

**DEA&DP Ref. No.: 16/3/1/1/D3/4/0008/13**

NEAS REF.: WCP/EIA/0001146/2013

DEA&DP Case Officer: Shireen Pullen

# **CALITZDORP ROADS UPGRADE DR1688 & DR1699**

PROPOSED UPGRADE OF THE DR1688 AND DR1699, BETWEEN CALITZDORP AND OUDTSHOORN, WESTERN CAPE PROVINCE

## **COMPLIANCE AUDIT REPORT (REVISION 1)**

**IN ACCORDANCE WITH REGULATIONS 34(1) OF THE 2014 EIA REGULATIONS (AS AMENDED)**

(This audit report aims to conform to the requirements of the NEMA EIA regulations 2014 (as amended), GN 326, 7 April 2017, Appendix 7)



**DATE: 2 MARCH 2020**

**P.J.J. Botes (Pr.Sci.Nat: 400184/05)**

*Registered Professional Botanical, Environmental and Ecological Scientist*

## EXECUTIVE SUMMARY

Notice of intent for this project was given on the 15<sup>th</sup> of January 2019.

**ENVIRONMENTAL AUTHORIZATION(S):** The original Environmental Authorization was granted in terms of the National Environmental Management Act, 1998 (Act. 107 of 1998) and the Environmental Impact Assessment Regulations (2010). Environmental authorization and exemption was granted for the preferred alternative as described in the Final Basic Assessment Report (BAR), dated 13 June 2014.

- DEA&DP Ref. no.: 16/3/1/1/D3/4/0008/13
- Date of issue: 2014/10/13

**COMPLIANCE TO CONDITIONS OF THE EA:** Please refer to Table 2, which gives a summary of the conditions applicable to this environmental authorization and discuss compliance on the hand of evidence obtained. No major non-compliance in terms of the Conditions of the Environmental Authorization were observed or reported.

Paragraph 4.1 gives a summary of outstanding or on-going conditions of the EA that must still be implemented or must still be monitored as part of the future construction activities.

**COMPLIANCE WITH THE EMP:** Chapter 6 discuss compliance with the EMP and also evaluates the EMP in terms of effectiveness. In general the EMP was considered well written and able to cover all aspects of the proposed construction activities. It gives the ECO enough guidance, but also allow for on-site corrective actions. Method statements are required for all of the most significant aspects of construction.

However, it is recommended that the EMP is amended to address the following contradictions and or potential issues within the EMP:

1. Construction footprint: Both the EMP and the Botanical reports recommends the protection of any remaining natural veld that is encountered between the hardened road shoulder and the road reserve boundary fence (Refer to Photo 1 in this report). However, the mitigation measures described in Table 1 (Pre-Construction, P28-29 & P32-33) and Table 5 (Construction phase, P55) of the EMP contradicts the above, and actually allows for the use of the whole of the road reserve. From the ECO reports and on-site verification it was also clear that the current construction method did not (and probably cannot) conform to the recommendations of the Botanical report and the first section of the EMP. The construction footprint needs to be clarified within the EMP taking the botanical recommendations into consideration. Please refer to the recommendations made under Heading .2.
2. Condition E7 of the EA stipulates that seeds of locally indigenous grass species must be collected and sown onto disturbed areas after areas had been re-instated and topsoil had been replaced (Refer to heading 4.2.1). The ECO commented that this would be quite a challenge considering the unusual drought currently experienced in the Calitzdorp area. At present there is just no grass or for that fact, almost no indigenous shrub species remaining to harvest any seeds from. This needs to address in the EMP. Please refer to recommendations made under heading 4.2.1 (e.g. diligent topsoil conservation).

3. Water courses: The Generic construction EMP states that *“All watercourses must be clearly marked off with temporary fencing, and must be seen as No-Go-Areas. No construction activities will be allowed within the watercourses. Before construction activities commence the contractor together with the suitably qualified ECO needs to cordon off all non-perennial watercourses.”* The purpose of this recommendation might be misunderstood, but from the observation during the site visit it was clear that almost all of the watercourses had to undergo at least a temporary impact or disturbance in order to ensure that the new culverts could be installed or to align them with storm water control measures. It is recommended that the EMP is amended to clarify this aspect, in order to allow the ECO to manage this aspect correctly.

**CLOSURE PLAN:** Not yet applicable – Construction still in progress.

Lastly: the auditor would like to complement the construction team and the ECO for a well-managed site. On the day of the site visit the site the “housekeeping” aspects of the site gave the impression of an exceptionally well managed and organised site. For this the environmental control officers, the site engineers and the contractor should be commended.

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## INDEPENDENCE & CONDITIONS

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PB Consult is an independent entity with no interest in the activity other than fair remuneration for services rendered. Remunerations for services are not linked to approval by decision making authorities and PB Consult have no interest in secondary or downstream development as a result of these services. There are no circumstances that compromise the objectivity of this report. The findings, results, observations and recommendations given in this report are based on the author's best scientific and professional knowledge and available information. PB Consult reserve the right to modify aspects of this report, including the recommendations if new information become available which may have a significant impact on the findings of this report.

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## RELEVANT QUALIFICATIONS & EXPERIENCE OF THE AUTHOR

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Mr. Peet Botes holds a BSc. (Hons.) degree in Plant Ecology from the University of Stellenbosch (Nature Conservation III & IV as extra subjects). Since qualifying with his degree, he had worked for more than 20 years in the environmental management field, first (1997) at the Overberg Test Range (a Division of Denel) managing the environmental department of OTR and being responsible for developing and implementing an ISO14001 environmental management system, ensuring environmental compliance, performing environmental risk assessments with regards to missile tests and planning the management of the 26 000 ha of natural veld, working closely with CapeNature (De Hoop Nature Reserve).

In 2005 he joined Enviroscientific, an independent environmental consultancy specializing in wastewater management, botanical and biodiversity assessments, developing environmental management plans and strategies, environmental control work as well as doing environmental compliance audits and was also responsible for helping develop the biodiversity part of the Farming for the Future audit system implemented by Woolworths. During his time with Enviroscientific he performed more than 400 biodiversity and environmental legal compliance audits.

During 2010 he joined EnviroAfrica in order to move back to the biodiversity aspects of environmental management. Experience with EnviroAfrica includes NEMA EIA applications, environmental management plans for various industries, environmental compliance audits, environmental control work as well as more than 90 biodiversity & botanical specialist studies.

Towards the end of 2017, Mr Botes started his own small environmental consulting business focusing on biodiversity & botanical assessments, biodiversity management plans and environmental compliance audits.

Mr. Botes is a registered Professional Botanical, Environmental and Ecological Scientists at SACNASP (South African Council for Natural Scientific Professions) as required in terms of Section 18(1)(a) of the Natural Scientific Professions Act, 2003, since 2005.

## DECLARATION OF INDEPENDENCE

### THE INDEPENDENT PERSON WHO COMPILED THE COMPLIANCE AUDIT REPORT

I Petrus, Jacobus, Johannes Botes, as the appointed independent specialist hereby declare that I:

- act/ed as the independent specialist in this application;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014, as amended, and any specific environmental management Act;
- have and will not have no vested interest in the proposed activity proceeding;
- have disclosed, to the applicant, EAP and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2014 (specifically in terms of regulation 13 of GN No. R. 326) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;
- have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;
- have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;
- have ensured that the names of all interested and affected parties that participated in terms of the specialist input/study were recorded in the register of interested and affected parties who participated in the public participation process;
- have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
- am aware that a false declaration is an offence in terms of regulation 13 of GN No. R. 326.

