:	**N/A**
Proposed mitigation:	**N/A**
Residual impacts:	**No avoidable loss of life or injuries sustained as a result of unkept road infrastructure.**
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Not Applicable**
Nature of impact:	
Extent and duration of impact:	
Consequence of impact or risk:	
Probability of occurrence:	
Degree to which the impact may cause irreplaceable loss of resources:	
Degree to which the impact can be reversed:	
Indirect impacts:	
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	
Degree to which the impact can be mitigated:	
Proposed mitigation:	
Residual impacts:	
Cumulative impact post mitigation:	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	

(c) Provide a summary of the site selection matrix.

Due to the nature of the proposal being for the maintenance of existing infrastructure only two Alternatives exist, the proposed maintenance activities and the No-Go Alternative (whereby the proposed maintenance activities are not authorised and no maintenance activities are undertaken).

As such there are no impacts to the natural environment associated with the No-Go alternative as no disturbances will occur.

Table 2: Summary of potential impacts associated with the proposed development post implementation of mitigatory measures

Impact	Alternative A (preferred)	No-Go Alternative
Development Phase		
Erosion of the site and surroundings	Insignificant (-)	No Impact
Contamination of the Groot River and/or soil	Insignificant (-)	
Stream Flow and Hydrological Modifications	Low (-)	
Noise generated by construction activities	Insignificant (-)	
Facilitated invasion by alien flora	Insignificant (-)	
Increase in temporary job opportunities	Low (+)	
Capital expenditure	Low - Medium (+)	
Operational Phase		
Erosion of the site and surroundings	Insignificant (-)	No Impact
Contamination of the Groot River and/or soil	Insignificant (-)	
Stream Flow and Hydrological Modifications	Insignificant (-)	
Noise generated by construction activities	Insignificant (-)	
Facilitated invasion by alien flora	Insignificant (-)	
Maintained road safety	High (+)	
Decommissioning Phase		
The Meiringspoort pass was first opened in March 1858, the Meiringspoort has been classified as a world heritage site, it is highly unlikely that the road will ever be decommissioned		

(d) Outcome of the site selection matrix.

From the assessment of impacts it can be seen that the proposed maintenance activities will have little impact on the overall health and ecosystem functionality of the Meiringspoort and the Groot River which the Trunk Road 33/4 traverses several times. The Meirinigspoort has a high frequency flood history and as such, and following each flood event large scale flood damage repairs are required to open up the damaged pass and repair damaged structures. The scale of the maintenance works proposed in this assessment are of a far smaller extent and disturbance that is usually undertaken within Meiringspoort.

3. SPECIALIST INPUTS/STUDIES, FINDINGS AND RECOMMENDATIONS

Provide a summary of the findings and impact management measures identified in any specialist report and an indication of how these findings and recommendations have been included in the BAR.

A Freshwater Habitat Impact Assessment Report (FHIA) for the *proposed PERIODIC MAINTENANCE OF TRUNK ROAD 33/4 BETWEEN DE RUST (Km 0.00) AND TRUNK ROAD 34/2 (Km 28.45) AND TRUNK ROAD 34/2 BETWEEN (Km 39.3) AND TRUNK ROAD 33/4 (Km 47.40), WESTERN CAPE PROVINCE* was compiled by Debbie Fordham, an aquatic impact assessor working for Sharples Environmental Services (SES). The full report has been attached to this Draft Basic Assessment Report as Appendix G.

The report notes that within the Meiringspoort (Protected Area) the existing impacts are limited to the road crossings and the infestation of alien vegetation within the riparian habitat zone. The proposed activities within and surroundings the river will have similar impacts to the past activities in the same locations. The impacts that may result from the clearance of vegetation and sand deposits are arguably existing impacts and the habitat is already disturbed. Additionally, during flooding events it is natural for the river morphology to alter and for scouring to remove vegetation in high flow velocity areas. The system is dynamic and localised changes in topography are unlikely to have any cumulative impacts.

