

BASIC ASSESSMENT REPORT FOR THE PROPOSED UPGRADE OF TRUNK ROAD 28, SECTION 1 - LYNX ROAD TO MIMOSA STREET, HERMANUS

Prepared for: EFG Engineers (Pty) Ltd on behalf of
Western Cape Government: Department of Transport
and Public Works (Road Design)

Authority Ref: 16/3/3/6/7/1/E2/15/1308/19

SLR Project No: 720.05043.00005
Revision No: 0
Date: March 2021



DOCUMENT INFORMATION

Title	Basic Assessment Report for the Proposed Upgrade of Trunk Road 28, Section 1 - Lynx Road to Mimosa Street, Hermanus
Project Manager	Eloise Costandius
Project Manager e-mail	ecostandius@slrconsulting.com
Author	Rizqah Baker and Eloise Costandius
Reviewer	Fuad Fredericks
Keywords	Trunk Road 28, Section 1, R43, Road Upgrade, Basic Assessment
Status	Draft
Authority Reference No	16/3/3/6/7/1/E2/15/1308/19
SLR Project No	720.05043.00005

DOCUMENT REVISION RECORD

Rev No.	Issue Date	Description	Issued By
0	March 2021	Draft issued for I&AP review	E. Costandius

BASIS OF REPORT

This document has been prepared by an SLR Group company with reasonable skill, care and diligence, and taking account of the manpower, timescales and resources devoted to it by agreement with **EFG Engineers (Pty) Ltd on behalf of Western Cape Government: Department of Transport and Public Works (Road Design)** (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

SLR shall not be liable for the use of or reliance on any information, advice, recommendations and opinions in this document for any purpose by any person other than the Client. Reliance may be granted to a third party only in the event that SLR and the third party have executed a reliance agreement or collateral warranty.

Information reported herein may be based on the interpretation of public domain data collected by SLR, and/or information supplied by the Client and/or its other advisors and associates. These data have been accepted in good faith as being accurate and valid.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

The copyright and intellectual property in all drawings, reports, specifications, bills of quantities, calculations and other information set out in this report remain vested in SLR unless the terms of appointment state otherwise.

This document may contain information of a specialised and/or highly technical nature and the Client is advised to seek clarification on any elements which may be unclear to it.

Information, advice, recommendations and opinions in this document should only be relied upon in the context of the whole document and any documents referenced explicitly herein and should then only be used within the context of the appointment.

EXECUTIVE SUMMARY

1. INTRODUCTION

The Western Cape Government (WCG): Department of Transport and Public Works (Directorate: Road Design) (DTPW) is proposing to upgrade Trunk Road 28, Section 1 (a section of the R43) between Botrivier and Hermanus. The R43 provides a direct link between the towns of Botrivier and Hermanus, starting at the R43 turnoff from the N2 in Botrivier and ending in Main Street in Hermanus.

The focus area of the proposed project is the section of road that starts \pm 600 m from the Lynx Road Intersection (km 23.00) at Vermont and ends at the Mimosa Street / Mountain Drive Intersection (km 29.46) in Hermanus (see Figure 1). This section of road passes through the residential suburbs of Vermont and Onrus before it crosses the Onrus River, passes Sandbaai and then through Mount Pleasant, where it terminates at the Mimosa Street / Mountain Drive Intersection in Hermanus. The road section consists of a single carriageway, except for an approximate 2.5 km section of road between the Onrus Bridge and the Mimosa Street / Mountain Drive Intersection which is a dual carriageway.

DTPW appointed EFG Engineers (Pty) Ltd (EFG) to investigate and undertake the necessary planning and design studies for the dualling of Trunk Road 28, Section 1 between Vermont and Sandbaai. As a scope extension, the periodic maintenance of the section between Sandbaai and Hermanus was included in the assignment. These investigations and studies are aimed at addressing various issues along the R43, such as traffic volumes in the high tourist seasons; pavement capacity constraints; and the provision of non-motorised facilities, public transport facilities and street lighting and other ancillary works.

