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POST-APPLICATION DRAFT BASIC ASSESSMENT REPORT

FOR THE

THE PROPOSED STRENGTHENING OF THE TR75/1 (TRUNK ROAD 75/N12-HIGHWAY) NEAR OUDTSHOORN, OUDTHSHOON LOCAL MUNICIPALITY, GARDEN ROUTE DISTRICT MUNICIPALITY.

Compiled in terms of Appendix 1 of the Environmental Impact Assessment Regulations of 2014, as amended (GNR 326 of 2017; GNR517 of 2021), as promulgated in terms of the National Environmental Management Act of 1998 (Act No 107 of 1998).

PREPARED FOR:	Western Cape Government Department Of Infrastructure Transport Infrastructure Branch
DEA&DP REF:	16/3/3/6/7/1/D7/10/0125/23
SES REF NO:	20/CT/Post-App/DBAR/11/23
DATE:	10 November 2023

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CHANGES MADE BETWEEN PRE-APPLICATION DRAFT BASIC ASSESSMENT REPORT AND THE POST APPICATION BASIC ASSESSMENT REPORT

The application form for the proposed development was submitted to the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) on 30 October 2023. The Pre-Application Public Participation Process for the proposed development was conducted between 31 July 2023 and 1 September 2023, with the report distributed for public review on 27 July 2023. Reminders were sent to all potential Interested & Affected Parties and Stakeholders on 22 August 2023.

The following changes were made to the Appendices of the Basic Assessment Report:

- Appendix B2: The Sensitivity overlay of the proposed project was updated to indicate the locations of the auxiliary lanes as described in the BAR.
- Appendix F2: The Proof of Public Participation was included.
- Appendix F3: Comments and Responses Report (in the form of a table) was included.
- Appendix H: Environmental Management Programme (EMPr):
    - The EMPr was updated to include any additional mitigation measures raised by the I&APs and Stakeholders, if not originally included in the EMPr.
- Appendix I: The Screening Tool Report was replaced with a report extracted on 04 September 2023.
- Appendix L: The following appendices were added to this Appendix:
    - Appendix L3: Correspondence received from the Competent Authority:
        - Appendix L3a: Comments on the Notice of Intent to Develop (24 May 2023)
        - Appendix L3b: Comments on the Pre-Application Basic Assessment Report (4 September 2023).
        - Appendix L3b: Comments on the Application form submitted (13 June 2023).
    - Appendix L4: Curriculum Vitae of the EAP

The following sections of the Basic Assessment Report were updated upon conclusion of the Public Participation Process undertaken for the proposed development:

- Executive Summary / Uitvoerende Opsomming:
    - A brief description of the outcome of the public participation process was included.
    - Minor changes to text were made as appropriate.
- Section B – Project Description: This section was updated to include additional information on the proposed works.
- Section C – 5 - Protocols: Summary of the Screening Tool Report was amended based on the outcome of the extracted 4 September 2023 report.
- Section F: Amended to include the findings of the Public Participation Process conducted for the proposed development.
- Section H – 1: Alternatives were amended, as appropriate and requested, and additional alternatives were explored.
- Section H – 4: Impact assessment and mitigation measures were amended, as necessary, based on the comments received during the Public Participation Process conducted.
- Section J -2.3: The Opinion of the Environmental Assessment Practitioner was amended to include further motivation towards the stance of the EAP as it pertains to the Environmental Authorisation of the proposed development.

All changes/additions following the current section of the report are reflected in **RED**.

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Appendix F4: Comments received during the Pre-Application PPP (only distributed to DEA&DP)

APPENDIX G: SPECIALIST REPORT(S)

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Appendix G4: Agricultural Compliance Statement

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Appendix G6: Heritage and Palaeontological Undertaking and Notice of intent to Develop as submitted to Heritage Western Cape

APPENDIX H: ENVIRONMENTAL MANAGEMENT PROGRAMME (amended)

APPENDIX I: SCREENING TOOL REPORT (updated)

APPENDIX J: THE IMPACT AND RISK ASSESSMENT

(INCLUDED IN THE MAIN REPORTING – SECTION H. 3 & 4)

APPENDIX K: NEED AND DESIRABILITY ASSESSMENT

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Appendix L1: Engineering Report

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Appendix L3: Correspondence between EAP and Competent Authority

Appendix L4: Curriculum Vitae of the EAP

EXECUTIVE SUMMARY

Sharples Environmental Services CC has been appointed by Kantey and Templer Consulting Engineers on behalf of the Department of Infrastructure: Transport Infrastructure Branch to oversee the Environmental Processes for the proposed strengthening of the road TR75/1 (Trunk Road 75/N12-Highway) near Oudtshoorn, Oudtshoorn Local Municipality, Garden Route District Municipality. The proposed works will be approximately 14.9 km in length and will be located over numerous properties zoned as either Transport I or Agriculture I under the Oudtshoorn Municipal Land Use Scheme.

The strengthening works will include the widening of existing cut and fill slopes at select locations. This will require the reconstruction of the existing pavement, subbase and base layers and a new surfacing seal. The road will be widened at select locations and will also include the construction of auxiliary lanes at select locations. The works will also include the works to be done of select accesses to main and minor farm portions, as applicable. Further to these works, the maintenance of existing minor culvert inlet and outlet structures will be undertaken.

General maintenance to the major culverts will include the repair of the cracks which have developed in the culverts and the scouring which has occurred. Specific to the road B4691 over the Olifants River including the general strengthening of the road and the replacement of bridge joints. Residual works associated with the project will include the construction of concrete lined drains, the installation of road signs, the painting of road markings, the installation of guardrails and the installation of fencing, including the clearing of vegetation along the fence line.

An application for Environmental Authorisation has been lodged with the Western Cape Department of Environmental Affairs and Development Planning in terms of the Environmental Impact Assessment Regulations of 2014, as amended (Government Notice (GNR) Regulation 326 of 2017; GNR 517 of 2017) promulgated in terms of the National Environmental Management Act of 1998 (Act No. 107 of 1998) (NEMA). Authorisation will be applied for the following listed activities triggered under the EIA Regulations:

- Government Notice Regulation 327: 19 and 56
- Government Notice Regulation 324: 12, 18 and 23

Based on the above, in terms of Regulation 15(2)(a) of the EIA Regulations of 2014, as amended, a Basic Assessment process is being followed for the purpose of gaining Environmental Authorisation for the proposed project for activities triggered in terms of a Notice issued in terms of Section 24D of the NEMA. The process for obtaining Environmental Authorisation has been illustrated in the Figure below. This visualisation has been compiled in line with regulations 19, 20 and 25 of the EIA Regulations of 2014, as amended, as well as the requirements of the Western Cape Department of Environmental Affairs and Development Planning. The current stage of the process has been marked in **Orange**.

The Basic Assessment Report has been compiled in accordance with the requirements of Appendix 1 of the EIA Regulations of 2014, as amended.

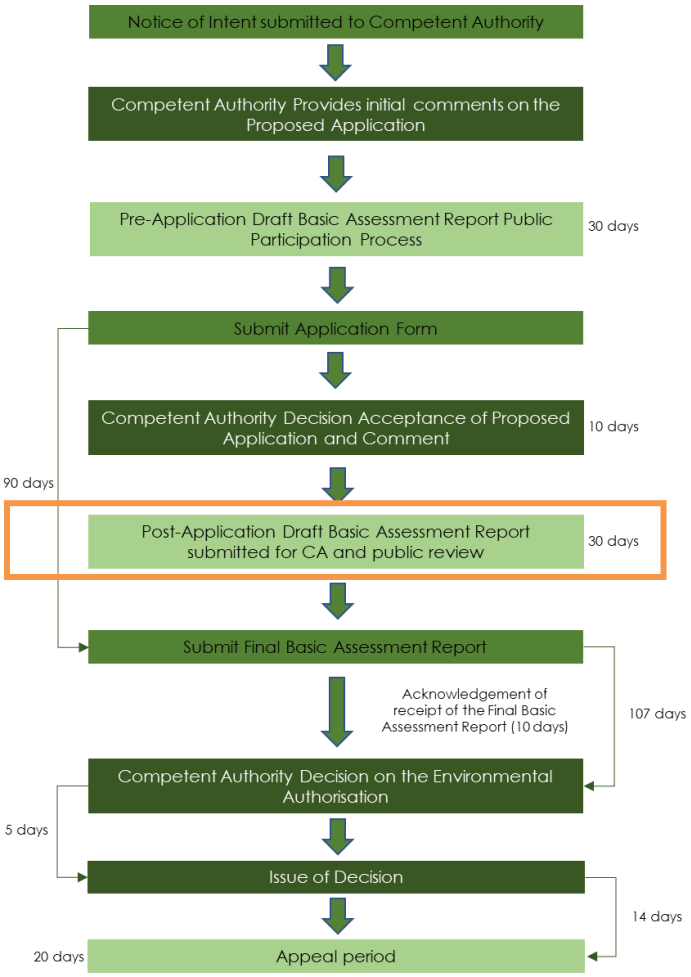

Figure 1. Summary of the Environmental Assessment Process (In the form of a Basic Assessment) followed for the purpose of obtaining Environmental Authorisation for the proposed project.

Based on the findings of the Screening Tool Report generated from the Department of Forestry, Fisheries and Environment's (DFFE) web-based tool, several sensitive features and subsequent specialist reports were identified to be conducted. However, following the sensitivity verification site visit conducted by both the Environmental Assessment Practitioner (Betsy Ditcham: 25 January 2023) and the various appointed specialists, it was found that only selected specialist studies would be required. For the purpose of evaluating the impacts of the proposed project on the receiving environment, the following specialists were appointed to evaluate the sensitivity of the site based on a variety of themes:

- Heritage and Palaeontological Evaluation and Notice of Intent to Develop – ASHA Consulting (Pty) Ltd (Jayson Orton and Elize Butler).
- Aquatic Biodiversity Assessment – Confluent Consulting (James Dabrowski).
- Terrestrial Biodiversity and Plant Species Assessment – Mark Berry Environmental Consulting.
- Agricultural Compliance Statement – Johann Lanz.
- Animal Species Compliance Statement – Cossypha Ecological (Robyn Phillips).

Herewith a summary of the findings of the abovementioned specialist investigations:

Specialist Company	Specialist Details	Sensitivity of receptors	Summary of findings
HERITAGE AND PALAEONTOLOGICAL OBSERVATIONS			
ASHA Consulting (Pty) Ltd	Jayson Orton (Heritage Consultant) Elize Butler (Palaeontological Consultant	Low	From a cultural heritage and landscape perspective, based on the nature of the proposed project (with the proposed project entailing the strengthening of an existing road), the proposed project will have very little to no impacts on the heritage resources in the area. A number of features were identified along the road, however many of them were purely for out of interest rather than heritage reasons. They do however assist with understanding the history of the study area. **No heritage resources of significance were identified within the road reserve.**
		Very High	The N12 Road strengthening project near Oudtshoorn in the Western Cape is underlain by the Devonian Ceres and Bidouw Subgroups of the Bokkeveld Group. The Bokkeveld Group is known for its marine invertebrate fossils, while plant fragments and trace fossils are common. Vertebrate fish fossils have also been identified from this Group. Recently, upgrades to roads have **exposed exceptionally well-preserved fossils** in road cuttings. Some of these fossil-finds were of great scientific value and numerous new species have been described. The proposed development site was inspected on the weekend of 1 April 2023 and five (5) occurrences of fossil finds were recorded by the appointed specialist. These included well-preserved bivalve, trace fossils with possible trilobites. The fossils observed within the study area have a scientific grading value of IIIB.
AQUATIC BIODIVERSITY ASSESSMENT			
Confluent Consulting (Pty) Ltd	James Dabrowski	Very High	The **proposed project intersects twenty-nine (29) watercourses which can, be described as non-perennial rivers**, with clearly discernible bed and banks that are characterised by a highly intermittent hydraperiod (i.ie. flowing for a short period – hours to a few days – only after heavy rainfall events in the catchment area). The size of these watercourses varies from minor, first order drainage lines to broader second to third order streams. All watercourses cross the TR75/1 road via formalised culverts and ultimately flow into the Klip River. The Klip River is a large fifth order perennial river which eventually becomes a floodplain wetland prior to its confluence with the Olifants River. The section of the TR75/1 that will be rehabilitated also **crosses the Olifants River, which is a large floodplain wetland system**. The Present Ecological Status (PES) of the non-perennial rivers has been identified as B (Largely Natural) and the Ecological Importance and Sensitivity (EIS) of these watercourses have been identified as Low. The PES of the Olifants River floodplain wetland was identified as D (Largely Modified) and the EIS of this watercourse is considered to be High.
TERRESTRIAL BIODIVERSITY AND PLANT SPECIES ASSESSMENT			
Mark Berry Environmental Consulting.	Mark Berry	Medium to High	Apart from a few patches of reed (*Phragmites australis*) and a few shrubs/trees, the Olifantsrivier floodplain in the vicinity of the road is highly transformed by agriculture and roadworks. Sections of the road through the hills are still flanked by **good quality vegetation (Eastern Little Karoo**), albeit modified in places. Some of it is regarded as highly sensitive where SCC were recorded. The untoned sections of the road reserve are of low sensitivity due to a high degree of modification and lack of (or very little) biodiversity. This does not mean that these areas should be treated as such during the construction phase. The vegetation inside the road 'reserve' (fenced-off area) is often highly modified due to past roadworks. Disturbances noted include cut-to-fill (along the steeper sections), infilling of watercourse crossings, road cuttings, lay-by's, farm entrances and stormwater trenches.