**Note:** The terms of reference must be attached.



Signature of the specialist:

PB Consult (Sole Proprietor)

Name of company:

2 March 2020

Date

## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	ii
INDEPENDENCE & CONDITIONS .....	iv
RELEVANT QUALIFICATIONS & EXPERIENCE OF THE AUTHOR .....	iv
DECLARATION OF INDEPENDENCE .....	v
1. Introduction .....	8
1.1 Environmental audit.....	8
1.1.1 Scope of the audit.....	8
1.1.2 Objectives of the audit .....	8
1.2 Project description .....	9
1.2.1 Upgrading of DR1688 .....	9
1.2.2 Upgrading of DR1699 .....	9
1.2.3 Bridges.....	9
1.2.4 Culverts.....	10
1.3 Project progress (short summary).....	10
2. Abbreviations .....	12
3. Methodology adopted for preparing the audit report .....	12
4. Compliance with the conditions of the various environmental authorizations.....	13
4.1 Outstanding or ongoing conditions of the ROD .....	18
4.1.1 On-going Environmental control .....	18
4.1.2 Erosion prevention measures.....	18
4.1.3 Non-compliance .....	18
5. Compliance with the EMP.....	19
5.1 Implementation of the EMS documentation .....	19
5.1.1 Environmental documentation .....	19
5.1.2 Environmental incident & complaints Registers .....	19
5.2 Management of land .....	19
5.2.1 Vegetation clearing.....	19
5.2.2 Access roads .....	22
5.2.3 Fires .....	22
5.3 Waste management .....	22
5.4 Hazardous chemical substances.....	22
5.5 Spill response and pollution prevention .....	22
5.6 Sewage and sanitation .....	22
5.7 Management, handling and stockpiling of topsoil.....	23
5.8 Management of watercourses / water sources .....	23
5.9 Protection of natural & heritage resources .....	23

5.10	Environmental training & awareness .....	23
5.11	Licences and permits .....	24
6.	Effectiveness of the EMP .....	25
6.1	Potential shortcomings of the EMP .....	25
6.1.1	Site demarcation & Vegetation: .....	25
6.1.2	Impact on water courses .....	25
6.2	Amendments to the EMP .....	26
6.3	Conclusion .....	27
6.3.1	Compliance with the EA .....	27
6.3.2	Compliance with the EMP .....	27
7.	Closure Plan .....	27
8.	Site photographs .....	28

## TABLES

Table 1: Chronological order of events in terms of the EA approval and commencement process .....	10
Table 2: a short summary of the Conditions of the EA and notes on compliance with these conditions .....	13

## APPENDICES

Appendix 1: Environmental Authorization (13/10/2014)
Appendix 2: Notice of intent to commence (15/01/2019)
Appendix 3: Proof of notification of I&AP's (outcome of the EA)
Appendix 4: Botanical study – Bergwind botanical surveys and tours
Appendix 5: DEA&DP approval of the updated EMP (Dated 13/07/2015)
Appendix 6: Proof of compliance with other statutory requirements
Appendix 7: An example of the ECO reports

## 1. INTRODUCTION

The Western Cape Department of Transport & Public Works applied for environmental authorization to rehabilitate and surface the Divisional Road 1688 (Old Concrete Road) and surface Divisional Road 1699 (Station Road) near Calitzdorp.

Divisional Road 1688 start at the intersection with Trunk Road 31/6 in Calitzdorp and continues for 43.07 km in a South Easterly direction toward Oudtshoorn where it again ties in with Trunk Road 31/6, better known as Route 62. The DR 1688 is a level 4, tertiary residential access collector and it serves various access roads, farms, as well as the well-known Calitzdorp Spa. The road is approximately 60 years old and is one of the first concrete roads constructed in South Africa. The total length of DR1688 is 43.07km. Due to the age and current conditions of the road it was identified as a rehabilitation project. The area investigated for rehabilitation start on the outskirts of Calitzdorp at km 1.07 and continues to the intersection with Trunk Road 31/6 at km 43.07.

Divisional Road 1699 start at the intersection with Divisional Road 1688 and continues for 1.20km to where it intersects with Divisional Road 1661 near the Calitzdorp Station. It will be upgraded from a gravel road to a surfaced standard road.

### 1.1 ENVIRONMENTAL AUDIT

The purpose of this environmental audit is to review compliance to the conditions of the Environmental Authorization (EA) and the Environmental Management Plan (EMP) as well as any other permits, complaints, non-compliances and the ECO reports. The audit report aims to conforms to requirements of the NEMA EIA regulations 2014 (as amended), GN 326, 7 April 2017, Appendix 7, for Environmental Audit Reports.

EnviroAfrica was commissioned to undertake the compliance audit. EnviroAfrica appointed PB Consult to perform the compliance audit. The environmental audit report will be submitted to the DEA&DP for comments and all interested and affected parties will be notified of the submission of the report.

#### 1.1.1 Scope of the audit

The scope of the audit **only includes the rehabilitation of divisional road 1688**, from Calitzdorp (kilometer 1.00) to the Calitzdorp Spa turnoff at kilometer 15.64. Contract C1008.01

It is important to note that this audit focused on the environmental impacts associated with the construction activities and was outcome driven in the sense that it concentrated on practical implementation and conservation outcome more than on document control throughout the process.

#### 1.1.2 Objectives of the audit

The objective of the environmental audit report (in terms of GN 326, 7 April 2017) is to:

- Report on:
  - a. The level of compliance with the conditions of the environmental authorization and the EMP'r, and where applicable, the closure plan; and
  - b. The extent to which the avoidance, management and mitigation measures provided for in the EMP'r, and where applicable the closure plan, achieve the objective and outcomes of the EMP'r, and closure plan.
- Identify and assess any new impacts and risks as a result of undertaking the activity;
- Evaluate the effectiveness of the EMP'r, and where applicable the closure plan;
- Identify shortcomings in the EMP'r, and where applicable the closure plan; and
- Identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMP'r, and where applicable, the closure plan.



## 1.2 PROJECT DESCRIPTION

According to the BAR, the DR 1688 will be rehabilitated and minor adjustments will be made to the alignment to provide a roadway with an 80km/h design speed where economically feasible. The existing compacted and degraded road verges/shoulders are large enough for the proposed upgrade and widening without entering the adjacent areas containing some natural vegetation. The upgrade and widening activities of DR1688 will remain within the existing compacted road verges/shoulders. No significant vegetation will be impacted upon.

### 1.2.1 Upgrading of DR1688

- Section 1 of DR1688 from km 1.07 to km 4.68 will be rehabilitated to a Class 3 road with 2 x 3.4m surfaced lanes, 2 x 0.9m surfaced shoulders and 2 x 0.6m gravel shoulder. Existing degraded culverts will be widened to tie in with the new cross section. Approximately 2.5m wide, compacted gravel shoulders already exists on both sides of the road. These compacted gravel shoulders are graded on a yearly basis as part of the maintenance procedure of the District Roads Engineer. Widening will therefore take place within this already disturbed and compacted shoulder.
- Section 2 of DR1688 from km 4.68 to km 15.18 will be rehabilitated to a Class 4 road with 2 x 3.4m surfaced lanes and 2 x 0.9m gravel shoulders.
- Section 3 of DR1688 from km 15.18 to km 43.07 will be rehabilitated to a Class 4 road with 2 x 3.4m surfaced lanes and 2x 0.9 gravel shoulders.
- The roads will have:
  - A Minimum design speed of 80km/h
  - 100km/h Maximum speed signage.