SLR Consulting (South Africa) (Pty) Ltd (SLR) has been appointed by EFG as the independent Environmental Assessment Practitioner (EAP) to undertake the required Application for Environmental Authorisation (EA) and associated Basic Assessment (BA) process for the proposed project. The BA process has been undertaken in terms of the relevant requirements of the Environmental Impact Assessment (EIA) Regulations, 2014 (Government Notice (GN) No. R982, as amended by GN No. 326) promulgated in terms of the National Environmental Management Act, 1998 (No. 107 of 1998), as amended (NEMA).

This Executive Summary provides a comprehensive synopsis of the Basic Assessment Report (BAR) prepared for the proposed project. The BAR has been compiled to assess the potential environmental impacts of the proposed project and as a basis to inform Interested and Affected Parties (I&APs) of the proposed project and to obtain their feedback.

2. OPPORTUNITY TO COMMENT

This draft version of the BAR and Environmental Management Programme (EMPr) has been distributed for a 30-day public review and comment period from 17 March to 20 April 2021 in order to provide I&APs and authorities the opportunity to comment on the proposed project and the draft BAR. Copies of the report were made available on the SLR website (www.slrconsulting.com/public-documents/R43-upgrade) and a hard copy version of the draft BAR was also placed in the Mount Pleasant Library. Any comments should be forwarded to SLR at the address, telephone or e-mail addresses shown below. For comments to be included in the final BAR, comments should reach SLR **by no later than 20 April 2021**.

Ms. Candice Sadan

SLR Consulting (South Africa) (Pty) Ltd

5th Floor, Letterstedt House, Newlands on Main, Corner of Main and
Campground Roads, Newlands, Cape Town 7700