Specialist Company	Specialist Details	Sensitivity of receptors	Summary of findings
			Good (medium) quality vegetation is found along the length of the route from where the hills start just south of the Olifantsrivier floodplain. It includes areas slightly modified, as well as areas highly modified, but still covered with fair quality vegetation (secondary growth). Alien infestation is minimal, with only a few scattered invaders encountered, such as *Opuntia ficus-indica* and *Prosopis glandulosa*. Emergent species, such as *Euclea undulata, Portulacaria afra* and *Dodonaea viscosa*, are also prominent.
		High	A fairly high number of indigenous shrub species were recorded during the site visit conducted by the appointed specialist. Of the species recorded, only **three (3) Species of conservation concern (SCC)** were identified. These include *Antimima piscodora* (DDD), *Glottiphyllum linguiforme* (VU) and *Euphorbia colliculina* (EN). In addition to these, *Berkheya cuneata*, *Hereroa muirii*, *Cerochlamys pachyphylla*, Pleiospilos compactus ssp. compactus, *Tylecodon cacalioides, Astroloba spiralis* and *Polygala myrtifolia* var. *pinifolia* are regional endemics. As far as the author can detect (from iNaturalist records), *Syringodea derustensis* is the only other listed SCC recorded within 5 km from the road. However, there is a good chance that others, such as sensitive species 54 and 842, may also occur in the area. **No protected tree species were recorded or are expected to occur in the area.**
AGRICULTURAL COMPLIANCE STATEMENT			
Johann Lanz	Johann Lanz	Low-Negligible	An agricultural impact is a change to the future agricultural production potential of land. The significance of the agricultural impact is directly proportional to the extent of the change in production potential. Due to the status of the land as a road reserve, it has no agricultural production potential and the development will not therefore result in any change to that potential. **There is therefore zero agricultural impact**. Even if the road works are required to extend beyond the existing road reserve in places, its proposed footprint would only impinge on the very edge of agricultural land and would therefore have negligible impact.
ANIMAL SPECIES COMPLIANCE STATEMENT			
Cossypha Ecological	Robyn Phillips	Low	Faunal activity on the site was generally low with only common and generalist birds and small / medium mammals recorded, usually around the riparian areas and drainage lines. Some of the bird species recorded in the study area included Cape Turtle-Dove (*Streptopelia capicola*), Cape Bulbul (*Pycnonotus capensis*), Karoo Prinia (*Prinia maculosa*), Southern Double-collared Sunbird (*Cinnyris chalybeus*), Chestnut-vented Tit-Babber (*Curruca subcoerulea*), and Bokmakierie (*Telophorus zeylonus*). A few common mammal species observed during the field surveys including Scrub Hare (*Lepus saxatilis*), Cape Grey Mongoose (*Galerella pulverulenta*), and Chacma Baboon (*Papio ursinus*). **No faunal SCC were recorded during the site surveys.** The habitat along the route is largely disturbed and exists in a narrow strip that is somewhat fragmented due to the proximity to the roadway. It is unlikely that the available habitat would support any individuals or populations of faunal SCC, and such species are more likely to utilise the better-quality habitat that exists in the adjacent natural areas in far larger and more viable quantities.

Based on the Impact assessment done for the proposed project, the proposed project will have a cumulatively low impact on the receiving environment AFTER mitigation. A summary of the impacts identified have been provided in the table below:

Impact	Preferred Alternative	
	Significance without mitigation	Significance with mitigation
PLANNING AND DESIGN IMPACTS		
Compliance with legislative requirements	Medium (-)	Low (-)
Site establishment and pre-construction activities	Medium (-)	Low (-)
Aquatic impact: Impact of stormwater management structures	Medium (-)	Negligible (-)
CONSTRUCTION PHASE		
Agricultural: Impact on Agricultural Resources	Negligible (-)	Negligible (-)
Cultural Landscape Impact	Low (-)	Low (-)
Palaeontological Impact	High (-)	Medium (-)
Aquatic impact: Impact of storage and management of construction	Low (-)	Negligible (-)
Aquatic impact: Impact of the operation of heavy machinery and vehicles on water quality and instream habitat	Low (-)	Negligible (-)
Aquatic impact: Impact of increased numbers of labourers in and around watercourses on quality and instream habitat	Low (-)	Negligible (-)
Aquatic impact: Impact of soil disturbance	Low (-)	Negligible (-)
Aquatic impact: Loss of instream habitat due to widening of the road	Low (-)	Low (-)
Animal Species theme: Impact on faunal SCCs	Low (-)	Negligible (-)
Terrestrial Biodiversity: Impact on Terrestrial Biodiversity	Medium-High (-)	Medium-Low (-)
Terrestrial Biodiversity: Impact of project on indigenous flora and SCC	Medium-High (-)	Medium-Low (-)
Pollution management: Pollution of hydrocarbons due to spills and leaks	Medium (-)	Low
Visual: Noise, dust, light and general housekeeping	Medium (-)	Low
Road safety: Road traffic impacts as a result of the construction works	Medium (-)	Low
Socio-economic impact: Employment opportunities created	Low (+)	Medium-High (+)
Socio-economic impact: Capital expenditure	High (+)	High (+)
POST-CONSTRUCTION REHABILITATION PHASE / OPERATIONAL PHASE		
Road safety: Provision of safer roadway	Very-High (+)	Very High (+)
Terrestrial Biodiversity: Impact on Terrestrial Biodiversity	Medium-Low (-)	Low (-)
Terrestrial Biodiversity: Impact of project on indigenous flora and SCC	Medium-Low (-)	Low (-)
Aquatic impacts: Impact of culverts on erosion of the bed and banks of watercourses	Low (-)	Negligible (-)
Aquatic impacts: Impact of disturbance of bed and banks on the establishment of alien invasive plant species	Low (-)	Negligible (-)

During the construction phase of the proposed project, the most notable negative impacts will be the impact on the botanical resources of the site (on both the terrestrial biodiversity and the impact on the species of conservation concern), the visual impacts of the proposed project and the road safety influences that the proposed works would potentially have on the receiving environment. During the operational phase of the proposed project, the most notable negative impact will be the impact on the botanical resources of the site (on both the terrestrial biodiversity and impact on species of conservation concern). As indicated above, all negative impacts can be mitigated to an acceptable level.

The positive impacts of the construction phase of the proposed project is rooted in the socio-economic aspect, and during the operational phase the positive impacts are deeply rooted in the road safety aspect of the proposed project.

As per Regulation 40 in terms of the EIA Regulations of 2017, as amended, a Public Participation Process is required to be followed for any project for which Environmental Authorisation is being applied for. Regulation 41 details the minimum requirements for any Public Participation Process. Due to the nature of this project, a Public Participation Plan was submitted to the Department as part of the appendices of the Notice of Intent to Submit an Application for Environmental Authorisation. The beforementioned plan was subsequently approved by the Department on 22 May 2023 and the contents of which will be adhered to throughout the application process. A summary of the plan has been detailed in Section F of the Basic Assessment Report. The pre-Application Basic Assessment Report was circulated for public review between the 31st of July 2023 and the 1st of September 2023. Herewith a summary of the main concerns raised during this public participation process:

- **Palaeontological, botanical, faunal and aquatic sensitivity**: Concern was raised regarding the environmental resources that were observed within the project area and the management measures in place to ensure minimal impact to the resources.
- **Waste management:** Additional waste management measures were proposed for inclusion into the BAR and EMPr.
- **Alternative descriptions:** It was requested that the design alternatives mentioned during the pre-Application PPP BAR be further detailed and the impacts of at least one of the design alternatives be evaluated.
- **Safety concerns:** It was indicated that the existing road conditions have proven to be dangerous for the people/establishments located along this portion of the road. The proposed works (especially the inclusion of the auxiliary lanes) were welcomed.

The full comments and responses report providing all comments with a thorough response has been included as Appendix F3 of this Basic Assessment Report.

Based on the anticipated impacts of the proposed project on the receiving environments (biophysical and socio-economic), it is the opinion of the Environmental Assessment Practitioner that the proposed Environmental Authorisation be grated with the condition all mitigation measures proposed in the Environmental Management Programme submitted as part of this Basic Assessment Report be complied with.

UITVOERENDE OPSOMMING

Sharples Environmental Services CC is deur die Department van Infrastruktuur: Vervoer Infrastruktuur Tak aangestel om die omgewingsassesseeringsprosess te handhaaf vir die voorgestelde rehabilitasie van die pad TR75/1 (Trunk Weg / N12-hoofweg) naby Oudtshoorn, Oudtshoorn Plaaslike Munisipaliteit, Garden Route Distrik Munisipaliteit. Die voorgestelde werke sal ongeveer 'n afstand van 14.9km dek en sal oor vele eiendomme geleë wees. Die sonering van die eiendomme wissel tussen Vervoer I en Landbou I onder die Oudtshoorn Munisipale Landsverbruik Skema.

Die rehabilitasie werke sal die algehele verbreding van die pad insluit en sal die herkonstruksie van die bestaande plaveisel, die subbasis en basis lae en 'n nuwe oppervlakseël. Die pad sal ook in spesifieke areas wyer gemaak word deur middle van die konstruksie van bykomende bane (in een of beide rigtings) in selektiewe areas. Die voorgestelde werke sal ook die rehabilitasie van selektiewe toegangspaaie wat na spesifieke eiendomme lei, soos benodig. Verder sal onderhoud gedoen word aan die water leivoor-infrastruktuur se inlaat en uitlaat strukture gedoen word. Na aanleiding van die eersgenoemde werke, sal die leivoor-infrastruktuur ook verleng/verbreed word in selektiewe posisies.

Algemene instandhouding aan die groot duikers sal die herstel van die krake wat in die duikers ontwikkel het en die skuur wat plaasgevind het insluit. Spesifiek tot die pad B4691 (die porsie van die pad wat oor die Olifantsrivier geleë is), die heuningkoekpatroon in die beton sal herstel word en die brugverbinding sal vervang word. Addisionele werke wat geassosieer sal word met toe voorgestelde projek sal die konstruksie van beton gevoerde dreineersstrukture, die installering van padtekens, die verf van padmerke, die installering van vertrelings en die installasie van heinings (en gevolglik die skoonmaak van die plantegroei langs die heinings).

'n Aansoek om Omgewingsgoedkeuring te verkry was ingedien by die Weskaapse Departement van Omgewingsake en Ontwikkelingsbeplanning in terme van die Omgewingsimpakbeoordelings Regulasies van 2014, soos aangepas (Regeringskennisgewing Regulasie 326 van 2017) wat in terme van die Nasionale Omgewingsbestuurswet van 1998 (Wet no. 107 van 1998) gepromulgeer is. Die goedkeuring sal voor aansoek gedoen word vir die volgende gelysde aktiwiteite In terme van die Omgewingsimpakbeoordelings Regulasies:

- Regeringskennisgewing Regulasie 327: 19 en 56
- Regeringskennisgewing Regulasie 324: 12, 18 en 23

Gebasseer op die begenoemde, in terme van Regulasie 15(2)(a) van die OIB Regulasies van 2014, soos aangepas, word 'n Basiese Assesseringsproses gevolg vir die doeleinde om Omgewingsgoedkeuring vir die gelyste aktiwiteite (in terme van Seksie 24D van die NOBW) wat geaktiveer sal, te verkry. Die proses wat gevolg sal word om die Omgewingsgoedkeuring te verkry is in die figuur aangetoon wat hieronder uitgebeeld word. Die uitbeelding is in lyn met Regulasies 19, 20 en 25 van die OIB Regulasies van 2014, soos aangepas saamgestel en dit neem ook die vereistes van die Weskaapse Departement van Omgewingsake en Ontwikkelingsbeplanning in ag. Die fase waaring die projek tans is, is met **Oranje** gemerk.

Die Basiese assesseringsverslag is saamgestel in lyn met die vereistes van Bylaag 1 van die OIB Regulasies van 2014, soos aangepas.