### 1.2.2 Upgrading of DR1699

According to the BAR, the DR 1699 will be upgraded, but very little changes will be made to the alignment and a design speed of 50km/h will be used. The existing compacted road verges/shoulders is large enough for the proposed upgrade without entering the adjacent areas which contain natural vegetation. The upgrade and widening activities of DR1699 will remain within the existing compacted/degraded road verges/shoulders.

- DR 1699 from km 0.00 to km 1.20 will be upgrade to a Class 4 road with 2 x 3,1m surfaced lanes and 2 x 0.9m gravel shoulders
  - A Minimum design speed of 50km/h
  - 60km/h Maximum speed signage.

### 1.2.3 Bridges

These four bridges are all in a fair condition and they only require localised repairs and maintenance. A noted concern is the width of the bridges which varies between 6.0m and 5.4m wide. Although it poses a safety concern it is felt the widening of the bridges in not critical due to the nature of, and the limited traffic on the road. However, the widening of the roadway will necessitate the erection of warning signs on all approaches, to inform travellers of the narrow crossings

The following four bridges are situated along DR1688:

Km	Description and Size	River Road	Width
14.83	B0474-2X9.6mx2.4m	Breelaagte River	6.0m
19.53	B0473-9.8mx2.4m	Dongaskloof River	6.0m
25.73	B1730 2x13.0mx2.4m	Vlei River	5.4m

Km	Description and Size	River Road	Width
38.85	B1731 3x6.8m	Wynands River	5.4m

### 1.2.4 Culverts

According to the BAR, the majority of these culverts is in a poor condition and has been modified over the years. They therefore do not comply with the Department Transport and Public Works' (DTPW) minimum standards and some are even being used as service ducts. It is therefore proposed that all the relevant culverts be repaired and if necessary upgrade to comply with the DTPW's minimum standards. It is envisaged that the culverts that are extended with Armco sheeting be repaired with concrete extensions.

The following 23 large culverts exceeding 1.0m in size are situated along DR1688

Km	Description & Size	Km	Description & Size	Km	Description & Size
2.95	4/1.20m PC	23.98	2.40m BC AR	32.41	2/2.50m BC
3.64	2/1.8m BC	27.2	C11065 3.1m BC	38.54	2.1m BC
5.48	C11067 2/4.6m BC CW	27.23	1.0m BC	38.71	1.80m BC
14.81	C11066 4.6m BC	28.57	2.70m AR + 2.40m BC	39.19	1.5m BC
17.9	2/2.50m BC	29.62	1.20m AR	39.63	C11064 2.5m BC
20.6	2.40m BC	29.76	2/2.70m BC	40.2	1.00m BC
21.52	2.40m BC	30.01	1.5m BC	41.92	1.00m BC
22.9	2/1.90m BC	31.02	1.25m BC		

### 1.3 PROJECT PROGRESS (SHORT SUMMARY)

Table 1 gives a short summary of chronological order of events regarding the commencement of construction and progress.

**Table 1: Chronological order of events in terms of the EA approval and commencement process**

DATE	DESCRIPTION OF EVENT	NOTES
2014/10/13	The original Environmental Authorization was granted in terms of the National Environmental Management Act, 1998 (Act. 107 of 1998) and the Environmental Impact Assessment Regulations (2010). Environmental authorization and exemption was granted for the preferred alternative as described in the Final Basic Assessment Report (BAR), dated 13 June 2014. <ul style="list-style-type: none"> <li>DEA&amp;DP Ref. no.: 16/3/1/1/D3/4/0008/13</li> <li>Date of issue: 2014/10/13</li> </ul>	EA and exemption <b>GRANTED</b> .  Refer to Appendix 1 for a copy of the EA.
2019/01/15	Notice of intent to Develop submitted to DEA&DP	Refer to Appendix 2
2019/11/27	Construction on both the DR168 and DR1699 still in progress	

Figure 1: An overview of the DR 1699, showing the first section of the road in progress

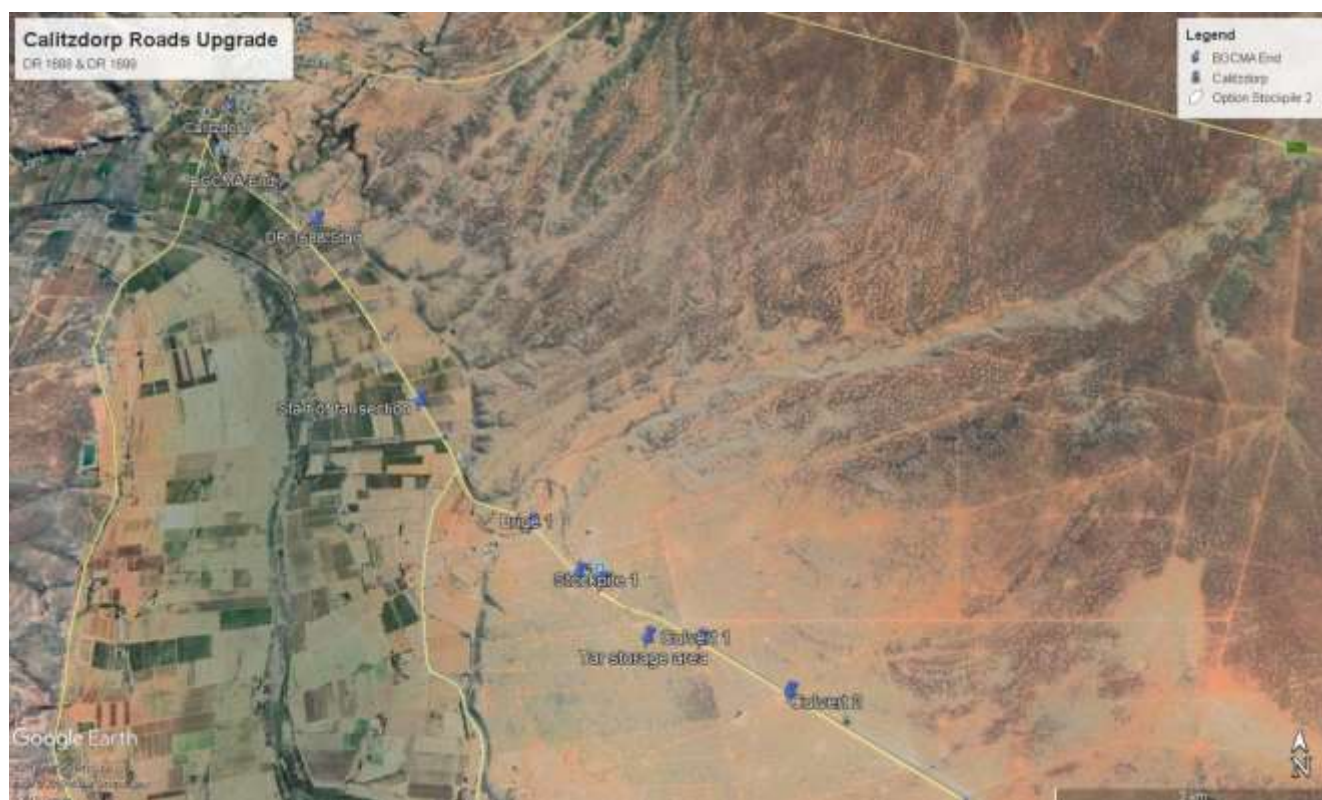


Figure 2: An overview of the DR 1699, showing the second section of the road in progress (15km mark)