PO Box 798, Rondebosch, 7701

Tel: (021) 461 1118 / 9

E-mail: csadan@slrconsulting.com

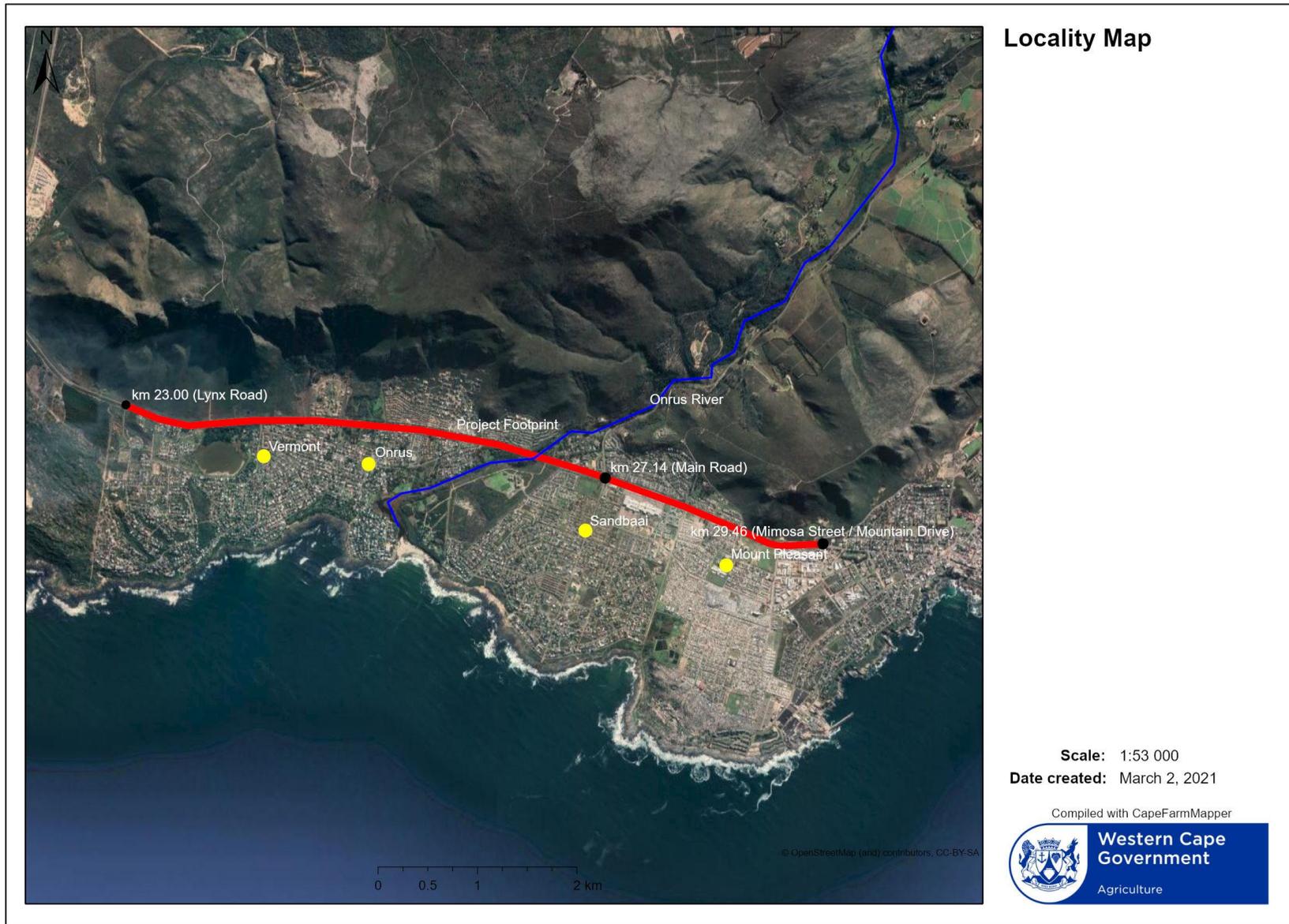


FIGURE 1: LOCALITY MAP SHOWING THE EXTENT OF THE PROPOSED ROAD UPGRADE PROJECT ALONG THE R43 (SOURCE: CAPE FARM MAPPER, 2021)

After the conclusion of the comment period, all comments received will be collated into a Comments and Responses Report and included in the final BAR, which will be prepared for submission to the Department of Environmental Affairs and Development Planning (DEA&DP) for consideration of the application.

After DEA&DP has reached a decision, all registered I&APs will be notified of the outcome of the application and the reasons for the decision. A statutory Appeal Period in terms of the National Appeal Regulations, 2014 will follow the issuing of the decision.

3. AUTHORISATION REQUIREMENTS

A BA is required in terms of the EIA Regulations, 2014 (as amended), as the proposed project triggers the following listed activities:

Listing Notice 1 - GN No. R983 of 2014		Project Description
19	<i>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;...</i>	The proposed project would result in the deposition and / or excavation and removal of more than 10 m ³ of material from a watercourse for the construction of the new bridge (Onrus River) and the service road / temporary bypasses, as well as the widening of existing culverts north of the road.
Listing Notice 3 - GN No. R985 of 2014		Project Description
12	<i>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:</i> i. <i>Western Cape</i> iv. <i>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; ...</i>	The proposed project entails the clearance of an area of more than 300 m ² of indigenous vegetation along sections of the proposed widened road reserve that would encroach on the following properties that are zoned as public open space: Erf 4716 (Open Space 3); Erf 4715 (Open Space 3); Erf 4779 (Open Space 3); Erf 5152 (Open Space 3); Erf 1291 (Open Space 2).
18	<i>The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.</i> i. <i>Western Cape</i> i. <i>Areas zoned for use as public open space or equivalent zoning; ...</i>	The proposed project entails the widening of the road width by approximately 19.5 m between km 23.00 and km 27.14 and would encroach on the properties mentioned above that are zoned as public open space.