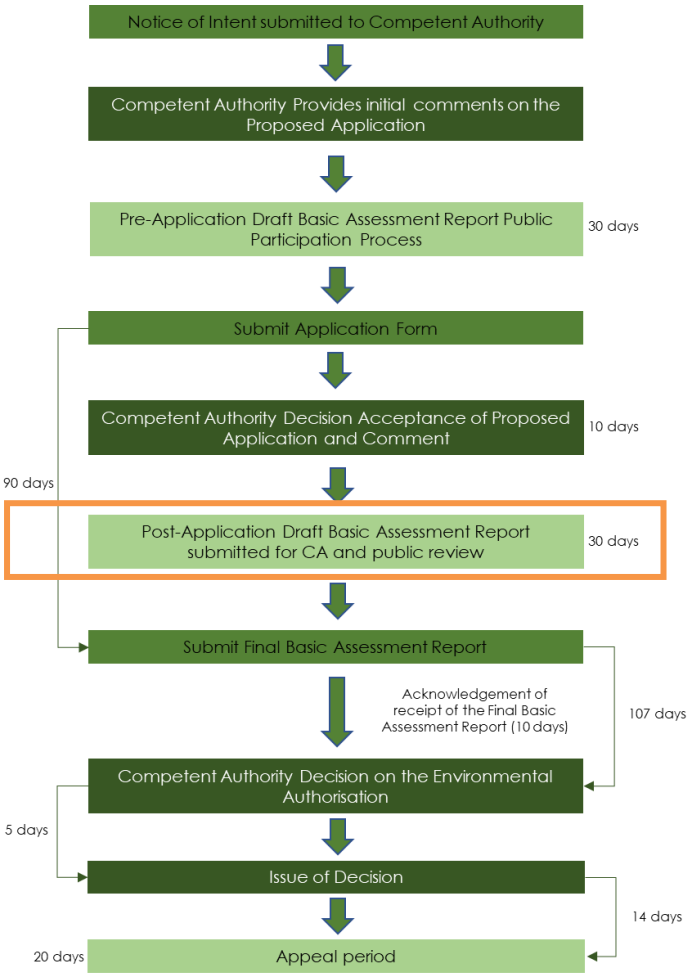

Figure 2. Opsomming van die Omgewings Assesseringsproses (in die vorm van 'n Basiese Assessering) wat gevolg sal word ter verkryging van die Omgewingsgoedkeuring vir die voorgestelde projek.

Gebasseer op die bevindinge van die Siftingsinstrumentverslag wat deur die Nasionale Departement van Bosbou, Visserye en Omgewing (DFFE) se web-gebaseerde instrument verkry is, is daar vele sensitiewe kenmerke opgetel, elk met hulle eie vereistes in terme van verslaglewering. Alhoewel, gebasseer op die uitkoms van die sensitiwiteit verifikasie terrein besoek wat deur beide die Omgewingsassesseringspraktisyn (Betsy Ditcham: 25 Januarie 2023) en die verskeie aangestelde spesialiste ondergaan is, is dit gevind dat slegs sekere spesialiste studies benodig sal word. Vir die doeleindes om die impakte van die voorgestelde projek op die omgewing te assesseer, is die volgende spesialiste aangestel gebasseer op hulle velde van kundigheid:

- Erfenis- en paleontologiese evaluering en kennisgewing van voorneme om te ontwikkel – ASHA Consulting (Pty) Ltd (Jayson Orton and Elize Butler)
- Akwatiese Biodiversiteitsassessering – Confluent Consulting (James Dabrowski).
- Terrestriële Biodiversiteit en Plant Spesie Assessering and Plant Species Assessment – Mark Berry Environmental Consulting.
- Landbou voldoeningsverklaring – Johann Lanz.
- Diere Species voldoeningsverklaring– Cossypha Ecological (Robyn Phillips).

Hiermee 'n opsomming van die bevindinge van die bogenoemde spesialiste se ondersoeke:

Spesialis Maatskappy	Spesialis besonderhede	Sensitiwiteit van reseptor	Opsomming van bevindinge
ERFENIS EN PALAEONTOLOGIESE WAARNEMINGS			
ASHA Consulting (Pty) Ltd	Jayson Orton (Erfenis Konsultant) Elize Butler (Palaeontologiese Konsultant)	Laag	Vanaf 'n kulturele- en landskapsperspektief, gebasseer op die aard van die voorgestelde projek (aangesien die projek die opgradering van 'n bestaande pad behels), sal daar baie min tot geen impak op die erfenis hulpbronne in die area wees nie. Meenigvuldigde kenmerke is in nabyheid van die voorgestelde projek gemerk, alhoewel meeste van hulle was gemerk vir interessantheidsonthalwe eerder as uit 'n erfenis oogpunt. Die kenmerke dra wel by tot die verstaanbaarheid van die geskiedenis van die area. **Geen erfenis hulpbronne van belang sal geimpakteer word deur die voorgestelde opgradering nie.**
		Baie Hoog	Die pad word onderlê deur die Devonian Ceres en Bidouw subgroepe van die Bokkeveld Groep. Die Bokkeveld Groep is bekend daarvoor dat dit mariene ongewerwelde dier fossiele bevat, en plant stukkies en spoor fossiele ook in die algemeen voorkom. Gewerwelde fossiele is ook in die verlede in die Groep ontdek. Onlangs het die opgraderings aand die paaie **besonders goed bewaarde fossiele geontaard.** Party van die fossiele was van groot wetenskaplike waarde en vele nuwe spesies is gevolglik beskryf. Tydens die terrein besoek van 1 April 2023 is daar vyf (5) opnames van fossiele gemaak deur die aangestelde specialis. Die fossiele wat gevind is sluit goed bewaarde tweekleppige weekdiere, spoor fossiele met moontlike trilobiete in. Die fossiele wat in die area van ondersoek geidentifiseer is, het 'n wetenskaplike graderingswaarde van IIIB.
AKWATIESE BIODIVERSITEIT ASSESSERING			
Confluent Consulting (Pty) Ltd	James Dabrowski	Baie Hoog	Die voorgestelde project gaan deur **nege-en-twintig (29) waterlope**, wat almal as nie-meerjarige riviere beskryf kan word. Die waterlope het elk kenmerkbare beddens en banke wat gekenmerk kan word deur 'n hoogsafwisselende hidroperiode (met ander woorde, hulle vloei slegs vir 'n kort periode (ure tot 'n paar dae) nadat daar 'n hoë reënval episode was in die opvang gebied). Die grote van die waterlope wissel tussen klein, eerste orde dreineringslyne en wyer tweede en derde orde strome. Al die waterlope kruis die TR75/1 pad deur middle van geformaliseerde stormwater infrastructure and loop uiteindelik in die Kliprivier in. Die Kliprivier is 'n groot vyfde orde rivier wat uiteindelik in 'n vloedvlakte onwikkel voordat hy saam met die Olifantsrivier saamsmelt. **Die seksie van die rehabilitasie werke TR75/1 wat oor die Olifantsrivier plaasvind sal oor 'n groot vloedvlakte vleiland plaasvind.** Die huidige ekologiese status van die nie-meerjarige riviere is a B (Grootliks Natuurlik) beskryf waar die Ekologiese Belangrikheid en Sensitiwiteit van die waterlope as Laag beskryf is. Die huidige ekologiese status van die Olifantsrivier vloedvlakte vleiland was as D (Grootliks versteur) beskryf en die ekologiese belangrikheid en sensitiwiteit daarvan is as Hoog geindentifiseer.
TERRESTRIËLE BIODIVERSITEIT EN PLANT SPESIE ASSESSERING			
Mark Berry Environmental Consulting.	Mark Berry	Medium tot Hoog	Behalwe vir 'n paar kolle van die riet, *Phragmites australis*, en 'n paar struike en bome, is die Olifantsrivier vloedvlakte wat binne die omgewing van die pad werke is, oortrek met landbou en padwerke. Dele van die pad wat deur die berge gaan is steeds geflankeer deur plantegroei van 'n goeie gehalte (Oostelike Klein Karoo). Party van die areas is as hoog sensitiwiteit beskou as gevolg van die SCC wat in hulle gevind is. Die dele van die pad reserwe wat nie plantegroei bevat nie word as lae sensitiwiteit beskou asgevolg van die graad van verandering en die tekort aan biodiversiteit. Dit beteken nie dat die areas daarvolgens moet hanteer word tydens die konstruksie fase nie. Die plantegroei in die pad reserwe (afgebaken) is dikwels versteur asgevolg van die padwerk aktiwiteite wat in die

Spesialis Maatskappy	Spesialis besonderhede	Sensitiwiteit van reseptor	Opsomming van bevindinge
			verlede plaasgevind het. Die versteurings wat opgemerk is sluit sny en vul aan die banke van die styler areas, invul van waterloop kruisings, plaas toegangspaaie en stormwater loopgrawes. **Goeie (medium) kwaliteit plantegroei** is gevind langs die roete af. Die kwaliteit plantegroei het begin vanaf waar die heuwels begin aan die suide van die Olifantsrivier vloedvlakte. Dit sluit die areas in wat effens versteur is, sowel as die areas wat kenmerkende versteurning ondergaan het, maar steeds deur redelike goeie plantegroei bedek word. Indringer plant spesies is minimal in die areas met net 'n paar gestrooide species wat gemerk is *Opuntia ficus-indica* en *Prosopis glandulosa)*. *Opkomende spesies soos byvoorbeeld Euclea undulata, Portulacaria afra en Dodonaea viscosa, was* ook prominent.
		Hoog	'n Relatiewe hoë aantal inheemse struik spesies is aangeteken tydens die terrein besoek wat deur die aangestelde spesialis onderneem is. Van al die inheemse spesies wat gemerk is, is **sleg drie (3) spesies van bewaaringswaarde opgemerk**. Hulle sluid die volgende spesies *Antimima piscodor*a (DDD), *Glottiphyllum linguiforme* (VU) en *Euphorbia colliculina* (EN). Addisioneel daartoe is die volgende gevind: *Berkheya cuneata*, *Hereroa muirii*, *Cerochlamys pachyphylla*, Pleiospilos compactus ssp. compactus, *Tylecodon cacalioides, Astroloba spiralis* en *Polygala myrtifolia* var. *pinifolia*. Die spesies is are inheems aan die streek. *Syringodea derustensis* is die enigste ander gelyste SCC wat binne 5km van die pad geidentifiseer is (d.m.v. iNaturalist). Daar is 'n goeie kans dat ander spesies, soos byvoorbeeld sensitiewe spesies 54 and 842, ook in die area kan verskyning maak. **Geen beskermde boom spesies is tydens die terrein besoek gemerk nie. Verder word dit nie verwag dat hulle enigsins op terrein sal koloniseer nie.**
LANDBOU VOLDOENINGSVERKLARING			
Johann Lanz	Johann Lanz	Onbeduidend	'n Landbou impak word beskou as 'n verandering aan die toekomstige landbou produksie potensiaal van die grond. Die merkwaardigheid van die landbou impak is direk gelykstaande aan die ryk van die verandering in produksie potensiaal. As gevolg van die status van die grond as 'n pad reserwe, het die grond geen landbou produksie potensiaal nie en daarom sal die projek nie die landbou potensiaal verander nie, **Daar is dus geen impak op die landbou potensiaal nie.** Al word die impak van die pad opgradering verder as die huidige pad reserwe strek in sekere areas, sal die werke net op die rand van die landbou grond plaasvind en sal dit dan 'n onbeduidende impak hê.
DIERE SPESIES VOLDOENINGSVERKLARING			
Cossypha Ecological	Robyn Phillips	Laag	Die fauna aktiwiteit op terrein was in die algemeen laag gewees met slegs algemene voël en klein/medium grote soogdiere opgemerk. Die diere was gewoonlik rondom die oewergebiede en deineringskanale gevind. Van die voël species het die volgende ingesluit: Kaapse Tortelduif (*Streptopelia capicola*), Kaapse Bulbul (*Pycnonotus capensis*), Karoo Prinia (*Prinia maculosa*), Suiderlike dubbel-kraag sonvoël (*Cinnyris chalybeus*), Bosveldtjerkitik (*Curruca subcoerulea*), and Bokmakierie (*Telophorus zeylonus*). Die algemene soogdier spesies wat gemerk is gedurende terrein besoek her die volgende spesies ingesluit: Kolhaas (*Lepus saxatilis*), Kaapse Grys Cape Grey Mongoes (*Galerella pulverulenta*), and Bobbejaan (*Papio ursinus*). **Geen diere spesies van bewarings waarde was tydens die terrein besoeke waargeneem nie.** Die habitat langs die voorgestelde roete is grootendeels versteur en bestaan uit 'n noue strook wat tot 'n mate gefragmenteer is as gevolg van die nabyheid daarvan aan die pad. Dit is onwaarskeinlik dat die beskikbare habitat enige individue of populasies van die diere species van bewaaringswaarde sal ondersteun. Dit is meer waarskeinlik dat die diere die minder versteurde habitat (aan die anderkant van die heining) sal beset.