## 2. ABBREVIATIONS

CARA	Conservation of Agricultural Resources Act, 1983 (Act no. 43 of 1983)
BGCMA	Breede-Gouritz Catchment Management Agency
DEA	Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs & Development Planning
EA	Environmental Authorization (Record Of Decision)
EAP	Environmental assessment practitioner
ECO	Environmental Control Officer
EIA	Environmental impact assessment
EMP	Environmental Management Plan or Program
EMS	Environmental management system
HOA	Home owners association
MSDS	Material Safety Data Sheet(s)
NEMA	National Environmental Management Act, 1998 (Act no. 107 of 1998)
NWA	National Water Act, Act 36 of 1998
ROD	Record of decision
SAHRA	South African Heritage Resources Agency

## 3. METHODOLOGY ADOPTED FOR PREPARING THE AUDIT REPORT

Information on the background and technical aspects of the project was obtained from the Environmental Control Officer and the Consulting Engineers.

A site visit was conducted together with the applicant and EnviroAfrica on the 27<sup>th</sup> of November 2019.

Further information was gained from evaluating relevant documentation such as:

- The Environmental authorization (DEA&DP Ref. 16/3/1/1/D3/4/0008/13), dated 13 October 2014 (Appendix 1);
- The Basic Assessment Report by Guillaume Nel Environmental Consultants CC;
- The EMP approved by DEA&DP;
- The aquatics assessment by Dr. William R Harding (Report 631/2013);
- The botanical assessment by Bergwind botanical surveys & tours (17 September 2014);
- The notice of intent to commence (Dated 15 January 2019);
- The ECO files;
- Other documentation relevant to the proposed development;
- In addition consultation were done with the ECO (EnviroWorks), the EAP (Guillaume Nel environmental consultants) and the Engineers (BVi Consulting Engineers)

In this environmental audit, compliance with the conditions of the ROD is discussed under Heading 4, while compliance with the EMP is discussed under Heading 5.

#### 4. COMPLIANCE WITH THE CONDITIONS OF THE VARIOUS ENVIRONMENTAL AUTHORIZATIONS

Table 2 gives a summary of the conditions applicable to this environmental authorization and discuss compliance on the hand of evidence obtained.

**Table 2: a short summary of the Conditions of the EA and notes on compliance with these conditions**

No.	SHORT DESCRIPTION OF EACH CONDITION	COMMENTS ON COMPLIANCE & RECOMMENDATION(S)
E1	The EA is valid for 5 years from the date of issue.	<b>Compliant</b> EA Date of Issue: 13-10-2014 (Valid till 13/10/2019) Notification of intent to commence: 15/01/2019 (Appendix 2)
E2	The activity may not commence within 20 days of the date of issue (appeal period).	<b>Compliant</b> Refer to comments above
E3	The applicant must notify all registered I&AP's within 12 calendar days of the outcome of the application and their right to appeal.	<b>Compliant</b> Refer to Appendix 3 for proof of notifications to registered I&AP's.
E4	Seven calendar days' notice of intent to commence must be given with proof of conditions 2, 11 & 16.	<b>Compliant</b> Please refer to the comments under E1, above and to Appendix 2 for proof of compliance.
E5	The EA is only applicable to the preferred alternative, as described in Section B of the EA.	<b>Compliant</b> Rehabilitation of the R1699 is in progress, converting the old gravel road in a tar road (as described within the EA). Rehabilitation of the R1688 is in progress. All works centred on the rehabilitation of the first 15.64km section from Calitzdorp to the Calitzdorp Spa turn-off. The construction works conforms to the description as given in the EA.
E6	A botanist must be appointed to conduct a botanical survey and search & rescue during the spring season. The report must establish whether there are any plants of significant conservation value.	<b>Compliant/Partially compliant</b> A botanist study was commissioned with recommendations. Refer to Appendix 4. The report had the following main findings and recommendations: <ul style="list-style-type: none"> <li>Historically the road reserve for both roads had been heavily impacted under the banner of "maintenance";</li> <li>The led to a long term negative effect with little truly natural vegetation persisting in the road reserves;</li> <li>Elements of natural vegetation remained, but in general the road verges have been scraped and compacted;</li> </ul>

No.	SHORT DESCRIPTION OF EACH CONDITION	COMMENTS ON COMPLIANCE & RECOMMENDATION(S)
		<ul style="list-style-type: none"> <li>• This resulted in in an extremely disturbed condition with extremely low botanical sensitivity close to the road edges;</li> <li>• However, further away (still within the road reserve), varying levels of disturbance were found (in some places the vegetation was intact, while in other very disturbed);</li> <li>• The overall condition of the vegetation within the road reserves, especially for this phase, are poor, transformed and of low botanical sensitivity, with no meaningful contribution to the conservation of the various vegetation- or ecosystem types;</li> <li>• However, the most important mitigation measure would be to avoid causing any further disturbance of the vegetation within the road reserve, especially the vegetation in the zone between the road verge (which will be compacted) and the boundary fence;</li> <li>• Where disturbance is unavoidable, it should be rehabilitated (treated) to enhance regeneration of the roadside vegetation (e.g. collecting seeds and distributing it back onto the road sections outside of the road verge).</li> </ul> <p><b>Findings:</b></p> <ul style="list-style-type: none"> <li>• The first 15.64 km of the road mostly traversed areas of low botanical sensitivity, when referring to the botanical report, and the slightly better preserved sites does not fall within the sensitive Muscadel Riviere vegetation type;</li> <li>• For safety reasons, temporary by-pass roads had to be constructed next to existing roads, while the concrete from the original roads were recovered and the roads prepared for its new surface (tar). Because of the limited space within the road reserve, it meant that the construction footprint could not be contained within the road verge itself, but in many cases had to utilise almost the whole width of the road reserve (from fence to fence), which meant that the impact on natural vegetation was slightly larger than expected;</li> <li>• However, according to the ECO, the topsoil (with its seed-store) were stripped (and are stored) in areas with remaining indigenous vegetation in order to facilitate later rehabilitation and to mitigate the impact. It was noted that the ECO is also a qualified botanist.</li> </ul> <p>Please Refer to Sections 5.2.1, 6.1 &amp; 6.2 of this report.</p>