Registration of water uses in terms of the National Water Act, 1998 (No. 36 of 1998; NWA) is also required where the proposed works cross watercourses and where the proposed project entails the dualling of the existing road over the Onrus River by constructing a new bridge next to the existing Onrus Bridge. This process is being undertaken in parallel to the BA process.

Section 38 of the National Heritage Resources Act, 1998 (Act. No 25 of 1998; NHRA) required a Notice of Intent to Develop (NID) form to be submitted to Heritage Western Cape (HWC) for comment. In their consideration of the NID (see Appendix G3), submitted on 30 June 2020, HWC confirmed that no further action under Section 38 of the Act is required (correspondence dated 14 July 2020) (see Appendix E).

4. PROPOSED PROJECT

The proposed project entails the following:

- Dualling of the existing single carriageway road (between km 23.00 and km 27.14) to an Urban Class E (ii) cross-section (see Appendix B2), with each carriageway consisting of two 3.7 m lanes, a 3.1 m outside shoulder and a 2.0 m sidewalk. There would also be a 5.0 m paved median between the two carriageways;
- The provision of bus stops at major intersections and junctions;
- The provision of appropriate stormwater channels along the kerbed sections and the widening of the road reserve width by 15 m to a minimum width of 45 m between km 23.00 and km 27.14 (would vary with topography);
- The provision of dedicated turning lanes at main accesses, as appropriate;
- The relocation of various services and shifting of an existing 10 m services servitude to the north adjacent to the new road reserve; and
- The dualling of the existing road over the Onrus River by constructing a new bridge next to the existing Onrus Bridge.

The widening of the road is proposed to only be undertaken towards the northern side of the existing R43.

The proposed project also entails works on various culverts along the road and the relocation and provision of new access roads to Amana / Paradise Park, Berghof Estate and Kidbrooke Place, as described below:

- The existing access road to Amana / Paradise Park from the R43 would be closed (km 23.60). An alternative access road to Amana is proposed at the intersection of Onrus Main Road and Vermont Avenue. With the closure of the existing Amana / Paradise Park access from the R43, the alternative access to Paradise Park would be via the existing Malmok Street.
- The existing access road (Lobelia Street) to Berghof Estates from the R43 (km 24.18) would be closed. A new access would be created at approximately km 24.59 and a new local access road would be provided via Erf RE/581.
- The existing access road to Kidbrooke Place (km 25.82) would be closed and relocated northwards to tie in with an existing unnamed road within the estate.

The proposed works also entail a pavement reseal on the road section between km 27.14 (Sandbaai Main Road) and km 29.46 (Mimosa Street / Mountain Drive).

The duration of the construction phase would be approximately 24 months.

5. AFFECTED ENVIRONMENT

The topography is relatively flat, as the existing road has been constructed at the toe of the mountain slope. The project site is located on an aquifer that is classified as a major aquifer of most vulnerability and high susceptibility. Groundwater depth is estimated at approximately 10 m below ground level.

The project area is located within the G40G quaternary catchment. The main aquatic feature within this catchment is the Onrus River. A number of smaller watercourses drain the hillslopes along the section of the road to be upgraded, but most of these watercourses are no longer visible within the lower reaches, downstream of the road, due to residential development. Additionally, none of the watercourses crossed by the road contain any significant aquatic habitat.

In terms of the Western Cape Biodiversity Spatial Plan (WCBSP), portions of the affected watercourses have been mapped as aquatic Ecological Support Areas (ESAs), while the Onrus River is mapped as an aquatic Critical Biodiversity Area (CBA). However, this is only associated with the wetland habitats along the river upstream and downstream of the road, but not within the actual road reserve, while the portions of the watercourses mapped as ESAs lie to the west of the proposed works.