Gebasseer op die impakassessering wat gedoen is vir die voorgestelde projek, sal die projek 'n kumulatiewe lae impak op die omgewing hê NADAT versagtingsmaatreëls toegepas is. 'n Ompsomming van die impakte is in die onderstaande tabel getoon:

Impak	Gekose Alternatief	
	Betekenis sonder versagting	Betekenis met versagting
BEPLANNING EN ONTWERPSIMPAKTE		
Voldoening aan wetlike vereistes	Medium (-)	Laag (-)
Terreinvestiging en pre-konstruksie aktiwiteite	Medium (-)	Laag (-)
Akwatiese impak: Impak van stormwaterbestuurstrukture	Medium (-)	Onbeduidend (-)
KONSTRUKSIE FASE		
Landbou: Impak op Landbou Hulpbronne	Onbeduidend (-)	Onbeduidend (-)
Impak op Erfenis hulpbronne	Laag (-)	Laag (-)
Impak op palaeontologiese hulpbronne	Hoog (-)	Medium (-)
Akwatiese impak: Impak van berging en bestuur van konstruksie terreinkamp	Laag (-)	Onbeduidend (-)
Akwatiese impak: Impak van die werking van swaar masjinerie en voertuie op waterkwaliteit en binnestroom-habitat	Laag (-)	Onbeduidend (-)
Akwatiese impak: Impak van verhoogde aantal arbeiders in en om waterlope op kwaliteit en binnestroom-habitat	Laag (-)	Onbeduidend (-)
Akwatiese impak: Impak van grond versteuring	Laag (-)	Onbeduidend (-)
Akwatiese impak: Verlies aan binnestroom-habitat as gevolg van verbreding van die pad	Laag (-)	Laag (-)
Diere spesies tema: Impak of diere spesies van Bewaardingswaarde	Laag (-)	Onbeduidend (-)
Terrestriële Biodiversiteit: Impak op Terrestriële biodiversiteit	Medium-Hoog (-)	Medium-Laag (-)
Terrestriële Biodiversiteit: Impak van die projek op inheemse plante en Spesies van Beskermingswaarde	Medium-Hoog (-)	Medium-Laag (-)
Besoedelingsbestuur: Besoedeling deur middel van koolwaterstofstortings geleenthede	Medium (-)	Laag (-)
Visuele impak: Geraas, stof, lig en algemene instandhouding	Medium (-)	Laag (-)
Pad veiligheid: Verkeersimpak as gevolg van konstruksiewerke\	Medium (-)	Laag (-)
Sosio-ekonomiese impak: Werksgeleenthede geskep	Laag (+)	Medium-Hoog (+)
Sosio-ekonomiese impak: Kapitale belegging	Hoog (+)	Hoog (+)
NA-KONSTRUKSIE REHABILITASIE / OPERASIONELE FASE		
Pad veiligheid: Voorsiening van 'n veiliger hoofweë	Baie Hoog (+)	Baie Hoog (+)
Terrestriële Biodiversiteit: Impak op Terrestriële biodiversiteit	Medium-Laag (-)	Laag (-)
Terrestriële Biodiversiteit: Impak van die projek op inheemse plante en Spesies van Beskermingswaarde	Medium-Laag (-)	Laag (-)
Akwatiese Impak: Impak van leiwaterinfrastruktuur op erosie van die bedding en oewers van die waterlope	Laag (-)	Onbeduidend (-)
Akwatiese impak: Impak van versteuring van die bedding en oewers op die vestiging van indringer plant species	Laag (-)	Onbeduidend (-)

In terme van Regulasie 40 van die OIB Regulasies van 2014, soos aangepas, word 'n Publieke Deelname Proses verlang vir enige projek waarvoor daar aansoek om Omgewingsgoedkeuring te verkry benodig. Regulasie 41 beskryf die minimum vereistes van enige Publieke Deelname Proses. As gevolg van die aard van die projek, was 'n Publiek Deelname Plan ingedien na die Departement as deel van die Kennisgewing van die Intensie (KVI) om 'n Aansoek te loods met die doel om Omgewingsgoedkeuring te verkry. Die plan was deur die Department geondersteun in 'n brief wat 22 May 2023 gedateer is (Aanvaarding en reaksie van die KVI) en die plan sal deurloop van die aansoek proses deurgevoer word. 'n Opsomming van die plan is in Seksie F van die Basiese Assesseringsverslag verskaf. Die vooraansoek Basiese Evalueringsverslag is tussen die 31ste Julie 2023 en die 1ste September 2023 vir openbare hersiening gesirkuleer. Hiermee 'n opsomming van die belangrikste bekommernisse wat tydens hierdie openbare deelnameproses geopper is:

- Paleontologiese, botaniese, fauna- en akwatiese sensitiwiteit: Kommer is geopper oor die omgewingshulpbronne wat binne die projekgebied waargeneem is en die bestuursmaatreëls in plek om minimale impak op die hulpbronne te verseker.
- Afvalbestuur: Bykomende afvalbestuursmaatreëls is voorgestel vir insluiting in die BAR en OBPr.
- Alternatiewe beskrywings: Daar is versoek dat die ontwerpalternatiewe wat tydens die vooraansoek PPP BAR genoem is, verder uiteengesit word en die impak van ten minste een van die ontwerpalternatiewe geëvalueer word.
- Veiligheidskwessies: Daar is aangedui dat die bestaande padtoestande gevaarlik is vir die mense/inrigtings wat langs hierdie gedeelte van die pad geleë is. Die voorgestelde werke (veral die insluiting van die hulpbane) is verwelkom.

Die volledige kommentaar- en reaksieverslag wat alle kommentaar met 'n deeglike reaksie verskaf, is ingesluit as Bylaag F3 van hierdie Basiese Assesseringsverslag.

Gebasseer op die verwagte impakte wat die voorgestelde projek op die omgewing sal (biofisies en sosio-ekonomies), is dit die opinie van die Omgewingsassesseringspraktisyn dat die Omgewingsgoedkeuring gedien moet word met die voorwaarde dat alle versagtingsmaatreëls soos voorgestel in die Omgewingsbestuurprogram nagekom moet word.

Western Cape Government
Environmental Affairs and Development Planning

FORM NO.BAR10/2019

BASIC ASSESSMENT REPORT

THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS.

NOVEMBER 2019

(For official use only)	
Pre-application Reference Number (if applicable):	
EIA Application Reference Number:	
NEAS Reference Number:	
Exemption Reference Number (if applicable):	
Date BAR received by Department:	
Date BAR received by Directorate:	
Date BAR received by Case Officer:	

GENERAL PROJECT DESCRIPTION

(This must Include an overview of the project including the Farm name/Portion/Erf number)

THE PROPOSED STRENGTHENING OF THE ROAD TR75/1 NEAR OUDTSHOORN, OUDTSHOORN LOCAL MUNICIPALITY, GARDEN ROUTE DISTRICT MUNICIPALITY.

The Department of Infrastructure: Transport Infrastructure Branch proposes to strengthen the road TR75/1 (Trunk Road 75/N12-Highway) near Oudtshoorn, Oudtshoorn Local Municipality, Garden Route District Municipality. The proposed works will be approximately 14.9km in length and will be located over a number of properties zoned as either Transport I or Agriculture I under the Oudtshoorn Municipal Land Use Scheme.

The strengthening works will include the widening of existing cut and fill slopes at select locations. This will require the reconstruction of the existing pavement, subbase and base layers and a new surfacing seal. The road will be widened (as described in this document) and will also include the construction of auxiliary lanes at select locations. The works will also include works to be done to select accesses to main and minor farm portions, as applicable. Further to these works, the maintenance of existing minor and major culvert inlet and outlet structures will be undertaken.

General maintenance to the culverts will include the repair of the cracks which have developed in the culverts and the scouring which has occurred. Specific to the road B4691 over the Olifants River including repair of honeycombing in the concrete and the replacement of bridge joints. Residual works associated with the project will include the construction of concrete lined drains, the installation of road signs, the painting of road markings, the installation of guardrails and of fencing, including the clearing of vegetation along the fence line.

A detailed description of the proposed works has been provided in Section E of the Basic Assessment Report (BAR).

IMPORTANT INFORMATION TO BE READ PRIOR TO COMPLETING THIS BASIC ASSESSMENT REPORT

1. **The purpose** of this template is to provide a format for the Basic Assessment report as set out in Appendix 1 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended) in order to ultimately obtain Environmental Authorisation.

2. The Environmental Impact Assessment ("EIA") Regulations is defined in terms of Chapter 5 of the National Environmental Management Act, 19998 (Act No. 107 of 1998) ("NEMA") hereinafter referred to as the "NEMA EIA Regulations".

3. The required information must be typed within the spaces provided in this Basic Assessment Report ("BAR"). The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided.

4. All applicable sections of this BAR must be completed.

5. Unless protected by law, all information contained in, and attached to this BAR, will become public information on receipt by the Competent Authority. If information is not submitted with this BAR due to such information being protected by law, the applicant and/or Environmental Assessment Practitioner ("EAP") must declare such non-disclosure and provide the reasons for believing that the information is protected.

6. This BAR is current as of **November 2019**. It is the responsibility of the Applicant/ EAP to ascertain whether subsequent versions of the BAR have been released by the Department. Visit this Department's website at http://www.westerncape.gov.za/eadp to check for the latest version of this BAR.

7. This BAR is the standard format, which must be used in all instances when preparing a BAR for Basic Assessment applications for an environmental authorisation in terms of the NEMA EIA Regulations when the Western Cape Government Department of Environmental Affairs and Development Planning ("DEA&DP") is the Competent Authority.

8. Unless otherwise indicated by the Department, one hard copy and one electronic copy of this BAR must be submitted to the Department at the postal address given below or by delivery thereof to the Registry Office of the Department. Reasonable access to copies of this Report must be provided to the relevant Organs of State for consultation purposes, which may, if so indicated by the Department, include providing a printed copy to a specific Organ of State.

9. This BAR must be duly dated and originally signed by the Applicant, EAP (if applicable) and Specialist(s) and must be submitted to the Department at the details provided below.

10. The Department's latest Circulars pertaining to the "One Environmental Management System" and the EIA Regulations, any subsequent Circulars, and guidelines must be taken into account when completing this BAR.

11. Should a water use licence application be required in terms of the National Water Act, 1998 (Act No. 36 of 1998) ("NWA"), the "One Environmental System" is applicable, specifically in terms of the synchronisation of the consideration of the application in terms of the NEMA and the NWA. Refer to this Department's Circular EADP 0028/2014: One Environmental Management System.

12. Where Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA") is triggered, a copy of Heritage Western Cape's final comment must be attached to the BAR.

13. The Screening Tool developed by the National Department of Environmental Affairs must be used to generate a screening report. Please use the Screening Tool link https://screening.environment.gov.za/screeningtool to generate the Screening Tool Report. The screening tool report must be attached to this BAR.

14. Where this Department is also identified as the Licencing Authority to decide on applications under the National Environmental Management: Air Quality Act (Act No. 29 of 2004) ('NEM:AQA"), the submission of the Report must also be made as follows, for-
Waste Management Licence Applications, this report must also (i.e., another hard copy and electronic copy) be submitted for the attention of the Department's Waste Management Directorate (Tel: 021-483-2728/2705 and Fax: 021-483-4425) at the same postal address as the Cape Town Office.

Atmospheric Emissions Licence Applications, this report must also be (i.e., another hard copy and electronic copy) submitted for the attention of the Licensing Authority or this Department's Air Quality Management Directorate (Tel: 021 483 2888 and Fax: 021 483 4368) at the same postal address as the Cape Town Office.

DEPARTMENTAL DETAILS

CAPE TOWN OFFICE: REGION 1 and REGION 2 **(Region 1: City of Cape Town, West Coast District)** **(Region 2: Cape Winelands District & Overberg District)**	**GEORGE OFFICE: REGION 3** **(Central Karoo District & Garden Route District)**
BAR must be sent to the following details: Western Cape Government Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 1 or 2) Private Bag X 9086 Cape Town, 8000 Registry Office 1st Floor Utilitas Building 1 Dorp Street, Cape Town Queries should be directed to the Directorate: Development Management (Region 1 and 2) at: Tel: (021) 483-5829 Fax (021) 483-4372	**BAR must be sent to the following details:** **Western Cape Government** **Department of Environmental Affairs and Development Planning** **Attention: Directorate: Development Management (Region 3)** **Private Bag X 6509** **George,** **6530** **Registry Office** **4th Floor, York Park Building** **93 York Street** **George** **Queries should be directed to the Directorate: Development Management (Region 3) at:** **Tel: (044) 805-8600** **Fax (044) 805 8650**

MAPS

Provide a location map (see below) as Appendix A1 to this BAR that shows the location of the proposed development and associated structures and infrastructure on the property.	
Locality Map:	The scale of the locality map must be at least 1:50 000. For linear activities or development proposals of more than 25 kilometres, a smaller scale e.g., 1:250 000 can be used. The scale must be indicated on the map. The map must indicate the following: • an accurate indication of the project site position as well as the positions of the alternative sites, if any; • road names or numbers of all the major roads as well as the roads that provide access to the site(s) • a north arrow; • a legend; and • a linear scale. For ocean based or aquatic activity, the coordinates must be provided within which the activity is to be undertaken and a map at an appropriate scale clearly indicating the area within which the activity is to be undertaken. Where comment from the Western Cape Government: Transport and Public Works is required, a map illustrating the properties (owned by the Western Cape Government: Transport and Public Works) that will be affected by the proposed development must be included in the Report.
Provide a detailed site development plan / site map (see below) as Appendix B1 to this BAR; and if applicable, all alternative properties and locations.	
Site Plan:	Detailed site development plan(s) must be prepared for each alternative site or alternative activity. The site plans must contain or conform to the following: • The detailed site plan must preferably be at a scale of 1:500 or at an appropriate scale. The scale must be clearly indicated on the plan, preferably together with a linear scale. • The property boundaries and numbers of all the properties within 50m of the site must be indicated on the site plan. • On land where the property has not been defined, the co-ordinates of the area in which the proposed activity or development is proposed must be provided. • The current land use (not zoning) as well as the land use zoning of each of the adjoining properties must be clearly indicated on the site plan. • The position of each component of the proposed activity or development as well as any other structures on the site must be indicated on the site plan. • Services, including electricity supply cables (indicate aboveground or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure and access roads that will form part of the proposed development **must** be clearly indicated on the site plan. • Servitudes and an indication of the purpose of each servitude must be indicated on the site plan. • Sensitive environmental elements within 100m of the site must be included on the site plan, including (but not limited to): o Watercourses / Rivers / Wetlands o Flood lines (*i.e.,* 1:100 year, 1:50 year and 1:10 year where applicable); o Coastal Risk Zones as delineated for the Western Cape by the Department of Environmental Affairs and Development Planning ("DEA&DP"): o Ridges; o Cultural and historical features/landscapes; o Areas with indigenous vegetation (even if degraded or infested with alien species). • Whenever the slope of the site exceeds 1:10, a contour map of the site must be submitted. • North arrow A map/site plan must also be provided at an appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred and alternative sites indicating any areas that should be avoided, including buffer areas.
Site photographs	Colour photographs of the site that shows the overall condition of the site and its surroundings (taken on the site and taken from outside the site) with a description of each photograph. The vantage points from which the photographs were taken must be indicated on the site plan, or locality plan as applicable. If available, please also provide a recent aerial photograph. Photographs must be attached to this BAR as **Appendix C**. The aerial photograph(s) should be supplemented with additional photographs of relevant features on the site. Date of photographs must be included. Please note that the above requirements must be duplicated for all alternative sites.
Biodiversity Overlay Map:	A map of the relevant biodiversity information and conditions must be provided as an overlay map on the property/site plan. The Map must be attached to this BAR as **Appendix D**.