No.	SHORT DESCRIPTION OF EACH CONDITION	COMMENTS ON COMPLIANCE & RECOMMENDATION(S)
E7	Upon completion of the gravel mining and the re-instatement of the topsoil, seeds of locally indigenous pioneer grass species must be sown in order to reduce erosion and to control later temporary invasion of annual alien weed species.	<b>Noted (future action)</b> Construction is still in progress on all the culverts and bridges. Topsoil conservation and re-distribution would also aide this process. Also refer to Condition E18 of this EA and Paragraph 4.1.2, underneath. The ECO to monitor these conditions and recommendations made under Paragraph 4.1.2.
E8	The holder is responsible for ensuring compliance with the conditions contained in the Record of Decision by any person acting on his behalf.	<b>Compliant (On-going)</b> No significant non-compliances was observed during the site visit or reported by the ECO. The ECO to monitor on-going compliance.
E9	Any changes to, or deviations from the scope of the description set out in Condition E5 and Section B of the EA, must be approved by the competent authority, before such changes or deviations may be implemented.	<b>Compliant (On-going)</b> No changes or deviations were observed or reported by the ECO. The ECO to monitor on-going compliance.
E10	The applicant must notify the competent authority in writing, within 24 hours thereof if any condition is not complied with.	<b>Compliant (On-going)</b> According to the ECO no significant incidents of non-compliance had occur to date. The ECO to monitor on-going compliance.
E11	The final EMP must be amended and re-submitted for approval by the DEA&DP.	<b>Compliant</b> Refer <b>Appendix 5</b> , for proof of approval of the updated EMP.
E12	A copy of the EA and EMP must be kept at the construction site and available to any authorised official representing the competent authority.	<b>Compliant</b> A copy of the EA and EMP were available at the site offices, however, ECO noted in the first audit report that copies of the EA and EMP were not on file. Corrections were made immediately.
E13	Should any detail of the EA have to be amended, the holder must submit an originally signed notification to the competent authority, detailing the amendment and must receive written confirmation from the competent authority permitting such changes.	<b>Not applicable</b> No changes at present. Please note that ECO did mention that they might propose an amendment to the EMP for the next construction period. The ECO to monitor and advice on any amendments needed (with approval from the CA).
E14	Non-compliance with a condition of the EA or EMP may result in suspension of this EA and may render the holder liable for criminal prosecution.	<b>Noted</b> To be monitored by the ECO

No.	SHORT DESCRIPTION OF EACH CONDITION	COMMENTS ON COMPLIANCE & RECOMMENDATION(S)
E15	Notwithstanding this EA, the holder must comply with any other statutory requirements that may be applicable.	<p><b>Compliant</b></p> <p>Refer to <b>Appendix 6</b> for proof of compliance with:</p> <ul style="list-style-type: none"> <li>Landowners approval to pluck protected and unprotected flora (read in conjunction with the CapeNature permit);</li> <li>CapeNature – permit to pluck protected and unprotected flora (expiry date: 1/03/2020);</li> <li>BGCMA – Water use authorization in terms of the NWA.</li> </ul>
E16	The applicant must appoint a suitably experienced Environment Control Officer before commencement of any land clearing or construction activities.	<p><b>Compliant</b></p> <p>Enviro Works was appointed to fulfil the duties of the ECO and performed these duties throughout the construction Phases.</p> <p>Refer to Appendix 2 (Notice of intent to commence with proof of compliance), which includes proof of compliance to Conditions 16).</p>
E17	An integrated waste management approach, based on waste minimisation must be employed.	<p><b>Seemingly Compliant</b></p> <p>In general the construction site was very neat, tidy and well organised. Waste material seems to be excellently managed.</p> <ul style="list-style-type: none"> <li>The bulk of the waste material would have been the old concrete/cement (the original road surface) and would have amounted to a considerable amount of waste material. To negate the impact of this waste material, the concrete is crushed and re-used in the base material for the new road.</li> <li>Smaller waste items like cement bags and wrapping material seem to be well contained and managed.</li> <li>Littering: apart from one or two items, littering was almost non-existent.</li> </ul> <p>The ECO and the construction team should be commended for the neat and tidy construction site and the efforts to control and minimise waste. This seems to be one of the best managed sites visit by the auditor in a long time.</p>
E18	No surface or ground water may be polluted due to any activities on the site. Applicable requirements with respect to relevant legislation must be met.	<p><b>Seemingly compliant</b></p> <p>A water use authorization was obtained from the BGCMA for work needed on culverts and bridges. The present drought that is experienced in this area, also allow for work to be done while there is no water in any of these systems.</p> <p>However, the construction team (supervised by the ECO) will have to ensure that erosion prevention measures are in place to ensure future protection of the features within water</p>



No.	SHORT DESCRIPTION OF EACH CONDITION	COMMENTS ON COMPLIANCE & RECOMMENDATION(S)
		courses. Also refer to Condition E7 of this EA and Paragraph 4.1.2, underneath. The ECO to monitor these conditions and recommendations made under Paragraph 4.1.2.
<b>E19</b>	Applicable requirements with respect to relevant legislation pertaining to occupational health and safety must be adhered to.	<b>Compliant</b> The SHE Group has been appointed to monitor Occupational Health & Safety on site. Monthly reports are available.
<b>E20</b>	Should any heritage remains be exposed it must be reported to the HWC immediately.	<b>Compliant</b> No heritage remains had been observed or reported by the ECO to date. The ECO to monitor throughout the project phases.

## **4.1 OUTSTANDING OR ONGOING CONDITIONS OF THE ROD**

The following gives a short summary of outstanding or ongoing actions to be implemented (most of which are not yet applicable) as well as recommendations on potential improvement (if applicable).

### **4.1.1 On-going Environmental control**

The ECO should be commended on what seems to be excellent environmental control of the site (especially regarding waste management and housekeeping on the various construction footprints).

- The ECO must ensure that the recommendations made by the Botanist specialist report are adhered to (Refer to Condition E6 of the EA);
- The ECO must ensure that the erosion control measures as described in Condition E7 are implemented. However, please note the discussion under Paragraph 4.1.2, underneath;
- The ECO must ensure that any changes to or deviations from the scope of the description of the project are approved by the competent authority as described in Condition E9);
- The ECO must monitor potential non-compliance to any condition of the EA or EMP as described in Condition E10, E13, E14 & E15, (e.g. take note that Flora permit expires during March 2020, and will have to be updated);
- The ECO must ensure that an integrated waste management approach is maintained as described under Condition E17;
- The ECO must monitor and ensure that no surface or ground water are polluted due to any construction activities as described under Condition E18;
- The ECO must monitor for any heritage remains throughout the life-span of the project as described under condition E20.

### **4.1.2 Erosion prevention measures**

Condition E7 of the EA stipulates that seeds of locally indigenous grass species must be collected and sown onto disturbed areas after areas had been re-instated and topsoil had been replaced. The ECO commented that this would be quite a challenge considering the unusual drought currently experienced in the Calitzdorp area. At present there is just no grass or for that fact, almost no indigenous shrub species remaining to harvest any seeds from. Although it is likely that future rains may negate this issue, the following is recommended:

- It is recommended that topsoil conservation must be done very diligently (even if it seems as if there are no plants in the specific areas), as the top layer of soils within the road reserve is still very likely to contain an indigenous seed store (within the top 10-15 cm of the soils).
- Replacing the topsoil on top of the re-instated areas, would allow at least for some re-seeding.

### **4.1.3 Non-compliance**

No significant non-compliances were observed but the following must be adhered to.

- The holder must notify the competent authority and any other relevant authority, in writing, within 24 hours if any condition of the EA is not adhered to, in accordance with Condition E8, E9, E10, E13, E14 and E15.