Where the R43 crosses the Onrus River, the river is confined to a narrow channel where there is a sudden transition from a wider more braided river channel with a wetland, to a single channelled watercourse with a dense riparian area that

comprises of alien woodland habitat. The Onrus River is also mapped as a Fish Support Area in terms of the Freshwater Ecosystem Protected Areas map (SANBI).

The R43 traverses a zone of Hangklip Sand Fynbos (Endangered) and a minor zone of Overberg Sandstone (Critically Endangered). The proposed project traverses no CBA2 units, in terms of the WCBSP. However, the proposed project traverses an area (landfill area between Berghof Estate and Onrus Manor) classified as Ecological Support Area (ESA) 1 and a CBA1, in terms of the WCBSP.

Invasive alien plants such as *Acacia saligna*, *Leptospermum laevigatum*, *Hypericum revolutum* and *Pennisetum clandestinum* are located within the road reserve. No undisturbed remnants of Hangklip Sand Fynbos (Endangered) or Overberg Sandstone Fynbos (Critically Endangered) are located within the road reserve. A secondary vegetation community which contains a mix of indigenous species that does not fall within the definition of the above-mentioned fynbos classification, has developed within the road reserve as a result of road construction and periodic maintenance. Notably, *Thamnochortus insignis* is one such species that has proliferated within the road reserve yet is not native to the area. It is believed that the use of the reed as thatching material by local residents has led to the distribution. The proposed new access road between Lobelia Street and Chanteclair Avenue would traverse a transformed area. Immediately adjacent to Berghof Estate, there exists remnant fynbos that has been heavily degraded by trees having grown and subsequently being felled. Towards the east, the area is mostly vegetated with exotic species such as *Eucalyptus conferruminata*, *Pinus halepensis*, *Hakea drupacea* and *Acacia* spp.

Archaeological resources in the form of Later Stone Age shell middens and associated artefactual material have been found in the broader region. However, no archaeological material of any type was identified in the proposed area of disturbance. The Onrust Cemetery lies to the south of the R43. The cemetery is graded as an IIIA heritage resource in terms of the Overstrand Heritage Survey. A wall separates the cemetery from the R43. The section of the R43 between Hawston and the Hemel en Aarde turnoff is considered to be a scenic route of secondary importance. No other places, buildings, structures and equipment of historical and cultural significance are located within the proposed project area of disturbance.

Trunk Road 28, Section 1 passes through the residential suburbs of Vermont and Onrus before it crosses the Onrus River, passes Sandbaai and then through Mount Pleasant, where it terminates at the Mimosa Street / Mountain Drive Intersection in Hermanus (refer to Figure 1).

6. ENVIRONMENTAL IMPACT STATEMENT

The majority of the potential impacts are expected to be of **VERY LOW** to **LOW** significance after mitigation. Socio-economic benefits related to potential employment opportunities are rated as of **VERY LOW (POSITIVE)** significance during the construction phase. Traffic disruption impacts during the construction phase are deemed to be of **LOW** significance after mitigation. Socio-economic benefits related to improved road safety, traffic alleviation and provision of non-motorised and public transport facilities post-construction, are rated as of **HIGH (POSITIVE)** significance.

The change of land use of expropriated land to make provision for the widening of the road is rated as of **VERY LOW** significance after mitigation since the current land uses of required expropriated land ranges from open space to landscaped gardens and parking areas. Furthermore, the road reserve along the R43 has previously been declared as a provincial road reserve and some of the current land uses are considered as having encroached into the provincial road reserve. Construction activities would result in a localised increase in dust, noise levels and visual impacts which may be a nuisance to local residents. Given the short duration and extent of the construction phase, the significance of these potential impacts is deemed to be **VERY LOW** after mitigation.

The significance of potential impacts related to indigenous vegetation and terrestrial and aquatic ecosystems are deemed to be **LOW** and **VERY LOW**, respectively, given the degraded and seriously modified state of vegetation within the road reserve and freshwater habitat in the project area, respectively.