Agricultural land uses such as crop cultivation and livestock pastures comprise the land use around the protected area. Cultivated lands and planted pastures replace natural habitat, alter surface water movement, and reduce flows. The periodic harvesting of the plants exposes bare earth that potentially results in large sediment inputs into the valleys. Additionally, excessive use of fertilizers can result in eutrophication and habitat modification in watercourses. Grazing in riparian areas and wetlands is a natural phenomenon, but excessive grazing, or conversion from natural vegetation cover to planted pastures, reduces vegetation and habitat complexity, and is usually associated with a reduction in vegetation robustness (reduced stature and resistance offered to floods). These changes reduce the flood attenuation and sediment trapping efficiencies. Other indirect effects of grazing include trampling of riverbeds, and the creation of localised erosion gullies in riverbanks, while severely trampled riparian areas may be more vulnerable to erosion.

The following Mitigation Measures were extracted directly from the FHIA.

The mitigation of negative impacts on biodiversity and ecosystem goods and services is a legal requirement for authorisation purposes and must take on different forms depending on the significance of the impact and the specific area being affected. Mitigation requires the adoption of the precautionary principle and proactive planning that is enabled through a mitigation hierarchy. Its application is intended to strive to first avoid disturbance of ecosystems and loss of biodiversity, and where this cannot be avoided altogether, to minimise, rehabilitate, and then finally offset any remaining significant residual negative impacts on biodiversity (DEA 2013).

The mitigation measures detailed below must be taken into consideration during financial planning of the construction phase of the project. This to ensure that sufficient funds are available to implement all the measures required to maintain the current PES score. Any potential risks must be managed and mitigated to ensure that no deterioration to the water resource takes place. Standard management measures should be implemented to ensure that any on-going activities do not result in a decline in water resource quality. Consideration should also be given to the rehabilitation of watercourses where feasible.

The monitoring of the activities is essential to ensure the mitigation measures are implemented. Therefore, compliance with the mitigation recommendations must be monitored by a suitably qualified individual. Monitoring for non-compliance must be done on a daily basis by the contractors. Photographic records of all incidents and non-compliances must be retained. This is to ensure that the impacts on the aquatic habitat are adequately managed and mitigated against and the successful rehabilitation of any disturbed areas within any system occurs.

- Comply with the conditions of authorization in the GA (Government Notice R509 of 2016), detailed in Annexure 12, for section 21 (c) and (i) water uses (impeding or diverting flow or changing the bed, banks or characteristics of a watercourse) as defined under the NWA (1998).
- Use the smallest possible working corridor. Outside the working corridor, all watercourses are to be considered no go areas. Any unnecessary intrusion into these areas is prohibited. Where intrusion is required, the working corridor must be kept to a minimum and identified and demarcated clearly before any construction commences to minimise the impact.
- A maximum construction working servitude width of 10m should be allowed on either side of the bridges. The 10m servitude includes the temporary bypass road required for access. Where temporary access roads/footpaths may be required, the following needs to be considered:
  - Preferably utilise existing access paths or access through disturbed/invaded vegetation before considering the clearing of vegetation.
  - Access roads must be one-way, limited to 3m width and adequate turning areas outside of the riparian areas may need to be identified and demarcated in conjunction with the ECO.
- The working servitude must be demarcated on both sides using orange hazard netting prior to construction commencing. The demarcation work must be signed off by the Environmental Control Officer (ECO) before any work commences. All freshwater habitats

outside of the demarcated construction area must be considered 'No- Go' areas for the duration of the construction phase.