## 5. COMPLIANCE WITH THE EMP

This section deals with compliance to the EMP based on the ECO reports and observations made during the site visit. The ECO checked environmental compliance twice monthly, using an environmental compliance checklist developed by Enviro Works and reporting through a monthly environmental report (Refer to Appendix 7). The Checklist reported on the following main headings:

- Implementation of the EMS documentation;
- Management of Land;
- Waste Management;
- Hazardous chemical substances;
- Spill response and pollution prevention
- Sewage and sanitation;
- Management, handling and stockpiling of topsoil;
- Management of watercourses / water sources;
- Protection of natural & heritage resources;
- Environmental training & awareness;
- Licences and permits;

### 5.1 IMPLEMENTATION OF THE EMS DOCUMENTATION

The ECO checked all EMS documentation on a monthly basis against their own environmental compliance checklist. A DEO (designated environmental officer) was appointed within the construction team, who are responsible to monitor day-to-day environmental compliance and discuss/report issues with the ECO.

#### 5.1.1 Environmental documentation

- An Environmental Policy was on file and displayed at the site offices;
- A copy of the EA and EMP were on file at the site offices;
- The contractor & engineers signed the declaration of understanding;
- Method statements were filed within the environmental file at the site offices;
- Monthly environmental monitoring reports are compiled by the ECO and kept on file.

#### 5.1.2 Environmental incident & complaints Registers

Both an environmental incident- and a complaints register were on file.

## 5.2 MANAGEMENT OF LAND

Site Layout plans, which include road works, location and boundaries of stockpile area) were required by the ECO.

### 5.2.1 Vegetation clearing

The DR1688 road is demarcated by a physical fence. The fenced in area (or potential construction site) can be described as follows (Refer to Photo 1 underneath):

- The hardened (concrete) road surface that needs to be removed, potentially widened and shaped and then prepared for a new tar surface;

- The compacted degraded road shoulder, which is likely to become part of the widened road surface, and which will have to be impacted during the shaping, levelling and substrate preparation for the new tar road;
- The remaining road verge between the fence and the compacted road shoulder (which is the only area likely to support some indigenous vegetation – even though most likely very degraded).

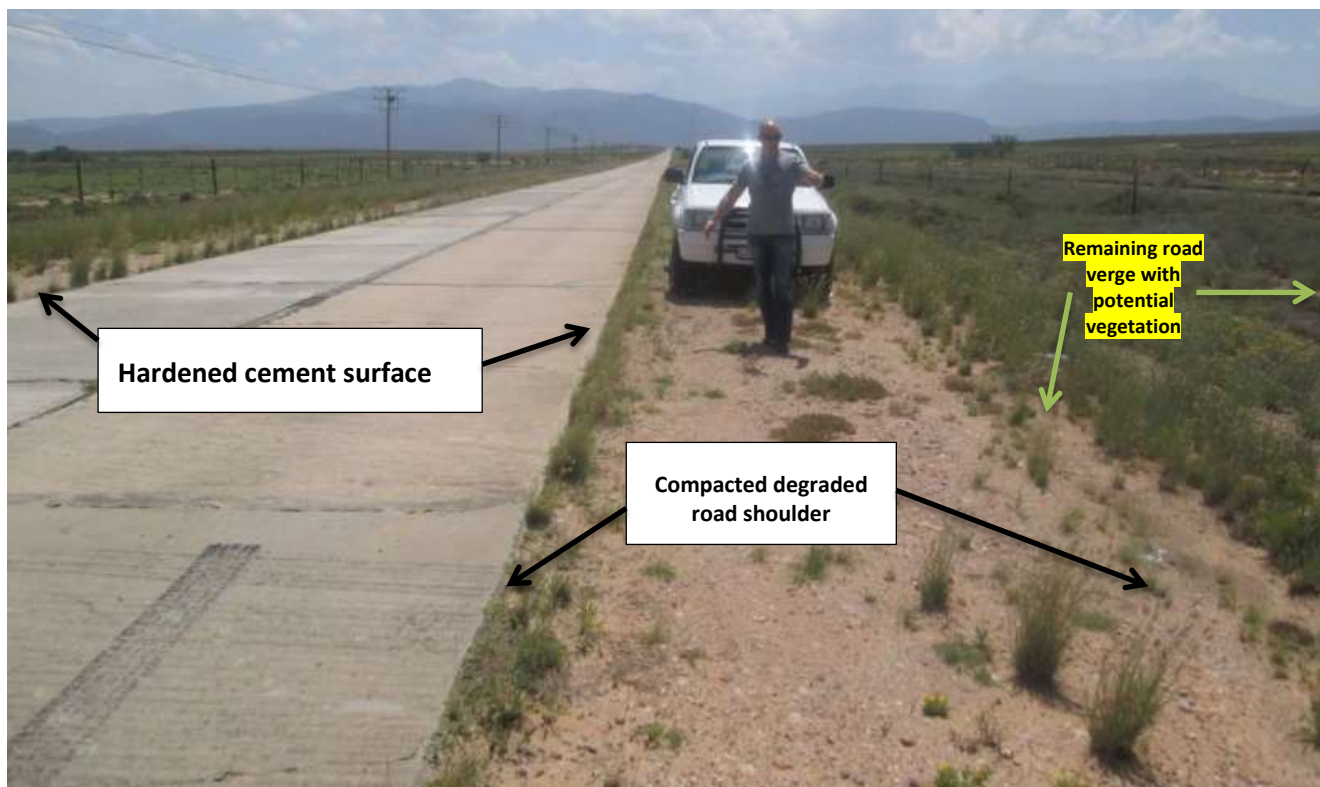


Photo 1: The DR1688 road reserve (photo taken from the EMP, Figure 1 within the EMP)

#### **Guidelines to the management of the footprint from the EMP & Botanical report**

**EMP (Heading 2.1 of the EMP):** According to the first section of the EMP the construction footprint should only affect the hardened cement surface and the compacted road shoulder (Refer to Figure 1 of the EMP). The aim being not to disturb the remaining (even though degraded) potential natural veld still remaining within the road verge.

**The Botanical report** acknowledged that little truly natural vegetation remains within the road reserves, as a result of the long term effect of the removal or disturbance of the natural veld within the road reserve under the banner of “*maintenance*”. However, in some areas the vegetation was intact and ecologically functional. As a result the botanical report recommends that: “*The most important mitigation measure would be to avoid causing any further disturbance of the vegetation within the road reserve. It is acknowledged that the verge of the road (a strip of 2 – 3 m wide) would, in future, be kept clear of vegetation for safety and visibility purposes. However, there is no need to disturb the vegetation in the zone between the verge and the boundary fences.*”

**Generic construction phase EMP (Heading 4 of the EMP):** However, the mitigation measures described in Table 1 (Pre-Construction, P28-29 & P32-33) and Table 5 (Construction phase, P55) of the EMP contradicts the above, and actually allows for the use of the whole of the road reserve (Heading 5.2.1 of this report). According to the generic construction phase EMP’s (Point 11.2 & 11.3)

- Most of the natural areas are situated behind an existing fence line. This natural vegetation will and may not be disturbed and will be clearly demarcated and seen as no go areas. The road upgrade needs to take place within the existing degraded road verge as per the approved Basic Assessment Report.

- All existing degraded road verges will be disturbed along DR1699 and DR1688 as per approved Basic Assessment Report due to the fact that the road will be widened. The widening of the road will only expand on the existing degraded road reserves. The surrounding natural areas will be clearly demarcated and seen as no go areas.

**NB:** It is very important to keep in mind that the Calitzdorp and surrounding areas are in the midst of a very serious drought, which would have affected remaining natural veld severely. Meaning that although some of the road reserves might look devoid of any vegetation, it is not necessary true that they did not support natural vegetation during normal seasons.