Linear activities or development and multiple properties	GPS co-ordinates must be provided in degrees, minutes and seconds using the Hartebeeshoek 94 WGS84 co-ordinate system. Where numerous properties/sites are involved (linear activities) you must attach a list of the Farm Name(s)/Portion(s)/Erf number(s) to this BAR as an Appendix. For linear activities that are longer than 500m, please provide a map with the co-ordinates taken every 100m along the route to this BAR as **Appendix A3**.

ACRONYMS

DAFF:	Department of Forestry and Fisheries
DEA:	Department of Environmental Affairs
DEA& DP:	Department of Environmental Affairs and Development Planning
DHS:	Department of Human Settlement
DoA:	Department of Agriculture
DoH:	Department of Health
DWS:	Department of Water and Sanitation
EMPr:	Environmental Management Programme
HWC:	Heritage Western Cape
NFEPA:	National Freshwater Ecosystem Protection Assessment
NSBA:	National Spatial Biodiversity Assessment
TOR:	Terms of Reference
WCBSP:	Western Cape Biodiversity Spatial Plan
WCG:	Western Cape Government

ATTACHMENTS

Note: The Appendices must be attached to the BAR as per the list below. Please use a ✓ **(**tick) or a **x** (cross) to indicate whether the Appendix is attached to the BAR.

The following checklist of attachments must be completed.

APPENDIX			**✓ (Tick) or x (cross)**
Appendix A:	**Maps**		
	Appendix A1:	**Locality Map**	✓
	Appendix A2:	**Coastal Risk Zones as delineated in terms of ICMA for the Western Cape by the Department of Environmental Affairs and Development Planning**	**N/A**
	Appendix A3:	**Map with the GPS co-ordinates for linear activities**	✓
Appendix B:	**Appendix B1:**	**Site development plan(s)**	✓
	Appendix B2	**A map of appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffer areas;**	✓
Appendix C:	**Photographs**		✓
Appendix D:	**Biodiversity overlay map**		✓
Appendix E:	**Permit(s) / license(s) / exemption notice, agreements, comments from State Department/Organs of state and service letters from the municipality.**		
	Appendix E1:	**Final comment/ROD from HWC**	✓

	Appendix E2:	**Copy of comment from Cape Nature**	**✓ (Initial communications)**
	Appendix E3:	**Final Comment from the DWS**	✓
	Appendix E4:	**Comment from the DEA: Oceans and Coast**	**N/A**
	Appendix E5:	**Comment from the DAFF**	**TBC**
	Appendix E6:	**Comment from WCG: Transport and Public Works**	**N/A (This department is the Applicant)**
	Appendix E7:	**Comment from WCG: DoA**	✓
	Appendix E8:	**Comment from WCG: DHS**	**N/A**
	Appendix E9:	**Comment from WCG: DoH**	**N/A**
	Appendix E10:	**Comment from DEA&DP: Pollution Management**	**TBC**
	Appendix E11:	**Comment from DEA&DP: Waste Management**	**TBC**
	Appendix E12:	**Comment from DEA&DP: Biodiversity**	**TBC**
	Appendix E13:	**Comment from DEA&DP: Air Quality**	**N/A**
	Appendix E14:	**Comment from DEA&DP: Coastal Management**	**N/A**
	Appendix E15:	**Comment from the local authority**	**TBC**
	Appendix E16:	**Confirmation of all services (water, electricity, sewage, solid waste management)**	**N/A**
	Appendix E17:	**Comment from the District Municipality**	✓
	Appendix E18:	**Copy of an exemption notice**	**N/A**
	Appendix E19	**Pre-approval for the reclamation of land**	**N/A**
	Appendix E20:	**Proof of agreement/TOR of the specialist studies conducted.**	✓
	Appendix E21:	**Proof of land use rights**	✓

	Appendix E22:	**Proof of public participation agreement for linear activities**	✓
Appendix F:	**Public participation information: including a copy of the register of I&APs, the comments and responses Report, proof of notices, advertisements and any other public participation information as is required.**		
	Appendix F1:	**Interested and Affected Party Register (I&AP Register)**	✓
	Appendix F2:	**Proof of Public Participation**	✓
	Appendix F3:	**Comments and Responses Table**	✓
Appendix G:	**Specialist Report(s)**		
	Appendix G1:	**Aquatic Biodiversity Assessment**	✓
	Appendix G2:	**Terrestrial Biodiversity and Plant Species Assessment**	✓
	Appendix G3:	**Agricultural Compliance Statement**	✓
	Appendix G4:	**Terrestrial Animal Impact Assessment**	✓
	Appendix G5:	**Geotechnical Statement**	✓
	Appendix G6:	**Heritage Impact Assessment**	✓
Appendix H:	**Environmental Management Programme (EMPr)**		✓
Appendix I:	**Screening tool report – 4 September 2023**		✓
Appendix J:	**The impact and risk assessment for each alternative**		×
Appendix K:	**Need and desirability for the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013)/DEA Integrated Environmental Management Guideline**		×
Appendix L:	**Additional information:**		
	Appendix L1:	**Engineering Report**	✓
	Appendix L2:	**Proposed layout**	✓
	Appendix L3:	**Correspondence with the Competent Authority**	✓
	Appendix L4:	**Curriculum Vitae of the EAP**	✓

SECTION A: ADMINISTRATIVE DETAILS

Highlight the Departmental Region in which the intended application will fall	CAPE TOWN OFFICE:		**GEORGE OFFICE:**
	REGION 1 (City of Cape Town, West Coast District	REGION 2 (Cape Winelands District & Overberg District)	**REGION 3 (Central Karoo District & Garden Route District)**

Duplicate this section where there is more than one Proponent Name of Applicant/Proponent:	Western Cape Government: Department of Infrastructure: Transport Infrastructure Branch	
Name of contact person for Applicant/Proponent (if other):	Azni November	
Company/ Trading name/State Department/Organ of State:	Department of Infrastructure: Transport Infrastructure Branch	
Company Registration Number:	N/A	
Postal address:	9 Dorp Street	
	Cape Town	Postal code: 8000
Telephone:	(021) 483 0536	Cell: N/A
E-mail:	Azni.November@westerncape.gov.za	Fax: N/A
Company of EAP:	Sharples Environmental Services cc	
EAP name:	Madeleine Knoetze	
Postal address:	P.O. Box 443	
	Milnerton	Postal code: 7435
Telephone:	(021) 554 5195	Cell: 079 028 1218
E-mail:	madeleine@sescc.net	Fax: (086) 575 2869
Qualifications:	B.Sc (Environmental Sciences)	
EAPASA registration no:	2021/3230	
Duplicate this section where there is more than one landowner Name of landowner:	Please see Appendix E21: Proof of land use rights	
Name of contact person for landowner (if other):		
Postal address:		
		Postal code:
Telephone:	( )	Cell:
E-mail:		Fax: ( )
Name of Person in control of the land:	Please see Appendix E21: Proof of land use rights	
Name of contact person for person in control of the land:	Department of Infrastructure: Transport Infrastructure Branch Azni November	
Postal address:	2 Dorp Street	
	Cape Town	Postal code: 8000
Telephone:	(021) 483 0536	Cell: N/A
E-mail:	Azni.November@westerncape.gov.za	Fax: N/A

Duplicate this section where there is more than one Municipal Jurisdiction Municipality in whose area of jurisdiction the proposed activity will fall:	Oudtshoorn Local Municipality	
Contact person:	Ambrose Carelse	
Postal address:	P.O. Box 255	
	Oudtshoorn	Postal code: 6620
Telephone	(044) 203 3982	Cell:
E-mail:	ambrose@oudtmun.gov.za	Fax: ( )

SECTION B: CONFIRMATION OF SPECIFIC PROJECT DETAILS AS INCLUDED IN THE APPLICATION FORM

1.	Is the proposed development (please tick):	New		Expansion	✓
2.	Is the proposed site(s) a brownfield of greenfield site? Please explain.				
The proposed development is considered a brownfield site as the proposed works will be located within the existing fenced off area adjacent to the existing road surface. The proposed works involve the widening and refurbishment of the existing infrastructure.					
3.	**For Linear activities or developments**				
3.1.	Provide the Farm(s)/Farm Portion(s)/Erf number(s) for all routes:				

The following land parcels will be affected by the proposed project:

- Portion 5 of the Farm Wagenaars 166
- Remainder of the Farm Wagenaars 166
- Remainder of portion 31 of the Farm Klein Fontein 22
- Farm Wagenaars Kraal 251
- Remainder of the Farm Wagenaars Kraal Railway Reserve 167
- Portion 15 of the Farm Frischgewaagd 163
- Portion 17 of the Farm Frischgewaagd 163
- Portion 18 of the Farm Frischgewaagd 163
- Portion 20 of the Farm Frischgewaagd 163
- Portion 22 of the Farm Frischgewaagd 163
- Portion 24 of the Farm Frischgewaagd 163
- Portion 36 of the Farm Frischgewaagd 163
- Portion 39 of the Farm Frischgewaagd 163
- Portion 47 of the Farm Frischgewaagd 163
- Portion 48 of the Farm Frischgewaagd 163
- Portion 66 of the Farm Frischgewaagd 163
- Portion 68 of the Farm Frischgewaagd 163
- Portion 69 of the Farm Frischgewaagd 163
- Portion 70 of the Farm Frischgewaagd 163
- Remainder of the Farm Bakenskraal 239
- Portion 4 of the Farm Bakenskraal 239
- Portion 8 of the Farm Bakens Kraal 164
- Portion 9 of the Farm Bakens Kraal 164
- Remainder of the Farm Onverwag B 241
- Portion 10 of the Farm Onverwag 143
- Portion 29 of the Farm Onverwag 143
- Portion 53 of the Farm Onverwag 143
- Portion 62 of the Farm Onverwag 143
- Portion 90 of the Farm Onverwag 143
- Portion 92 of the Farm Onverwag 143
- Portion 94 of the Farm Onverwag 143
- Portion 106 of the Farm Onverwag 143
- Portion 127 of the Farm Onverwag 143
- Portion 207 of the Farm Onverwag 143

3.2.	Development footprint of the proposed development for all alternatives.	481 493 m^2

The development footprint of the proposed works will be approximately 481 493 m^2 (48.ha) which will be stretched over 14.9 km. Please note that the extent of the proposed works was based on the fenced boundaries around the proposed development – This boundary was also confirmed by the Applicant (attached as Appendix E21). The extent (area) also includes the footprint of the existing Trunk Road 75/N12-Highway which will be refurbished as required. The proposed works will be stretched over 14.9 km (starting in Oudtshoorn leading southwards toward George).

3.3.	Provide a description of the proposed development (e.g. for roads the length, width and width of the road reserve in the case of pipelines indicate the length and diameter) for all alternatives.

The proposed project will see to the widening and refurbishment of the road infrastructure, including the stormwater infrastructure associated with the Road TR75/1 (Trunk Road 75/N12-Highway) near Oudtshoorn, Oudtshoorn Local Municipality. The length of the portion of road to be strengthened will be approximately 14.9 km. The overall width of the existing road is proposed to be widened from approximately 6.5 m to 8.2 m.

Along the road, a number of auxiliary lanes will be installed, with only one portion of the road seeing an auxiliary lane installed on both sides of the road. These auxiliary lanes will see to the widening of the existing road from approximately 6.5 m to a maximum of 15.9 m where a single carriageway with four lanes is required. The culvert infrastructure will be upgraded multiple locations with the amount of work to be done at each point varying based on the site investigations done by the project engineers. These culvert widenings will constitute the widening of both pipe and box culverts in select locations along the TR75/1.

In addition to the widening, strengthening and maintenance activities proposed along the portion of the road, a number of access roads and rest areas leading from the TR75/1 will either be reinstated or closed.

The locations of all works to be undertaken have been provided in extensive detail in Section E below. A map of the locations of the proposed works have been included as Appendix B1.

3.4.	Indicate how access to the proposed routes will be obtained for all alternatives.
All of the proposed works will be accessible from the N12-Highway (from both Oudtshoorn and George).	