Post-construction, or during the maintenance phase, freshwater features and vegetation in the road reserve may be impacted negatively through the spread of alien vegetation and sedimentation of the culverts and other features. With the implementation of the recommended mitigation measures, the significance of the potential residual impacts is deemed to be **LOW** for freshwater features and **VERY LOW** for vegetation.

The No-Go alternative would not be beneficial to society in any way and would mean that additional traffic volumes would not be accommodated on the road, road safety would not be improved, and the potential short-term employment benefits would not be realised. The No-Go alternative is deemed to have a **HIGH** significance.

A summary of the potential positive and negative impacts identified for the proposed project is provided below:

TABLE 1: CONSTRUCTION-RELATED IMPACTS.

Impact	Significance without mitigation	Significance with mitigation
Land Use	Low	VERY LOW
Nuisance Aspects (air quality, noise and visual)	Low	VERY LOW
Vegetation Impacts	Low	LOW
Terrestrial and Aquatic Ecosystems Impacts	Low	VERY LOW
Socio-Economic benefits	<i>Very Low (positive)</i>	<i>VERY LOW (POSITIVE)</i>
Traffic Disruption	Low	LOW
Surface and Groundwater Contamination	Insignificant	INSIGNIFICANT

TABLE 2: POST-CONSTRUCTION / MAINTENANCE-RELATED IMPACTS.

Impact	Significance without mitigation	Significance with mitigation
Freshwater Resources Contamination	Low	LOW
Vegetation Impacts	Very Low	VERY LOW
Socio-Economic benefits	<i>High (positive)</i>	<i>HIGH (POSITIVE)</i>

TABLE 3: IMPACTS ASSOCIATED WITH THE NO-GO OPTION.

Impact	Significance without mitigation	Significance with mitigation
No-Go Alternative	HIGH	

7. RECOMMENDATIONS

Table 4 below includes a list of the recommended mitigation / enhancement measures to reduce / optimise the identified impacts / risks:

TABLE 4: RECOMMENDED MITIGATION / ENHANCEMENT MEASURES.

Impact / risk	Mitigation / enhancement measure
Land Use - Construction Phase	<ul style="list-style-type: none"> Minimise the extent of land expropriation as far as possible. Ensure that the “willing buyer, willing seller” model is applied for the proposed land acquisition, as far as possible. Provide fair and timely compensation to landowners affected by land expropriation, as appropriate.
Nuisance (Air Quality, Noise, Visual) – Construction Phase	<ul style="list-style-type: none"> The Contractor shall be familiar with and adhere to, any local by-laws and regulations regarding the generation of noise and hours of operation. In addition, the provisions of SANS 10103 regarding the generation of noise shall apply to all areas within audible distance of residents. The Contractor shall endeavour to keep noise-generating activities to a minimum, particularly during night-time work. Implement a procedure for recording and managing external grievances / complaints. Noise monitoring shall be conducted in the event that a noise-related complaint is received. Corrective actions shall be identified as required. No high noise-generating activity outside of normal hours, regardless of its proximity to residences, can take place without application to the Resident Engineer (RE) for approval.