- Where construction is to take place within the river channel, if flowing, temporary diversions may need to be put in place to temporarily divert water away from activities and ensure a dry work area.
- Any diversions must be temporary in nature and no permanent walls, berms or dams may be installed within the river. Sandbags used in any diversion or for any activity within a watercourse must be in a good condition, so that they do not burst and empty sediment into the watercourse. Upon completion of the construction at the site, the diversions shall be removed to restore natural flow patterns.
- Diversions shall be temporary in nature and no permanent walls, berms or dams may be installed within a watercourse.
- Upon completion of the construction at the site, the diversions shall be removed to restore natural flow patterns, and the channel restored to its original configurations as soon as practically possible.
- Sedimentation must be minimised with appropriate measures.
- Construction must be carried out during the dry season and contingency plans must be in place for high rainfall events during construction.
- If the river at the site is flowing, before any work commences, sediment control/silt capture measures (e.g. bidim/silt curtains) must be installed downstream of the active working areas. Silt fences/curtains must be regularly checked and maintained (de-silted to ensure continued capacity to trap silt) and repaired where necessary. When de-silting takes place silt must not be returned to the watercourse.
- Excavated rock and sediments from the construction zone, and including any foreign materials, should not be placed within the delineated rivers and riparian areas in order to reduce the possibility of material being washed downstream.
- The solid domestic waste must be removed and disposed of offsite. All post-construction building material and waste must be cleared in accordance with the EMPr.
- Spoil material must be hauled to a designated spoil site. No spoil material must be pushed down slope or discarded on site.
- Clearing of riparian vegetation should be kept to a minimum. When practicable, prune or top the vegetation instead of grubbing/uprooting.
- It is the contractor's responsibility to continuously monitor the area for newly established alien species during the contract and establishment period, which if present must be removed. Removal of these species shall be undertaken in a way which prevents any damage to the remaining indigenous species and inhibits the re-infestation of the cleaned areas. Any use of herbicides in removing alien plant species is required to be investigated by the ECO before use, for the necessity, type proposed to be used, effectiveness and impacts of the product on aquatic biota.
- Rubble is often placed aside during construction and never removed. It buries habitat and alters the sediment composition of the area, allowing alien plants to encroach.
- Mixing and/or decanting of all chemicals and hazardous substances must take place on a tray, shutter boards or on an impermeable surface and must be protected from stormwater.
- Cement/concrete batching is to be located in an area of low environmental sensitivity away from the river channel and pre-approved by the ECO. No batching activities shall occur on unprotected ground. Adequate surface protection will be required.
- Contaminated water containing fuel, oil or other hazardous substances must never be released into the environment. It must be disposed of at a registered hazardous landfill site.
- If any concrete, cast-in-place concrete, or grouting works are to be undertaken, a high potential exists for concrete and/or concrete leachate to enter the river. Concrete, concrete leachate, grout and other uncured concrete substances (e.g. concrete bags for headwall construction) are highly toxic to fish and other aquatic organisms. To perform any concrete-related works, all water must be completely isolated prior to the commencement of any instream works. In addition, measures must be taken to prevent the incidence of concrete from entering a watercourse for a minimum of 72 hours after the works have been completed. This is to ensure that the concrete has fully cured.
- Ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows, or result in the stranding or death of fish.

- Retain a qualified environmental professional to ensure appropriate protocols are applied, and applicable permits for relocating fish are obtained and to capture any fish trapped within an isolated/enclosed area at the work site and safely relocate them to an appropriate location in the same waters.
- If working within surface water, screen any water intakes or outlet pipes to prevent impingement of fish.
- Plan activities near water such that materials such as paint, primers, rust solvents, degreasers, grout, poured concrete or other chemicals do not enter the river.
- Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance and keep an emergency spill kit on site.
- Ensure that building material used in the river has been handled and treated in a manner to prevent the release or leaching of substances into the water that may be toxic to fish.
- Contact Cape Nature for assistance with any fish related queries and immediately contact such authorities if there are any fish mortalities.
- All disturbed areas beyond the construction site that are intentionally or accidentally disturbed during the construction phase must be rehabilitated immediately to the satisfaction of the ECO.
- The longitudinal gradient must not be altered in a way that results in erosion downstream or impoundment of flows upstream. The cross sectional profile of the bed and banks must also be restored as far as possible.
- A monitoring programme shall be in place, not only to ensure compliance with the EMPr throughout the construction phase, but also to monitor any post-construction environmental issues and impacts. The monitoring should be regular and additional visits must be taken when there is potential risk to freshwater habitat.
- All demarcation work must be signed off by the ECO before any work commences.
- Any contractors found working inside the 'No-Go' areas should be fined as per a fining schedule/system setup for the project.

4. ENVIRONMENTAL IMPACT STATEMENT

Provide an environmental impact statement of the following:

(i) A summary of the key findings of the EIA.

From the findings within this Report and the accompanying Freshwater Habitat Impact Assessment, the proposed maintenance activities are deemed to be both suitable and practicable.