3.5.	SG Digit codes of the Farms/Farm Portions/Erf numbers for all alternatives	C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	6	0	0	0	0	0
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	6	0	0	0	0	5
		C	0	2	7	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	3	1
		C	0	5	4	0	0	0	0	0	0	0	0	0	2	5	1	0	0	0	0	0
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	7	0	0	0	0	0
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	3	0	0	0	1	5
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	3	0	0	0	1	7
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	3	0	0	0	1	8
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	3	0	0	0	2	0
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	3	0	0	0	2	2
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	3	0	0	0	2	4
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	3	0	0	0	3	6
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	3	0	0	0	3	9
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	3	0	0	0	4	7
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	3	0	0	0	4	8
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	3	0	0	0	6	6
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	3	0	0	0	6	8
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	3	0	0	0	6	9
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	3	0	0	0	7	0
		C	0	5	4	0	0	0	0	0	0	0	0	0	2	3	9	0	0	0	0	0
		C	0	5	4	0	0	0	0	0	0	0	0	0	2	3	9	0	0	0	0	4
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	4	0	0	0	0	8
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	6	4	0	0	0	0	9
		C	0	5	4	0	0	0	0	0	0	0	0	0	2	4	1	0	0	0	0	0
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	4	3	0	0	0	1	0
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	4	3	0	0	0	2	9
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	4	3	0	0	0	5	3
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	4	3	0	0	0	6	2
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	4	3	0	0	0	9	0
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	4	3	0	0	0	9	2
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	4	3	0	0	0	9	4
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	4	3	0	0	1	0	6
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	4	3	0	0	1	2	7
		C	0	5	4	0	0	0	0	0	0	0	0	0	1	4	3	0	0	2	0	7

3.6.	**Starting point co-ordinates for all alternatives**			
	Latitude (S)	**33º**	**42'**	**11.67"**
	Longitude I	**22º**	**17'**	**17.39"**
	Middle point co-ordinates for all alternatives			
	Latitude (S)	**33º**	**40'**	**23.13"**
	Longitul(E)	**22º**	**14'**	**33.50"**
	End point co-ordinates for all alternatives			
	Latitude (S)	**33º**	**36'**	**51.21"**
	Longlde (E)	**22º**	**12'**	**57.47"**

Note: For Linear activities or developments longer than 500m, a map indicating the co-ordinates for every 100m along the route must be attached to this BAR as Appendix A3.

4.	~~Other developments~~	
4.1.	~~Property size(s) of all proposed site(s):~~	~~m²~~
4.2.	~~Developed footprint of the existing facility and associated infrastructure (if applicable):~~	~~m²~~
4.3.	~~Development footprint of the proposed development and associated infrastructure size(s) for all alternatives:~~	~~m²~~

4.4.	Provide a detailed description of the proposed development and its associated infrastructure (This must include details of e.g. buildings, structures, infrastructure, storage facilities, sewage/effluent treatment and holding facilities).																					
4.5.	Indicate how access to the proposed site(s) will be obtained for all alternatives.																					
4.6.	SG Digit code(s) of the proposed site(s) for all alternatives:																					
4.7.	Coordinates of the proposed site(s) for all alternatives:																					
	Latitude (S)			°			'			"												
	Llitude (E)			°			'			"												

SECTION C: LEGISLATION/POLICIES AND/OR GUIDELINES/PROTOCOLS

1. EXEMPTION APPLIED FOR IN TERMS OF THE NEMA AND THE NEMA EIA REGULATIONS

Has exemption been applied for in terms of the NEMA and the NEMA EIA Regulations. If yes, include a copy of the exemption notice in Appendix E18.	YES	**NO**

1. Is the following legislation applicable to the proposed activity or development.

The National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) ("ICMA"). If yes, attach a copy of the comment from the relevant competent authority as Appendix E4 and the pre-approval for the reclamation of land as Appendix E19.	YES	**NO**
The National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA"). If yes, attach a copy of the comment from Heritage Western Cape as Appendix E1.	**YES**	NO
The National Water Act, 1998 (Act No. 36 of 1998) ("NWA"). If yes, attach a copy of the comment from the DWS as Appendix E3.	**YES**	NO
The National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("NEM:AQA"). If yes, attach a copy of the comment from the relevant authorities as Appendix E13.	YES	**NO**
The National Environmental Management Waste Act (Act No. 59 of 2008) ("NEM:WA")	YES	**NO**
The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004 ("NEMBA").	**YES**	NO
The National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) ("NEMPAA").	YES	**NO**
The Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983). If yes, attach comment from the relevant competent authority as Appendix E5.	YES	**NO**

2. OTHER LEGISLATION

List any other legislation that is applicable to the proposed activity or development.

Other legislation which holds relevancy over this project includes:

- The Constitution of the Republic of South Africa, 1998 (Act 108 of 1996) (The Constitution);

  In 1996, the South African Government promulgated the constitution of the Republic of South Africa (Act No. 108 of 1996) (The Constitution). Section 24 of the Constitution describes the following:

  24. Everyone has the right-

  (a) To and environment that is not harmful to their health or wellbeing; and

  (b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that-

  i. Prevent pollution and ecological degradation;

  ii. Promote conservation; and

  iii. Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

- National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA);

  In 1998, the South African Government promulgated the National Environmental Management Act (Act No. 107 of 1998) (NEMA) aimed towards providing means of governing of the environment and the latent impacts of activities on the different spheres of the environment (social, biophysical, cultural and economic), thereby promoting sustainable development. The Section 24 of the NEMA also provided the Government with the opportunity to promulgate regulations in terms of specific activities which would require approval authorisation prior to commencement. Through this, the following regulations were promulgated:

  - Environmental Impact Assessment (EIA) Regulations of 2014, as amended (GNR 326 of 2017) – Providing clear instruction as to the methodology to be followed for the purpose of obtaining Environmental Authorisation for a proposed project.

- Listing Notice 1 of 2014, as amended (GNR 327 of 2017) – Infrastructure specific listed activities of moderate magnitude;
- Listing Notice 2 of 2014, as amended (GNR 325 of 2017) – infrastructure specific listed activities of great magnitude;
- Listing Notice 3 of 2014, as amended (GNR 324 of 2017) – infrastructure specific listed activities of small magnitude, based on the biographical sensitivity of the development site.

The listed activities applicable to the proposed project has been indicated in Section D below.

- <u>The National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEM:BA);</u>
  The National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA) is has been promulgated in order to safeguard to Biodiversity resources of the country. Through this legislation numerous Regulations aimed towards protecting the biosphere of South Africa. The legislation in terms of the NEMBA which holds relevance to the proposed project includes the following:
  - In September 2020, the Department of Environment, Forestry and Fisheries (DEFF) promulgated the Alien and Invasive Species Regulations (GN 1020 of 2020) in terms of the NEMBA. Through these regulations, 567 species considered as alien and invasive were identified, all of which require some degree of control and management. The degree of management depends on which category the species have been identified in terms of these regulations. The onus rests on the land owner/person in control of the land to implement the actions required for the species occurring on the site. The categories identified include:
    - Category 1a: Listed species which must be combatted or eradicated.
    - Category 1b: Listed species which must be controlled.
    - Category 2: Listed species which require a permit to carry out a restricted activity within an area specified in the Notice or an area specified in the permit, as the case may be
    - Category 3: Listed species subject to exemptions in terms of section 71 (s) of the NEMBA and the prohibitions in terms of Section 71A of the NEMBA as specified in the Notice.
  - In November 2022, the Department of Forestry, Fisheries & Environment (DFFE) promulgated the Revised National List of Ecosystems that are Threatened and in need of Protection (GN 2747 of 2022), which indicated that 120 of the 456 ecosystem types assessed have been categorised as threatened.

- <u>The Conservation of Agricultural Resources Act (Act 43 of 1983) (CARA);</u>
  The Conservation of Agricultural Resources Act (Act 43 of 1983) (CARA) was promulgated in order to provide a means for the Department of Agriculture to control the utilisation of the natural agricultural resources of the country, which in turn would promote the conservation of soil, water resources and vegetation. In addition, the CARA provides a means of combating weeds and invader plants. In 2013, the Department of Agriculture promulgated a list of alien and invasive species. These species were assigned similar concern status to the NEMBA Alien and Invasive species list. As such these species were separated into various categories (1, 2 and 3) based on the threat the pose to the indigenous resources.

- <u>The National Water Act, 1998 (Act 36 of 1998) (NWA):</u>
  The purpose of the National Water Act, 1998 (Act 36 of 1998) (NWA), is to ensure that the country's water resources are protected, used, developed, conserved, managed and controlled in a manner that allows for equitable access opportunity to water, basic human needs are met, the management of resources in a safe manner and which promotes social and economic development.

  As part of the NWA, a number of water uses were identified, aimed towards ensuring the equitable and responsible use of water resources throughout the Republic. These water uses were stipulated in Section 21.

  In terms Section 21 of the NWA, the following water uses hold relevancy to the project:
  (c) impeding or diverting flow of water in a watercourse;
  (i) Altering the bed, banks, course or characteristics of a watercourse.

  In September 2016, the Department of Water and Sanitation promulgated GN509 of 2016 in terms of the NWA (Act 36 of 1998) which made provisions for the general authorisation water uses (c) and (i) identified in terms Section 21 of the NWA provided the impacts of the proposed project are considered to be low as determined by the DWS Risk Assessment Matrix (modified 2015, DWS). According to the DWS Risk Assessment Matrix completed by the appointed specialist (Confluent Aquatic Consulting and Research), the impacts of the proposed project are expected to be **LOW** after mitigation.

  Therefore, a General Authorisation will be applied for in terms lthe Section 21 (c) and (i) water uses listed in terms of the NWA.

- National Heritage Resources Act (Act 25 of 1999)

  National Heritage Resources Act, 1999 (Act No. 25 of 1999) Section 38 of the Act states as follows: "38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as –

  "(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length"

  must inform the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

  The proposed project will not entail the development of a road, however, will require the widening of the road. It will be located within an area of High palaeontological sensitivity. The Notice of Intent to Develop was submitted to Heritage Western Cape (HWC) on the 8th of May 2023. In their Comment received on the 25th of May 2023, HWC indicated that a Heritage Impact Assessment would be required for the proposed project. This HIA has been included as an appendix to this report.

- National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)

  The National Environmental Management: Waste Act (NEMWA) (Act 59 of 2008), strives to protect the health and well-being of the people and the environment by providing reasonable measures for the minimization of natural resource consumption, avoiding and minimizing the generation of waste, reducing, recycling and recovering waste, and treating and safely disposing of waste as a last resort.

  Since only limited quantities of general construction waste will be generated, no activities under the NEM:WA will be triggered as part of the proposed project. Further to this, no waste will be generated during the operational phase of the proposed project.

- Other legislation (outside of the One Environmental System) applicable to the proposed project:
  - Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) (SPLUMA);
  - The South African National Roads Agency Limited and National Roads Act, 1998 (Act No. 7 1998); and
  - The National Road Traffic Act, 1996 (Act No. 93 of 1996);
  - Deeds Registries Act, 1937 as amended (Act No. 47 of 1937); and
  - Local Government: Municipal Systems Act (Act 32 of 2000).

3. POLICIES

Explain which policies were considered and how the proposed activity or development complies and responds to these policies.

The following Municipal By-laws and policies hold relevance to the proposed project:

- The Municipal By-law Relating to Roads and Streets:

  The Municipality has a duty to control all roads, streets and sidewalks within its jurisdiction in order to provide a safe environment for all people within the municipal area. This by-law stipulates the appropriate conduct that must be followed by all persons making use of public streets (This has been incorporated into the mitigation measures as presented in Section H.4). An application must be submitted to the Municipality should any road closures and construction activities be proposed on the any of the streets/roads within the Municipal area be required.

- The Municipal Roads and Traffic By-Law:

  This by-law was developed in line with the provisions of Section 156 of the Constitution of the Republic of South Africa, 1996. This of this by-law is to promote the achievement of a safe environment for the benefit of residents within the area of jurisdiction of the municipality. Additionally, these by-laws provide procedures, methods and practices to manage the use and utilisation of the streets and roads in the area of jurisdiction. Similar to the By-laws relating to Roads and Streets, this by-law stipulates the appropriate manner of conduct and allowed activities within the streets within the jurisdiction of the Municipality. Accordingly, the permission must be obtained from the Municipality, in the event that any streets its jurisdiction is altered by any means.

- The Municipal Storm Water Management By-Law:

  This by-aw regulates the storm water management and activities which would have an adverse impact on the development, operation and maintenance of the storm water system. As the by-law only relates to infrastructure located in built-up areas, these by-laws will only be applicable to the northern most reaches of the proposed project. Although no activities impacting upon the stormwater infrastructure located in the built-up areas have been proposed, due to the entirety of the road will be widened, there is a possibility that the widening activities in the northern reaches of the proposed project unintentional impacts to the stormwater infrastructure may be observed. Should any impact on the stormwater infrastructure within the northern reaches of the proposed development be anticipated, permission must be obtained from the Municipality.

- By-law on Municipal Land Use Planning (2016), as amended:

This by-law applies to all land situated within the municipal area, including land owned by organs of state. As such, the applicant, the Western Cape Government: Department of Infrastructure: Transport Infrastructure Branch is held to this by-law. This by-law instils the need for the municipality to compile a Spatial Development Framework in order to inform decisions with regard to land development within the Municipality. The properties to be impacted by the proposed project have been zoned as Agricultural Zone I and Transport Zone I. Pertaining to the properties zoned as Agricultural Zone I: As per the beforementioned by-law, a non-conforming use does not constitute an offence in terms of the by-law, however, the onus of proving use rights rests on the owner of the property. As per the notice included as Appendix E21, the road reserve was officially proclaimed in 1971.