	<ul style="list-style-type: none"> • The Contractor shall restrict all operations that result in high noise disturbance to local communities and / or dwellings to daylight working hours on weekdays or as otherwise agreed with the RE and local authority. • Ensure vehicles and equipment are maintained and in good working order. • The Contractor shall ensure that the generation of dust is minimised and shall implement a dust control programme (with due consideration to conserving water) to maintain a safe working environment, minimise nuisance for surrounding residential areas / dwellings and protect damage to natural vegetation. • Provide appropriate measures for visual screening (e.g. at construction yards, batching plants, laydown areas, etc.).
<p>Vegetation Impacts - Construction Phase</p>	<ul style="list-style-type: none"> • The Contractor shall ensure a RE-approved Method Statement (MS) for Vegetation Clearing is in place before commencement of site clearing activities. • Conserve shrubby vegetation (excluding alien invasive plant species) along the route where possible. • Before clearing of vegetation, the Contractor shall ensure that all litter and non-organic material is removed from the area to be cleared. • Vegetation clearing shall take place in a phased manner in order to retain vegetation cover for as long as possible in order to reduce the size of areas where dust can be generated by wind. • All indigenous plant material that needs to be cleared shall be stockpiled for mulching (to be used during rehabilitation). All remaining vegetation shall be removed and disposed of at an approved landfill site. • No vegetation shall be burnt on site. • The Contractor shall ensure that a RE-approved MS is in place for alien vegetation management. • The Contractor is responsible for the prevention of alien vegetation germinating in areas disturbed by road construction activities within and outside of the road reserve e.g. service roads, stockpile areas, stop / go facilities, windrows and wherever material generated for or from road construction has been stored temporarily. • Alien vegetation management shall be undertaken within the road corridor for a period of at least a year after completion of construction. • Any alien vegetation removal shall be undertaken by a suitably qualified service provider. Where required, appropriate training in the removal of alien vegetation shall be provided. • No on-site burying, dumping, stockpiling or burning of any alien vegetation may occur. Such material shall be removed from the site and disposed of at a suitable municipal collection point or landfill site.
<p>Terrestrial and Aquatic Ecosystems Impacts - Construction Phase</p>	<ul style="list-style-type: none"> • Limit the area of vegetation to be cleared by conserving any indigenous shrubby vegetation along the route, where possible. • The Contractor shall be responsible for informing all employees about the need to prevent any harmful effects on natural vegetation on or around the construction site as a result of their activities. • The use of herbicides and pesticides is prohibited unless approved by the RE. • The feeding of any wild animals is prohibited. • No domestic pets or livestock are permitted on site. • Monitor alien vegetation growth and prevent the occurrence and spread of thereof within the road reserve. • Ensure that, where required, appropriate training in the removal of alien vegetation is provided. • The Contractor shall ensure that no hunting, trapping, shooting, poisoning or otherwise disturbance of any fauna takes place. • Avoid construction during the night-time, where possible. • Ensure that the collection of wood from areas with indigenous vegetation does not take place.
<p>Socio-Economic benefits - Construction Phase</p>	<ul style="list-style-type: none"> • As far as possible, employ local Broad-Based Black Economic Empowerment (B-BBEE) service providers and local labour from the local community. • Ensure that procurement specifications are incorporated into tender documents. • Ensure that, where required, appropriate training of personnel is provided.