The freshwater impact assessment was undertaken using the Risk Matrix which is specified in the Government Notice R509 of 2016 for section 21 (c) and (i) water uses (impeding or diverting flow or changing the bed, banks or characteristics of a watercourse) as defined under the NWA (1998). Determining if a water use licence is required is associated with the risk of impacting on the watercourse. A low risk of impact could be authorised in terms of a General Authorisations (GA). All of the activities associated with the proposed maintenance works have a low impact significance and Low risk rating. However, the result of the risk assessment assumes that all the recommended mitigation measures will be stringently implemented and monitored appropriately.

The construction will be limited to certain activities within the road reserve and within previously disturbed habitat. Minimal new impacts are anticipated, and most can be completely avoided. It is therefore recommended that the proposed project be authorised under a General Authorisation (GA).

Only one alternative was assessed within this BAR as the proposal is site, structure and road imperfection specific.

The potential negative impacts associated with the proposal are far outweighed by the positive impacts and the massive potential opportunity costs that would result from allowing the existing road infrastructure to deteriorate beyond the point where repairs are possible and the whole road would need to be reconstructed.

(ii) Has a map of appropriate scale been provided, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers?	**YES**	NO

(iii) A summary of the positive and negative impacts that the proposed development and alternatives will cause in the environment and community.

Negative Impacts

Erosion of the site and surroundings
Excessive vegetation clearance and soil disturbances could result in the erosion of the site and surroundings. This impact could also result from cleared or disturbed areas (not undertaken excessively) being left exposed or vulnerable for extended periods of time. Mitigation measures proposed within this Draft BAR and the corresponding EMPr will however completely mitigate this impact by limiting the disturbance footprint and ensuring that rehabilitation must be undertaken as soon as possible.
Significance of Impact post mitigation: Insignificant

Contamination of the Groot River and/or soil
Small volumes of construction waste will be generated during the construction period of the proposal. It is also likely that effluents containing oil, hydraulic fluid, cement wash, grease, non-biodegradable chemicals and other substances may be released and contaminate the surrounding environment. Mitigation measures proposed within this Draft BAR and the corresponding EMPr will however completely mitigate this impact.
Significance of Impact post mitigation: Insignificant

Stream Flow and Hydrological Modifications
In order to undertake the proposal, it may be necessary to divert water around or through the proposed sites which will temporarily impact on the flow regime of the river system in the vicinity of the site. Mitigation measures proposed within this Draft BAR and the corresponding EMPr will assist to minimise this temporary impact.
Significance of Impact post mitigation: Low

Noise generated by construction activities
Noise pollution will be present during the construction phase due to the nature of construction however it is not foreseen that the impact will be of any significance due to the location of the proposed site and its proximity to surrounding noise receptors. The site has no nearby noise receptors such as residential areas.
Significance of Impact post mitigation: Insignificant

Facilitated invasion by alien flora
Alien invasive plant encroachment into disturbed areas can outcompete indigenous vegetation and reduce terrestrial and aquatic biodiversity. While mitigation measures will help to mitigate this impact to acceptable levels, continually alien clearing from the proponent will ensure the effectiveness of the mitigation measures. The effectiveness of the mitigation measures proposed will also depend on the proponent's commitment to periodic alien vegetation removal from within the site.
Significance of Impact post mitigation: Insignificant

Positive Impacts

Increase in temporary job opportunities
Temporary jobs opportunities will be created during the construction phase of the development. As is normal practice with developments, preference will be given to local, previously disadvantaged individuals in order to satisfy the labour force needed to undertake the proposed expansion. Mitigation interns of this positive impact is to ensure that preference is given to local labourers from a previously disadvantaged background.
Significance of Impact post mitigation: Low

Capital expenditure
It is expected that construction related costs (services and materials) will benefit the local enterprises (where possible). This will only apply to materials and services that can be sourced locally.
Significance of Impact: Low-medium

Road Safety levels are maintained
The maintenance of the road will ensure that the acceptable safety levels are maintained for road users.
Significance of Impact: High

5. IMPACT MANAGEMENT, MITIGATION AND MONITORING MEASURES

(a) Based on the assessment, describe the impact management, mitigation and monitoring measures as well as the impact management objectives and impact management outcomes included in the EMPr. The EMPr must be attached to this report as Appendix H.