- District Waste Management By-Law (2017):
  As described in the Eden (which has since been renamed to the Garden Route) District Municipality's waste management by-law, waste management follows order of priority as outlined in the NEMWA (promoting waste avoidance and minimisation, waste reuse, recycling/recovering, waste treatment and disposal – in decreasing order of favourability). These by-laws highlight the duty of care that falls upon the residents of the Municipality in order to ensure that was is managed in an environmentally sound manner. It is under these By-Laws that the Municipality compiled its Integrated Waste Management Plan (EWMP) which evaluated the efficiency of the Local Municipality's by-laws on waste management. This plan also identified the Grootkop landfill site as the only operational and permitted landfill site within the municipality. As such, all rubble generated during the construction phase of the proposed development must be disposed of at the beforementioned landfill site. As per the By-law, any person carrying on an activity which generates hazardous waste, must ensure that such waste generated on the premises is kept and stored there until it is collected by an accredited service provider from the premises. Additionally, only an accredited service provider may transport hazardous waste and must be done so in accordance with the permit issued to the provider. Hazardous waste must be disposed of at a permitted facility. According to the EWMP, the closest facility permitted to received hazardous waste would be the Green Scrap Recycling facility in George.

- Oudtshoorn Municipal Solid Waste Disposal By-Law:
  This by-law strives to promote a safe and healthy environment for the benefits of the residents of the Municipality and to provide procedures, methods and practices to promote waste management activities. This by-law provides waste management procedures which must be followed by all who resides within the municipal boundaries. Additionally, the by-law stipulates that no person may dump accumulate or litter an area without clear permission from the landowner, or unless stipulated by law to do so. These areas include a road, highway and any road verge (amongst other areas). Accordingly, waste on site must be managed closely and waste must be deposited at a registered landfill site.

4. GUIDELINES

List the guidelines which have been considered relevant to the proposed activity or development and explain how they have influenced the development proposal.

The following Guidelines were used to inform the contents of this Basic Assessment Report (BAR):

- Guideline on Need and Desi–ability (DEA, 2017) - National guideline considered during the assessment of the Need and Desirability of the proposed development project.
- Guideline on Need and Desirability (DEA&DP, 2013) – Provincial guideline considered during the assessment of the Need and Desirability of the proposed development project.
- EIA Guideline and Information Document Series: Generic Terms of Reference for EAPs and Project Schedules (DEA&DP, 2013);
- EIA Guideline and Information Document Series: Guideline of Public Participation (DEA&DP, 2013) - Guideline considered in the undertaking of the public participation for the proposed development. All relevant provisions contained in the guideline were adhered to in the basic assessment process as appropriate.
- EIA Guideline and Information Document Series: Guideline on Alternatives (DEA&DP, 2013) - Guideline considered when identifying and evaluating possible alternatives for the proposed development. Alternatives that were considered in the impact assessment process are reported on in this Basic Assessment Report.
- Guideline for the Review of Specialist Input in EIA Processes (DEA&DP, 2005) - Guideline considered during the review and integration of specialist input into this Basic Assessment Report
- Guideline for determining the scope of specialist involvement in EIA processes (DEA&DP, 2005);
- Guideline for involving biodiversity specialists in EIA processes (DEA&DP, 2005);
- Guideline for Environmental Management Plans (DEA&DP, 2005) - Guideline considered in the compilation of the EMP attached to this Basic Assessment Report.
- EADP: 0028/2014: "One Environmental Management System" and the 2014 Environmental Impact Assessment (EIA) Regulations (DEA&DP, 2014);

- Integrated Environmental Management Information Series 5: Impact Significance (DEA, 2002) - Guideline considering during the identification and evaluation of potential impacts associated with the proposed development, and the reporting thereof in this Basic Assessment Report
- Integrated Environmental Management Information Series 7: Cumulative effects Assessment (DEA, 2004) - Guideline considering during the assessment of the cumulative effect of the identified impacts.
- Integrated Environmental Management Information Series 11: Criteria for determining alternatives (DEA, 2004);
- Integrated Environmental Management Information Series 15: Environmental Impact Reporting (DEA, 2004);
- South African National Road Agency's (SANRAL's) Strategic Pl–n (2020/21-2024/25) - Aims to ensure that the National Road network is optimally maintained, jobs are created on projects, creating delivery capacity for the country.
- National Biodiversity Offset Guidelines (DFFE, 2023) – Aims to provide guideline for the conditions under which biodiversity offsets would be required for a project based on the significance of the residual biodiversity impacts anticipated for the proposal.

5. PROTOCOLS

Explain how the proposed activity or development complies with the requirements of the protocols referred to in the NOI and/or application form

In 2020, the Department of Environmental Affairs (now referred to as the Department of Forestry, Fisheries and Environment (DFFE)) promulgated the protocols for the minimum reporting criteria for the environmental themes as identified by the Environmental Screening Tool as promulgated in terms of Sections 24(5)(a) and (h), and 44 of the National Environmental Management Act, 1998 as amended (Act 107 of 1998), when applying for an Environmental Authorisation in terms of the EIA Regulations of 2014, as amended.

The table below indicates the environmental sensitivities as identified by the screening tool report (as accessed on 05 May 2023).

Table 1. Themes identified in terms of the DEA Screening Tool as promulgated in terms of the EIA Regulations of 2014, as amended (GNR 326 of 2017).

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
Agriculture Theme		X		
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme	X			
Civil Aviation Theme		X		
Defence Theme				X
Palaeontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Based on the screening tool results, it was recommended that the following specialist assessments be undertaken for the proposed project:

- Agricultural Impact Assessment
- Landscape/Visual Impact Assessment
- Archaeological and Cultural Heritage Impact Assessment
- Palaeontology Impact Assessment
- Terrestrial Biodiversity Impact Assessment
- Aquatic Biodiversity Impact Assessment
- Noise Impact Assessment
- Traffic Impact Assessment
- Geotechnical Assessment
- Socio-Economic Assessment
- Ambient Air Quality Impact Assessment
- Plant Species Assessment
- Animal Species Assessment

As part of the Notice of Intent (NOI) and Site Sensitivity Verification Report (SSVR) compiled and submitted for the proposed project, the following specialist assessments as identified by the Web-based Screening Tool have not been undertaken for this proposal:

- Landscape/Visual Impact Assessment
  As the proposed works aim to strengthen existing infrastructure along the Road TR75/1 (Trunk Road 75/N12 -highway), and the majority of the proposed project will be located within the fenced-off areas of the road,

the project is not expected to have a significant impact on the visual characteristics of the receiving environment.

- Noise Impact Assessment
  In terms of the protocol on noise impact assessments (GNR 320 of 2020), the site sensitivity was determined by means of a site visit conducted by the EAP. The proposed project entails the strengthening of the existing infrastructure (in the form of repairing and relayering works where required and the widening of the existing roads in select places). Should additional noise be generated during the construction phase of the proposed development, this will not exceed the thresholds of the relevant norms and standards and the mitigation measures of all anticipated impacts have been addressed in the EMPr as provided In Appendix H. It is not anticipated that the proposed development will generate additional traffic during the operational phase.
- Traffic Impact Assessment
  The Environmental Impact Assessment has ensured alignment with the principles of the Need and Desirability Guidelines, DEA, 2017 (as detailed in Section E below) and has evaluated the feasibility of the proposed works. Due to the nature of the works, it is not anticipated that a Traffic Impact Assessment would be required, however Traffic Management procedures have been provided as part of the EMPr and MMP compiled for this project.
- Geotechnical Assessment
  The project will involve the strengthening of the existing N12-Highway and most of the works will be in the fenced-off areas adjacent to the freeway, At the time of the compilation of this report, the project team was busy running an assessment through the use of a retaining net (collecting rocks). The assessment of the stability of the working areas will be continuous. A statement has been obtained from regarding the geotechnical stability of the study area. This statement has been included as **Appendix G5** of this Basic Assessment Report.
- Socio-Economic Assessment
  Because the proposed project aims to rehabilitate an existing roadway, the EAP is of the opinion that a full socio-economic assessment is not required. As part of the authorisation process to be followed, a detailed description of the socio-economic situation of the area has been provided to describe the impacts of the proposed works on the road users from a socio-economic perspective. The Environmental Impact Assessment has also been approached in alignment with the principles of the Need and Desirability Guidelines, DEA, 2017 (as detailed in Section E below as well as Appendix K) and has evaluated the feasibility of the proposed works in light of the current socio-economic situation of the municipality.
- Ambient Air Quality Impact Assessment
  The proposed project will involve the strengthening of the existing Road TR75/1 (Trunk Road 75/N12-Highway). It is the opinion of the EAP that the activities proposed for the project would not be significant enough to warrant the need for an Ambient Air Quality Impact Assessment. Based on the observations of the site by the EAP, it is not expected that the proposed project will lead to additional ambient air quality impacts.

Table 2. Specialist studies conducted in response to the findings of the DEA Screening Tool and based on the findings of the Site Sensitivity Verification Report compiled in terms of the NOI.

Study	Specialist	Sensitivity theme aiming to be addressed
Agricultural Compliance Statement	Johann Lanz	Agriculture
Aquatic Biodiversity Impact Assessment	Confluent (Pty) Ltd	Aquatic Biodiversity
Animal Species Impact Assessment	Cossyphia (Pty) Ltd	Animal Species
Terrestrial Biodiversity and Plant Assessment	Mark Berry Environmental Consultants	Terrestrial Biodiversity Plant Species
Archaeological and Palaeontological Survey and NID	ASHA Consulting (Pty) Ltd	Archaeological and Cultural Sensitivity Palaeontology Sensitivity

As indicated in the NOI, the following protocols holds relevancy to the proposed development:

- Site sensitivity verification requirements where a specialist assessment is required but no specific assessment protocol has been prescribed.
- Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity.
- Protocol for the specialist assessment and minimum report content requirements for environmental impacts on aquatic biodiversity.
- Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial plant species.
- Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial animal species
- Protocol for the specialist assessment and minimum report content requirements for environmental impacts on agricultural sensitivity.

In DEA&DP's response to the Notice of Intent (NOI), dated 22 May 2023, the DEA&DP confirmed that they are in agreement with the proposed specialist studies.

SECTION D: APPLICABLE LISTED ACTIVITIES

List the applicable activities in terms of the NEMA EIA Regulations

Activity No(s):	**Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1**	**Describe the portion of the proposed development to which the applicable listed activity relates.**
Activity 19 of Listing Notice 1 of 2014, as amended (GNR 327 of 2017)	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.	The proposed project will intercept the Olifants River. Additionally, a total of twenty-nine (29) watercourses (identified as non-perennial rivers) were identified along the portion proposed to be strengthened by the proposed development. The overall widening of the road is proposed to be between 2.1 m and 8.9 m, depending on whether the road will only be widened or whether auxiliary lanes will be installed in addition to the widening of the road. As part of the widening procedures, the culverts (minor and mayor) will require widenings as well, so as to accommodate the larger surface area of the road. The culverts to be widened correlates with the watercourses identified by the appointed specialist. It is therefore anticipated that more than 10 cubic metres (cumulatively) of watercourse materials would be impacted upon by the proposed project. **Therefore, the listed activity would be deemed applicable to the proposed project.**
Activity no. 48 of Listing Notice 1 of 2014, as amended (GNR 327 of 2017)	*The expansion of (i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more, where such expansion occurs:* *(a) Within a watercourse;* *(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.*	The proposed project will see to the expansion of several culverts where the widening of the road will be required. It is expected that the widening activities will be larger than 100 square metres collectively. The exclusions to this activity are not applicable to the proposed project. **This activity will therefore be applicable to the proposed project.**
Activity no. 56 of Listing Notice 1 of 2014, as amended (GNR 327 of 2017)	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre; (i) Where the existing reserve is wider than 13.5 meters,	According to the scope of works, the road will be widened and auxiliary lanes will be installed in select locations. The width of the widening will be between 2.1 m in extent (widening will occur throughout the full extent of the proposed project) and up to approximately 8.9 m in areas where auxiliary lanes are required (this excludes the footprint of the proposed construction works). **This activity will therefore be applicable to the proposed project.**
Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 3**	Describe the portion of the proposed development to which the applicable listed activity relates.
12	*The clearance of an area of 300 square metres or more of indigenous vegetation is required for maintenance purposes undertaken in accordance with a management plan.* ***i. Western Cape***	The Muscadel Riviere Ecosystem and the Eastern Little Karoo Vegetation Types have been identified as endangered ecosystems under the Revised List of Ecosystems in terms of the National

	i. *Within any critically endangered or endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004.* ii. *Within critical biodiversity areas identified in bioregional plans.*	Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA) (GN 2747 of 2022). According to the Western Cape Biodiversity Spatial Plan (2016), the Muscadel Riviere Ecosystem type has a threat status of Critically Endangered whereas the Eastern Little Karoo has an Ecosystem threat status of Vulnerable. The proposed project will intercept various Critically Biodiversity and Ecological Support Areas. The project will see to the clearance of more than 300 square metres. According to the specialist assessment **Therefore, this listed activity will be applicable to the proposed development.**
18	*The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.* ***ii. Western Cape*** *ii. Outside Urban Areas:* *aa) Areas containing indigenous vegetation*	According to the scope of works, the road will be widened, and auxiliary lanes will be installed in select locations, where the width of the widening will be between approximately 2.1 m (throughout a greater extent of the section of the road proposed to be strengthened) and up to approximately 8.9 m in areas where auxiliary lanes are required (this excludes the footprint of the construction works). According to the Botanical assessment done for the proposed development, numerous indigenous species were located within the road reserve (the fenced area of the N12). Additionally, sections of the road through the hills are still flanked by good quality vegetation (Eastern Little Karoo). **Therefore, this listed activity will be applicable to the proposed project.**
23	*The expansion of (ii) infrastructure or structures where the physical footprint is expanded by 10 square metres or more, where such expansion occurs:* *(b) Within a watercourse;* *i. Western Cape* *i. Outside urban areas:* *(dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority.*	The proposed project will see to the expansion of several culverts where the widening of the road will be required. It is expected that the widening activities will be larger than 10 square metres collectively. Although no environmental management framework has been adopted by the Local municipality. The area associated with the Olifantsrivier has been identified as a sensitive area (Ecological Support Area and within the 32 m river buffer area) as part of the Municipalty's Spatial Development Framework adopted for 2022/2027 (Figure 7). **Therefore, this listed activity will be applicable to the proposed development.**
Note: • The listed activities specified above must reconcile with activities applied for in the application form. The onus is on the Applicant to ensure that all applicable listed activities are included in the application. If a specific listed activity is not included in an Environmental Authorisation, a new application for Environmental Authorisation will have to be submitted. • Where additional listed activities have been identified, that have not been included in the application form, and amended application form must be submitted to the competent authority.		