<p>Traffic Disruption - Construction Phase</p>	<ul style="list-style-type: none"> • The Contractor shall ensure that a RE approved MS is in place for traffic accommodation and diversions. • The Contractor shall appoint suitably trained traffic safety officers who shall be responsible for ensuring that construction activities do not obstruct traffic and that adequate traffic accommodation measures are put in place. • The Contractor shall also ensure that adequate vehicular and pedestrian traffic accommodation, signage and safety measures (as appropriate) are put in place on site. • The Contractor shall ensure that access through the site is maintained at all times for landowners and other road users and is in a suitable condition. • The Contractor shall be required to ensure that traffic diversion along the route is accommodated within the road reserve as far as is possible. • All construction vehicles shall comply with speed limits. • Sufficient warning signage shall be erected near the entry and exit points of the site. • Movement of heavy vehicles shall be limited to daylight hours, insofar as possible.
<p>Surface and Groundwater Contamination - Construction Phase</p>	<ul style="list-style-type: none"> • No stockpiling of materials shall be undertaken within 30 m of the Onrus River and any watercourses, drainage lines, etc. • The construction camp shall not be established within 30 m of the Onrus River and any watercourses, drainage lines, etc. • The Contractor shall prepare a MS for the containment, handling, storage and disposal of hazardous substances. • The Contractor shall prepare a MS detailing the procedure for dealing with accidental leaks and spills. • The Contractor shall ensure that its employees are aware of the procedure to be followed for dealing with accidental leaks and spills. • All fuel, oil and other hazardous substances shall be confined to demarcated, adequately bunded areas within the construction camp(s) and stored in suitable containers / storage facilities. • Suitable warning signs indicating the nature of the stored materials shall be displayed at the storage facility. • Drip trays or similar forms of secondary containment shall be provided for stationary plant (such as compressors, pumps, generators, etc.) and for "parked" plant (e.g. excavators, hauling trucks, etc.). • Where reasonably practical, plant and vehicles shall only be refuelled in a demarcated refuelling / servicing area using suitable equipment (e.g. pumps, funnels, etc.) • The surface under the refuelling area shall be protected against pollution (e.g. the use of drip trays, concrete sump, etc.). • The Contractor shall ensure that suitable hydrocarbon spill clean-up kits are readily available at refuelling areas. • All vehicles and equipment shall be kept in good working order and serviced regularly. Leaking equipment shall be repaired immediately or moved to a suitably contained area. • When servicing equipment, drip trays shall be used during the collection of waste oil and other hazardous substances (e.g. coolants, fuel, grease, etc.). • Cement and concrete mixing directly on the ground shall not be allowed and shall take place on impermeable surfaces. • Unused (full) cement bags shall be stored undercover and away from surface runoff. • Used (empty) cement bags shall be collected and stored in weatherproof containers. • All excess concrete shall be removed from site on completion of concrete works and disposed of. • Washing of the excess cement / concrete into the ground shall not be allowed.
<p>Freshwater Resources Contamination – Post Construction / Maintenance Phase</p>	<ul style="list-style-type: none"> • Minimise the spatial extent of disturbance. • Minimise the frequency of (or requirement for) maintenance activities. • Do not impede the movement of aquatic and riparian biota. • Minimise alterations to flow- and sediment-capacity. • Rehabilitate and re-vegetate disturbed areas as soon as possible. • Clear alien invasive plant species. • Restrict maintenance activities to the dry season where possible. • Prevent erosion and rehabilitate eroded areas. • Use existing access routes as far as possible. • Store and handle all hazardous materials and waste in a suitable manner, and at least 30 m outside of the Onrus River and any watercourses and drainage lines. • Remove excess spoil material and solid waste and ensure it is disposed of at approved waste disposal sites. • Ensure maintenance activities do not lead to channelisation or canalisation of the watercourses. • Remove cleared woody material from the areas adjacent to the watercourse and wetlands to prevent it being washed into the watercourses or wetlands.

Vegetation Impacts – Post Construction / Maintenance Phase	<ul style="list-style-type: none"> Any alien vegetation removal shall be undertaken by a suitably qualified service provider. Where required, appropriate training in the removal of alien vegetation shall be provided. No on-site burying, dumping, stockpiling or burning of any alien vegetation may occur. Such material shall be removed from the site and disposed of at a suitable municipal collection point or landfill site.
Socio-Economic benefits – Post Construction / Maintenance Phase	<ul style="list-style-type: none"> None identified.

Additionally, it is recommended that an ECO be employed to oversee and monitor compliance with the EA and EMPr for the duration of the construction phase of the project (see Section 3 of the EMPr for further details in this regard). Furthermore, DTPW must ensure that compliance with the conditions of the EA and EMPr is audited three months after commencement of the construction phase and three months after completion of construction. The respective environmental audit reports must be prepared by an independent person, with the relevant expertise and experience, and must be submitted to DEA&DP for consideration. The environmental audit reports must contain all information required as set out in Appendix 7 of the EIA Regulations, 2014 (as amended).

AFRICAN OFFICES

South Africa

CAPE TOWN

T: +27 21 461 1118

JOHANNESBURG

T: +27 11 467 0945

Namibia

WINDHOEK

T: + 264 61 231 287