Potential impacts were assessed and mitigation measures to minimise the negative impacts were explored in greater depth Section G of this Draft BAR.

Within the Environmental Management Programme (attached as Appendix H) the Environmental Impact Management has been separated into 4 sections, Planning and design phase (section 9); Pre-construction Phase, Construction phase and post construction rehabilitation phase.

Table 3: Impact management objectives and impact management outcomes included in the EMPr

PLANNING AND DESIGN PHASE	
IMPACT MANAGEMENT OBJECTIVES	**IMPACT MANAGEMENT OUTCOMES**
To appoint a suitably qualified and experienced Environmental Control Officer	The conditions of Environmental Authorisation and the requirements of the EMPr are implemented and monitored during all phases of the development, which will promote sound environmental management on site.
To compile a detailed design and site layout plan that adheres to the conditions of the Environmental Authorisation	Development is compliant with Environmental Authorisation and the EMPr
To ensure the EMPr adheres to the requirements of the Environmental Authorisation and makes provision for the final detailed site layout.	Good environmental management is promoted on site
PRE-CONSTRUCTION PHASE	
Identify and demarcate no-go areas, working areas and site facilities	Future construction activities will be restricted to within the designated areas & environmentally sensitive areas (no-go areas) will be protected from disturbance
To set up and equip the site camp and associated site facilities in a manner that will promote good environmental management.	Site camp facilities do not impact significantly on environment. The equipment required to implement the provisions of the EMPr are provided on site.
Environmental Control Officer to conduct an inspection prior to the commencement of construction activities on site	Good environmental management is promoted and enforced by the ECO during the full pre-construction and construction phases. Site facilities are appropriately located on site. Construction workers receive environmental awareness training before commencing work on site
CONSTRUCTION PHASE	
To prevent soil loss on site and prevent increased turbidity / sediment load in watercourses.	Soil erosion in and near watercourses is kept to a minimum and the aquatic systems are not impacted significantly as a result of soil erosion.
To ensure that construction activities do not significantly impact the natural flow regime or water quality of the watercourses.	Construction activities and the manner in which water flow is diverted do not significantly impede or alter the natural flow of water in the watercourses at this point.
To prevent environmental pollution and contamination of soil and Groot River	The environment (including soil, surface water and groundwater) is not contaminated
To ensure that the aquatic ecosystem is not significantly impacted on	Construction activities do not significantly impact on the aquatic ecosystem
To create habitat free of alien vegetation	The level of alien infestation decreases over time.
To create employment opportunities with potential for skills transfer, for members of the local community	The local community benefits from the employment opportunities created during the construction phase.

POST CONSTRUCTION REHABILITATION PHASE	
To rehabilitate all areas disturbed by construction activities in an environmentally sensitive manner	The site is neat and tidy and all exposed surfaces are suitably covered/ stabilised. There is no construction-related waste or pollution remaining on site.

In order to obtain/reach the impact management objects the corresponding mitigation measures prescribed in the BAR and EMPr must be implemented.

The Impact monitoring will be undertaken by an appointed and independent ECO.

The impact management outcomes will be monitored by the appointed ECO, in addition to the implementation of mitigation measures during the duration of the development, if all management mitigation measures are implemented successfully the resulting impact management outcomes will mean that the develop was undertaken with no significant or avoidable impacts to the environment.

(b) Describe any provisions for the adherence to requirements that are prescribed in a Specific Environmental Management Act relevant to the listed activity or specified activity in question.

The conditions of a General Authorisation Water Use must be complied with.

(c) Describe the ability of the applicant to implement the management, mitigation and monitoring measures.

Once issued the Environmental Authorisation will be binding on the holder of the authorisation. The holder of the Environmental Authorisation will be responsible for ensuring compliance with the conditions of the Authorisation, including any person acting on the holder's behalf.

The proposed mitigation measures are reasonable and can be effectively monitored. It is anticipated that the Western Cape Government: Department of Transport and Public works will be able to implement the mitigation measures proposed and to appoint an ECO for the construction phase of the development.

(d) Provide the details of any financial provisions for the management of negative environmental impacts, rehabilitation and closure of the proposed development.