### **Current construction practices and compliance**

Both the EMP and the Botanical reports recommended the protection of any remaining natural veld that is encountered between the hardened road shoulder and the road reserve boundary fence (Refer to Photo 1 in this report). From the ECO reports and on-site verification this was clearly not a viable option in terms of the current construction method.

At present construction is done as follows (Refer to Photos 10-12, Heading 8 of this report):

- In order to remove the concrete surface and prepare the new road surface, both the concrete area and the hardened road shoulders are demarcated as the construction site (e.g. Photo 4 & 5). It was also pointed out that the new road had to be re-aligned and sometimes slightly shifted in order to ensure compliance with road construction guidelines (all of which meant more construction activities and a larger footprint required);
- To allow for normal traffic, temporary by-pass roads had to be constructed next to existing roads, while the concrete from the original roads were recovered and the roads prepared. For safety reasons it is placed as far away from the construction site as possible (Refer to Photo 10). It means that the by-pass roads had to be established within the remaining road reserve, which is the area described by both the EMP and the Botanical report as the areas that should be conserved;
- This is in contradiction with the first section (Heading 2.1, Figure 1) of the EMP and the Botanical report and also means that the construction footprint is larger than anticipated (resulting in a larger environmental impact);
- Fortunately, according to the ECO, the topsoil (with its seed-store) were stripped (and are stored) in areas with remaining indigenous vegetation in order to facilitate later rehabilitation and to mitigate the impact. It was noted that the ECO is also a qualified botanist.
- The first section of the road (up to the Calitzdorp Spa turn-off) was not seen as the most sensitive portion of the road (bordering on intensively cultivated land). The botanical report also did not identify this section as the most significant part of the road in terms of remaining natural veld. Because of the reported poor status of any potentially remaining natural veld in this section, construction to date it is considered unlikely to have resulted in any significant additional environmental impact. However, it is likely to result in significant impact further along the remainder of the road.

**It is clear that either the construction method must be adjusted or the Botanical recommendation must be changed. It is also clear that unless an alternative road exists, that can be used by normal traffic, temporary by-pass roads will have to be established during construction, which will impact on the road reserve.**

### **5.2.2 Access roads**

All temporary access roads (e.g. access to bridges and culverts) outside of the dedicated footprint had to be approved by the ECO before they can be constructed (Please refer above).

- Temporary access roads to culverts and bridges had to be clearly demarcated;
- All temporary access roads, must be re-habilitated on completion of the works at each site;
- Photographic evidence of all rehabilitation measures to be kept on file.

### **5.2.3 Fires**

No open fires were allowed on site or within the site camp (except in designated areas).

## **5.3 WASTE MANAGEMENT**

General waste is collected in waste bins that had to be placed at each work site. Collection of waste into bags alone were not allowed, unless for immediate transport. General waste and potential hazard waste was sorted separately.

- Waste bins were to be cleaned on at least a weekly basis;
- Waste safe disposal slips were required and checked by the ECO;

### **Compliance**

- Small issues were observed within the ECO files, but no significant non-conformities were recorded;

## **5.4 HAZARDOUS CHEMICAL SUBSTANCES**

A register of hazardous substances were required by the EMP. Hazardous waste (with their MSDS) had to be recorded and filed at the site offices.

- Hazardous substances were stored in bunded areas;
- Personnel received induction training, with proof of training on file.

## **5.5 SPILL RESPONSE AND POLLUTION PREVENTION**

Spill kits and drip trays were a requirement at the construction site. The DEO and key staff were trained in the usage of the spill kit. The ECO checked spill kits and drip trays on monthly basis.

### **Compliance**

- According to the ECO, the DEO had a spill kit permanently in the back of his vehicle.
- No incidents were reported.

## **5.6 SEWAGE AND SANITATION**

According to the EMP adequate ablution and washing facilities had to be available at active working areas, but they may not be placed within 100m of any watercourse.

### **Compliance**

- According to the ECO reports adequate chemical toilets were placed strategically at each active working area;

- Records of cleaning of these facilities were on file;
- No incidents of spillages were recorded.

## **5.7 MANAGEMENT, HANDLING AND STOCKPILING OF TOPSOIL**

According to the EMP, stockpiles may only be placed at dedicated stockpile areas. They must be kept clean of alien invasive weeds. This includes the stockpiling of topsoil, which must be kept separate of other material.

### **Compliance**

- A number of small incidents were observed by the ECO and addressed by the contractor;
- No significant non-conformities were recorded.

## **5.8 MANAGEMENT OF WATERCOURSES / WATER SOURCES**

According to the EMP, construction material may not be stockpiled on river banks or within any watercourse or floodplain. Spill kits and drip trays must be available and in place when working near any watercourse. No watercourses may be diverted, dammed or modified without a water use license in place. In addition no sediment or run-off may enter the watercourses (control measures must be in place).

### **Compliance**

- According to the ECO reports and evidence seen (Refer to Appendix 6) a water use authorization for construction within the watercourses were in place;
- No stream diversions would be required;
- Contracts were in place with adjacent landowners where access means entering their property;
- Agreements were on file for the use of borehole water from neighbouring landowners and records of water abstraction are kept;
- No significant non-conformities were recorded, according to the ECO reports.

## **5.9 PROTECTION OF NATURAL & HERITAGE RESOURCES**

According to the EMP, key personnel had to be given awareness training regarding heritage and cultural artifacts and finds. A procedure for reporting finds must be on file and staff must be aware of this procedure.

### **Compliance**

- According to the ECO report, personnel received induction training on cultural and/ or heritage artifacts and training records were on file;
- Construction footprints had to be clearly demarcated, aiming at minimum disturbance;
- According the ECO reports a number of incidents relating to clearing of areas wider than the original footprint were recorded.
- However, no heritage or cultural finds were observed or reported to date (the chances of any heritage finds was considered very low by the BAR).

## **5.10 ENVIRONMENTAL TRAINING & AWARENESS**

According to the EMP the ECO are responsible in ensuring everyone on site is given an environmental awareness induction session which not only clearly defines what the environment is and specifics detailing the

local environment but outlines the requirements of the EMP as a management tool to protect the environment.

Refresher courses must be conducted as and when required. The EO or ESO must ensure daily toolbox talks include alerting the workforce to particular environmental concerns associated with the tasks for that day or the area/habitat in which they are working. Awareness posters and a hand out must be produced to create awareness throughout the site.

### **Compliance**

- According to the records all personnel of the main contractor (Amandla-Umzali JV) received appropriate training on the 10<sup>th</sup> and 22<sup>nd</sup> of February 2019.
- Newly appointed personnel underwent the same training and records of all training are kept on file.
- Toolbox talks included environmental compliance issues for each working area and records are on file.

### **5.11 LICENCES AND PERMITS**

The EMP and EA required that the holder must comply with any other statutory requirements that may be applicable to the undertaking of the listed activities.

### **Compliance**

- According to the ECO all necessary statutory requirements were in place (Refer to Appendix 6);
- Statutory requirements were reviewed on a monthly basis by the ECO;
- The ECO also evaluated compliance to these authorizations or permits;
- No non-compliances were recorded or observed.



## 6. EFFECTIVENESS OF THE EMP

According to the author the EMP is based on the EMP Guideline provided by DEA&DP which was compiled in accordance with the Integrated Environmental Management (IEM) philosophy which aims to achieve a desirable balance between conservation and development (DEAT, 1992). The IEM guidelines intend encouraging a pro-active approach to sourcing, collating and presenting information in a manner that can be interpreted at all levels.