Financial provisions must be made for all mitigatory measures to be successfully implemented, these must be determined by a qualified professional.

Such items would include but are not limited to:

- Driptrays for equipment (i.e 1 per generator)
- Geofabric for silt traps
- Concrete batching boards
- Orange Barrier netting for demarcation of the site
- Spill kits
- Complying with the conditions of the General Authorised Water Use

No specially allocated financial provisions are required for the proposal (i.e for search and rescue, etc)

(e) Provide the details of any financial provisions for the management of negative environmental impacts, rehabilitation and closure of the proposed development.

The site disturbance must be rehabilitated to the condition prior to commencement or better. In addition, provisions must be made for clearance of alien vegetation around the sites.

(f) Describe any assumptions, uncertainties, and gaps in knowledge which relate to the impact management, mitigation and monitoring measures proposed.

- Aquatic ecosystems vary both temporally and spatially. Once-off surveys such as this are therefore likely to miss certain ecological information due to seasonality, thus limiting accuracy and confidence.
- The competency of the contract team and their willingness to implement the EMPr is unknown at this stage but they will have to comply with the EA and relevant legislation.
- The assessment of this proposal was undertaken from information provided by the client, it is assumed that this information is accurate.
- It is unknown if the site will be affected by flood damages before the Environmental Authorisation is issued, changing the condition of the site and the scope of the maintenance works.
- The weather during the construction phase cannot be predicted. Contractors surprised by inclement weather conditions could result in avoidable impacts accruing to the site

SECTION H: RECOMMENDATIONS OF THE EAP AND SPECIALISTS

(a) In my view as the appointed EAP, the information contained in this BAR and the documentation attached hereto is sufficient to make a decision in respect of the listed activity(ies) applied for.	**YES**	~~NO~~

(b) If the documentation attached hereto is sufficient to make a decision, please indicate below whether, in your opinion, the listed activity(ies) should or should not be authorised:		
Listed activity(ies) should be authorised:	**YES**	~~NO~~

Provide reasons for your opinion

From the information presented by the proponent and various specialist reports it is not foreseen that the proposal will have significant detrimental impacts on the natural environment if all mitigation measures are implemented during the construction phase.

Maintenance of Trunk Road 33 is required as indicated in Element Consulting Engineers' Inception report which highlights the current condition of the road and the required maintenance activities.

Periodic maintenance of existing road infrastructure is required to keep the financial strain on the Department as low as possible. It was understood during an EIA workshop held at the Department of Environmental Affairs and Development Planning that the cost to build a road doubles approximately every 5 years but it generally only cost approximately 10% of the total cost of the road to maintain it periodically. It was also understood that if a road is not maintained for a period exceeding 10 years the integrity is affected to such an extent that the road has to be re-constructed. The same can be said for the environmental impact aspects of the proposal, the minor environmental disturbance associated with this proposal will be far less detrimental to the natural environment when compared to having to replace whole structures, sections of the road or the whole road ten years down the line. Environmental ecosystems cope and recover far better with small impacts/disturbances spread over a short time period as opposed to a large-scale disturbance/impact over a long period of time.

NEMA states that "Environmental management must place people and their needs at the forefront of its concern and serve their physical, psychological, developmental, cultural and social interest equitably." As such the potential negative environmental impacts have been weighed up against the positive socio-economic factors within the body of this BAR. It has been deduced that the negative environmental impacts can be minimized if not completely mitigated and are outweighed by the positive socio-economic factors associated with this proposed expansion.

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), the EIA Regulations (Government Notice No. R 324 - 327 in the Government Gazette of 7 April 2017) and the collective knowledge of SES, SES is of the opinion that the listed activities pertaining to this proposed maintenance of Trunk Road 33 Section 4 between km 4.6 and km 14.4 should be granted Environmental Authorisation with the mitigation measure herein attached as conditions to the authorization.

(c) Provide a description of any aspects that were conditional to the findings of the assessment by the EAP and Specialists which are to be included as conditions of authorisation.

All mitigatory measures recommended by the FHIA and within Section G of this BAR will be included into the EMPr but could also be included as conditions to authorisation.

It is suggested that an independent ECO be appointed to oversee and report on implementation of the EMPr during the construction phase of the proposal.

All conditional requirements for a Generally Authorised Water Use must be complied with.

(d) If you are of the opinion that the activity should be authorised, please provide any conditions, including mitigation measures that should in your view be considered for inclusion in an environmental authorisation.

- All management, mitigation and monitoring measures prescribed in the draft EMPr must be implemented and adhered to.
- A suitably qualified ECO must be appointed to oversee the construction and rehabilitation phases of the development.

- If any heritage, archaeological or paleontological material are discovered during the earthmoving activities all works must be stopped and the ECO as well as Heritage Western Cape must be notified immediately.
- All Water Use General Authorisation requirements must be complied with.

SECTION I: APPENDICES

The following appendices must be attached to this report:

APPENDIX			Confirm that Appendix is attached
Appendix A:	**Locality map**		X
Appendix B:	**Site development plan(s)**		X
	A map of appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffer areas;		
Appendix C:	**Photographs**		X – contained within Inception report – Appendix
Appendix D:	**Biodiversity overlay map**		X
Appendix E:	**Permit(s) / license(s) from any other Organ of State, including service letters from the municipality.**		
	Appendix E1:	**Copy of comment from HWC.**	X
Appendix F:	**Public participation information: including a copy of the register of I&APs, the comments and responses report, proof of notices, advertisements and any other public participation information as is required in Section C above.**		X
Appendix G1:	**Engineering Inception Report – Element Consulting Engineers**		X
Appendix G2:	**Freshwater Habitat Impact Assessment – Debbie Fordham - SES**		X
Appendix H :	**Draft EMPr**		X
Appendix I:	**Additional information related to listed waste management activities (if applicable)**		
Appendix J:	**If applicable, description of the impact assessment process followed to reach the proposed preferred alternative within the site.**		
Appendix K:	**Any Other (if applicable).**		

SECTION J: DECLARATIONS

THE APPLICANT

Note: Duplicate this section where there is more than one applicant.

I **Johannes Neethling**, duly authorised thereto, hereby declare/affirm all the information submitted as part of this Report is true and correct, and that I –

- am aware of and understand the content of this report;
- am fully aware of my responsibilities in terms of the NEMA, the EIA Regulations in terms of the NEMA (Government Notice No. R. 982, refers) (as amended) and any relevant specific environmental management Act and that failure to fulfil these requirements may constitute an offence in terms of relevant environmental legislation;
- have provided the EAP and Specialist, Review EAP (if applicable), and Review Specialist (if applicable), and the Competent Authority with access to all information at my disposal that is relevant to the application;
- will be responsible for complying with conditions that may be attached to any decision(s) issued by the Competent Authority;
- will be responsible for the costs incurred in complying with the conditions that may be attached to any decision(s) issued by the Competent Authority;

Note: If acting in a representative capacity, a certified copy of the resolution or power of attorney must be attached.

Signature of the Applicant:	
Name of Organisation:	Western Cape Government: Department of Transport and Public Works
Date:	

THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

I ……., as the appointed EAP hereby declare/affirm:

- the correctness of the information provided as part of this Report;
- that all the comments and inputs from stakeholders and I&APs have been included in this Report;
- that all the inputs and recommendations from the specialist reports, if specialist reports were produced, have been included in this Report;
- any information provided by me to I&APs and any responses by me to the comments or inputs made by I&APs;
- that I have maintained my independence throughout this EIA process, or if not independent, that the review EAP has reviewed my work (Note: a declaration by the review EAP must be submitted);
- that I have throughout this EIA process met all of the general requirements of EAPs as set out in Regulation 13;
- I have throughout this EIA process disclosed to the applicant, the specialist (if any), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared as part of the application;
- have ensured that information containing all relevant facts in respect of the application was distributed or was made available to I&APs and that participation by I&APs was facilitated in such a manner that all I&APs were provided with a reasonable opportunity to participate and to provide comments;
- have ensured that the comments of all I&APs were considered, recorded and submitted to the Department in respect of the application;
- have ensured the inclusion of inputs and recommendations from the specialist reports in respect of the application, if specialist inputs and recommendations were produced;
- have kept a register of all I&APs that participated during the PPP; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the EAP: _____

Name of Company: _____

Date: _____