In general the EMP seems to cover all significant aspects of the proposed construction activities. Its strength being in its relative ease of use (referring to Table 1- 7). However, because of addressing various aspects in various tables it also meant quite a lot of duplication.

The EMP clearly defined the project and describes the scope of work in some detail and:

- It touches on potential noise pollution, heritage impact and visual impact, which were seen as aspects not likely to result in significant environmental impact;
- It also touches on potential impacts on fauna and flora, but mentioned that a botanical assessment and search and rescue during the spring before construction activities;
- It covers enforcement, monitoring and auditing and communication channels;
- Heading 4 describes generic construction phase implementation which is quite descriptive and very detailed. It seems to be a very good tool to use for guiding compliance for almost all potential situations that might arise.
- However, some contradictions between the Generic construction EMP and specialist reports, which will have to be addressed.

### 6.1 POTENTIAL SHORTCOMINGS OF THE EMP

It is important to note that this audit focused on the environmental impacts associated with the construction activities and was outcome driven in the sense that it concentrated on practical implementation and conservation outcome more than on document control throughout the process. The following potential shortcomings were identified.

#### 6.1.1 Site demarcation & Vegetation:

- Both the EMP and the Botanical reports recommended the protection of potential remaining natural veld within area between the hardened road shoulder and the road boundary fence. From the ECO reports and on-site verification **this was clearly not a viable option in terms of the current construction method** (Refer to Table 1, Condition E6 and Heading 5.2.1 in this report).
- It also seems as if **these recommendations were contradicted by the mitigation measures described in Table 1** (Pre-Construction, P28-29 & P32-33) and Table 5 (Construction phase, P55), please refer to Heading 5.2.1 (P20), which describe this contradiction in more detail (Refer to Heading 5.2.1).

#### 6.1.2 Impact on water courses

The EMP also advocate the following mitigation measures in Table 1: *"All watercourses must be clearly marked off with temporary fencing, and must be seen as No-Go-Areas. No construction activities will be allowed within the watercourses. Before construction activities commence the contractor together with the suitably qualified ECO needs to cordon off all non-perennial watercourses."*

- The purpose of this recommendation might be misunderstood, but from the observation during the site visit it was clear that almost all of the watercourses **had to undergo** at least a temporary impact or disturbance in order to ensure that the new culverts could be installed or to align them with storm water control measures.
- However, it was also noted that care was being taken to ensure that these impacts remained within the road reserve. No construction activities were allowed outside of the demarcated road reserve.

## 6.2 AMENDMENTS TO THE EMP

It is important to note that an EMP should not be too prescriptive and should allow some leeway for the ECO in which to operate, however, it must also strengthen the ECO's hand in certain instances and should clearly outline the **"desired outcome"** so that the ECO is able to enforce the correct method of construction in relation to the specific on-site conditions. Two contradictions which may have potentially significant consequences have been observed and need to be clarified (Refer to Headings 6.1.1 & 6.1.2 above):

- The first relates to the fact that both the botanical report and the first section of the EMP recommends the protection of any potential remaining natural vegetation within the road reserve, since some of these vegetation types are considered vulnerable or endangered. Although very little truly natural veld remains, the botanical report recommends certain mitigation methods. Presently the Pre-construction and Construction EMP's contradict these recommendations. A clear stance needs to be made in terms of what will be acceptable (Refer to potential recommendations underneath).
- The second observation refers to potential impact on watercourses as described under heading 6.1.2 above. This should also be clarified.
- The EMP should be updated within 30 days of this audit report being approved by the DEA&DP (and all comments have been received), but must be updated before any further phases of the road construction commences (from 15.18 km onwards – the Calitzdorp Spa turn-off).

### **Recommendations:**

The following recommendations are made for consideration into an update of the EMP:

- The most important mitigation measure would be to minimise the disturbance footprint within the road reserve. All efforts should be made to protect any remaining natural vegetation between the road shoulder and the boundary fences;
- All areas with significant remaining natural veld should be marked on the construction maps, which must be used between the Engineers and the ECO to decide on the best construction method for that specific area.
- Where disturbance is unavoidable (e.g. construction of by-pass roads) the by-pass roads should be placed along one side of the road, whilst protecting the road reserve on the other side of the road (which should be demarcated as NO-GO areas). Ideally the side that is protected should contain the better general vegetation complement.
- Topsoil must be removed from areas to be disturbed and protected for use during the rehabilitation of the road verges;
- Areas that are disturbed must be monitored by the ECO or a suitably qualified person and rehabilitated on completion of construction (e.g. seeds should be collected from plants in the same community in nearby undisturbed vegetation for use during rehabilitation).

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## **6.3 CONCLUSION**

### **6.3.1 Compliance with the EA**

This audit report did not identify any significant non-compliance to the conditions of the environmental authorization(s).

### **6.3.2 Compliance with the EMP**

In general the EMP seems to cover all significant aspects of the proposed construction activities. Its strength being in its relative ease of use (referring to Table 1- 7). However, because of addressing various aspects in various tables it also meant quite a lot of duplication.

The EMP clearly defined the project and describes the scope of work in some detail and:

- It touches on potential noise pollution, heritage impact and visual impact, which were seen as aspects not likely to result in significant environmental impact;
- It also touches on potential impacts on fauna and flora, but mentioned that a botanical assessment and search and rescue during the spring before construction activities;
- It covers enforcement, monitoring and auditing and communication channels;
- Heading 4 describes generic construction phase implementation which is quite descriptive and very detailed. It seems to be a very good tool to use for guiding compliance for almost all potential situations that might arise.
- However, some contradictions between the Generic construction EMP, first Section of the EMP and the specialist reports (Refer to Heading 6.1), which will have to be addressed.
- It is recommended that the EMP be updated/amended as discussed under heading 6.2.

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## **7. CLOSURE PLAN**

Not applicable: construction is still in progress.

## 8. SITE PHOTOGRAPHS



Photo 2: Construction progress DR1699 (not applicable to the this audit report, but included to give the full picture of construction progress)



Photo 3: Construction progress DR1699 (not applicable to this report)



Photo 4: The DR1688 at the point where upgrades started





Photo 5: DR1688, construction activities and by-pass road at the first bridge from Calitzdorp direction



Photo 6: A closer look at the bridge rehabilitation in progress.



Photo 7: Stockpile area one, next to the DR1688. The cement would be crushed and used as subbase along the road



**Photo 8: Tar mixing area**



**Photo 9: A portion of the completed road section**



**Photo 10: A portion of the construction area, showing the DR1688 to the left, with the bypass road next to it.**





**Photo 11:** The grader re-shaping the road shoulder. In areas like these, topsoil must be removed beforehand and replaced afterwards.



**Photo 12:** one of the larger culverts along the DR1688.



**Photo 13:** Bridge rehabilitation in progress, with the bypass road to its left

## Appendix 1: Environmental Authorization (13/10/2014)



## Appendix 2: Notice of intent to commence (15/01/2019)

## Appendix 3: Proof of notification of I&AP's (outcome of the EA)

## Appendix 4: Botanical study – Bergwind botanical surveys and tours

## Appendix 5: DEA&DP approval of the updated EMP (Dated 13/07/2015)

## Appendix 6: Proof of compliance with other statutory requirements

## Appendix 7: An example of the ECO reports