List the applicable waste management listed activities in terms of the NEM:WA

Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Category A**	Describe the portion of the proposed development to which the applicable listed activity relates.
No activities in relation to the NEM:WA hold relevance to the proposed project.		

List the applicable listed activities in terms of the NEM:AQA

Activity No(s):	Provide the relevant **Listed Activity(ies)**	Describe the portion of the proposed development to which the applicable listed activity relates.
No activities in relation to the NEM:AQA hold relevance to the proposed project.		

SECTION E: PLANNING CONTEXT AND NEED AND DESIRABILITY

1.	Provide a description of the preferred alternative.

The proposed project will see to the following works being executed on site:

1. General
    a. The establishment on site of the Contractor's campsite and offices for the Engineer and his site staff.
    b. The supply of plant, labour, tools, equipment and materials necessary to complete the works.
    c. Setting out the working areas taking cognisance of all the sensitivities as identified by the appointed specialist
    d. Accommodation of traffic during the construction phase of the proposed project.
2. Road works
    a. Strengthening of the existing road cross-section to include surfaced shoulders:
        i. Widening of existing cut and fill slopes,
        ii. In-situ reconstruction of the existing pavement layers as the upper selected layer,
        iii. Construction of new subbase and base layers, and
        iv. Construction of a new surfacing seal
    b. Construction of auxiliary (passing and climbing) lanes at selected locations
    c. Works on selected accesses to main or minor farm access standards as applicable
    d. Extension of existing minor culverts
    e. Maintenance of existing minor culvert inlet and outlet structures
3. Structures
    a. Widening major culverts if required due to cross-section strenghtening or introduction of auxiliary lanes.
    b. Maintenance to major culverts including:
        i. Concrete crack repair.
        ii. Scour repair
    c. Maintenance to B4691 over the Olifants River including:
        i. Repair of rebar corrosion and concrete spalling
        ii. Replacement of bridge joints
4. Appurtenant works
    a. Construction of concrete lined drains
    b. Installation of road signs
    c. Painting of road marking
    d. Installation of guardrails
    e. Installation of fencing, including clearing the fenceline

The images below show the overall works proposed as part of this project. In addition to the works indicated below, it is proposed that the refurbishment of the road be done where required. The proposed road will also undergo general widening throughout this portion (the portion of the road under consideration as part of this application). This will form part of the general maintenance procedures of the road.

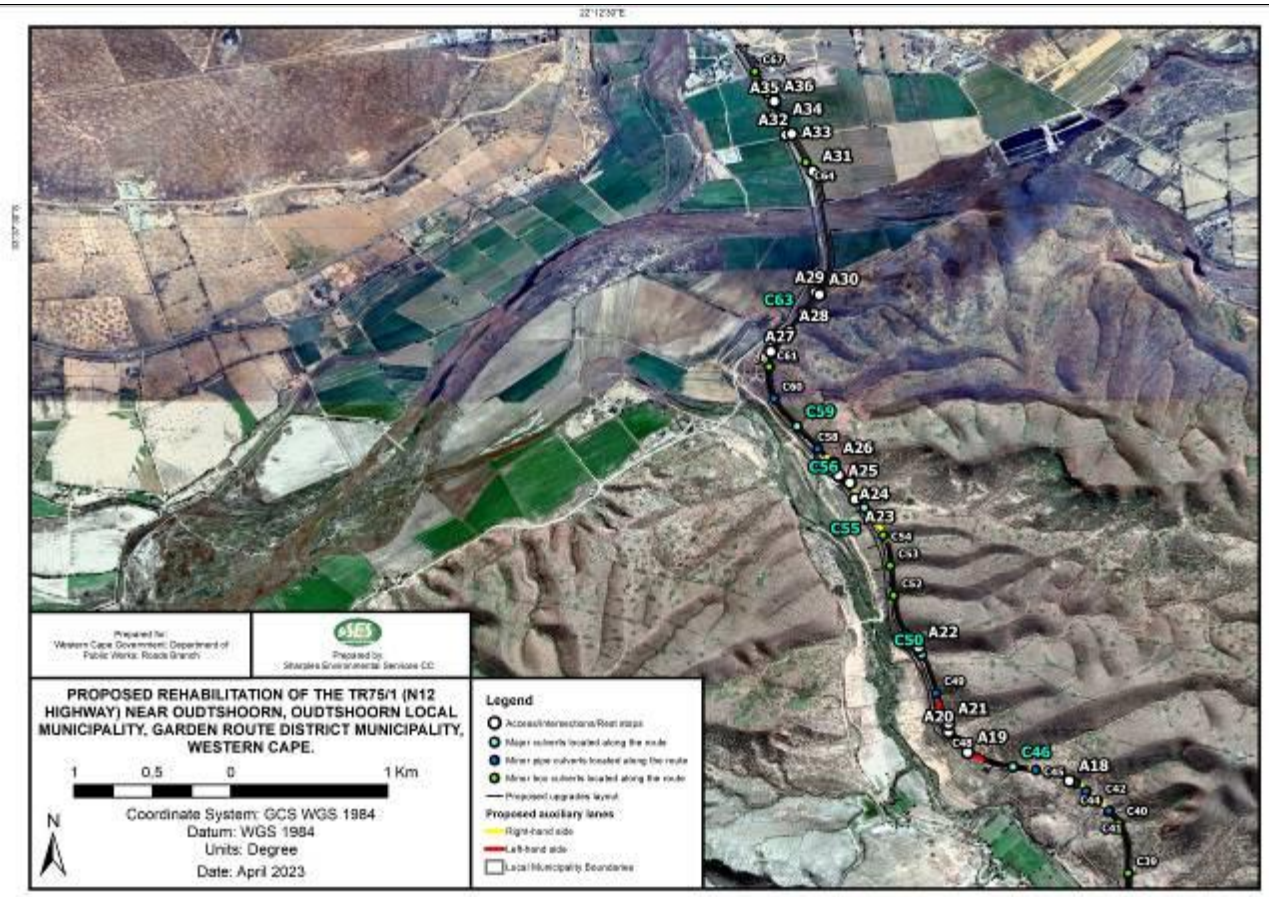

Figure 3. Location of proposed works as detailed in the specifications (North).

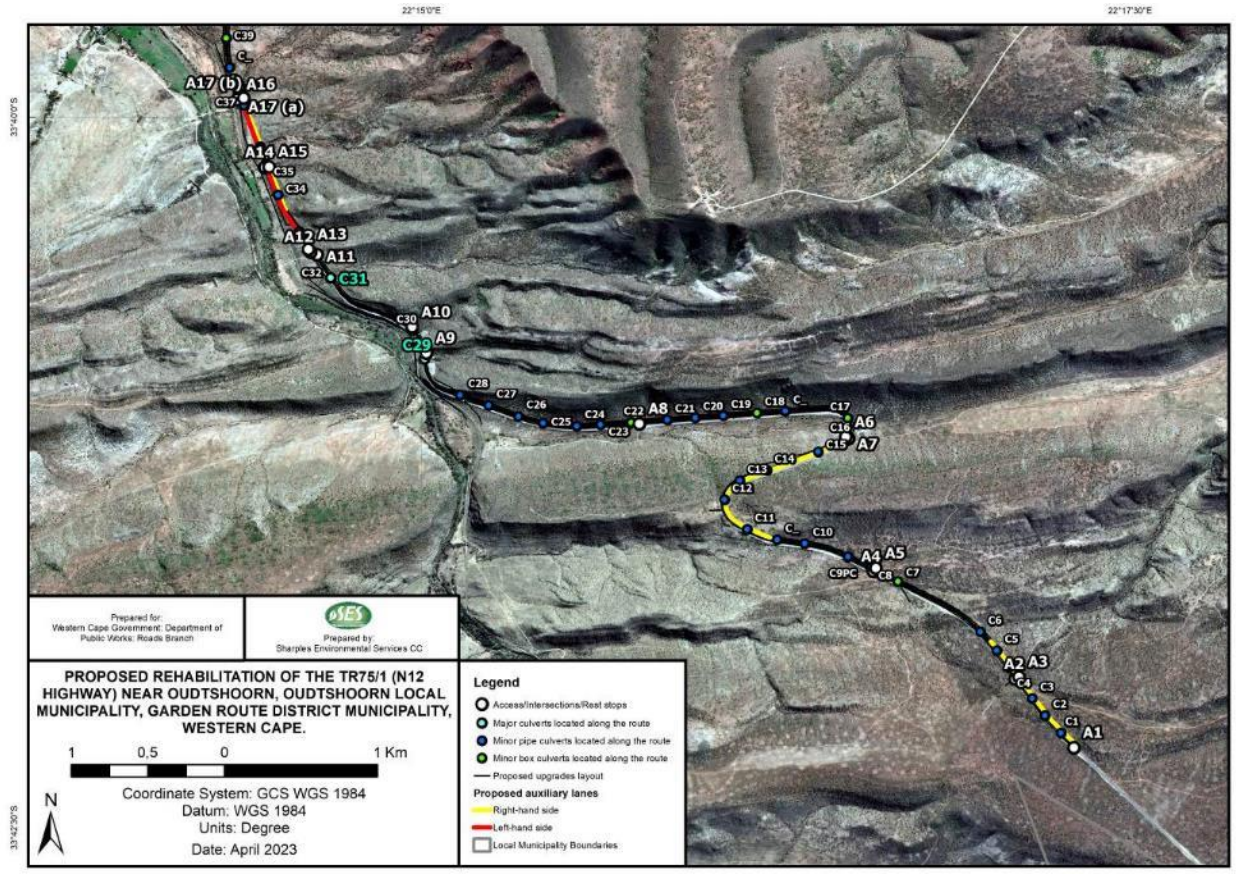

Figure 4. Location of proposed works as detailed in the specifications (South).

Additional lanes/auxiliary lanes

As detailed in the Engineering Report prepared by Kantey & Templer Consulting Engineers (Appendix L1 of the BAR), the following types of auxiliary lanes were explored:

- Climbing Lanes: This is typically an additional roadway lane that allows heavy or underpowered vehicles to ascend a steep grade without slowing other traffic. They are typically used by large trucks or semi-trailer trucks, which go uphill more slowly than they travel on level ground. The analysis found that two climbing lanes were warranted and economically viable.
- Passing Lanes: This is typically a lane added on a multi-lane highway or motorway closest to the median of the road intended to be used for passing vehicles in other lanes. Five passing lanes were found to be warranted and economically viable and were recommended for inclusion in the scope.

It is proposed to add additional lanes to portions of the TR75/1 (Trunk Road 75/N12-Highway). The table below indicates the portions of the road which will be widened for the purpose thereof. The type of auxiliary lane has also been indicated in this table.

Start Km	SES Map Ref	End Km	SES Map Ref	Extent (km)	Proposed works	Type
28.38	L1(a)	27.74	L1(b)	0.64	Auxiliary lane on Right-hand side	Passing Lane
26.70	L2(a)	26.14	L2(b)	0.56	Auxiliary lane on Left-hand side	Passing Lane
25.96	L3(a)	25.46	L3(b)	0.5	Auxiliary lane on Right-hand side	Passing Lane
24.86	L4(a)	23.84	L4(b)	1.02	Auxiliary lane on Right-hand side	Passing Lane
24.70	L5(a)	23.55	L5(b)	1.15	Auxiliary lane on Left-hand side	Passing Lane
19.94	L6(a)	18.70	L6(b)	1.24	Auxiliary lane on Right-hand side	Climbing Lane
17.36	L7(a)	16.50	L7(b)	0.86	Auxiliary lane on Right-hand side	Climbing Lane

The figure below indicates the locations of the proposed auxiliary lanes listed above.

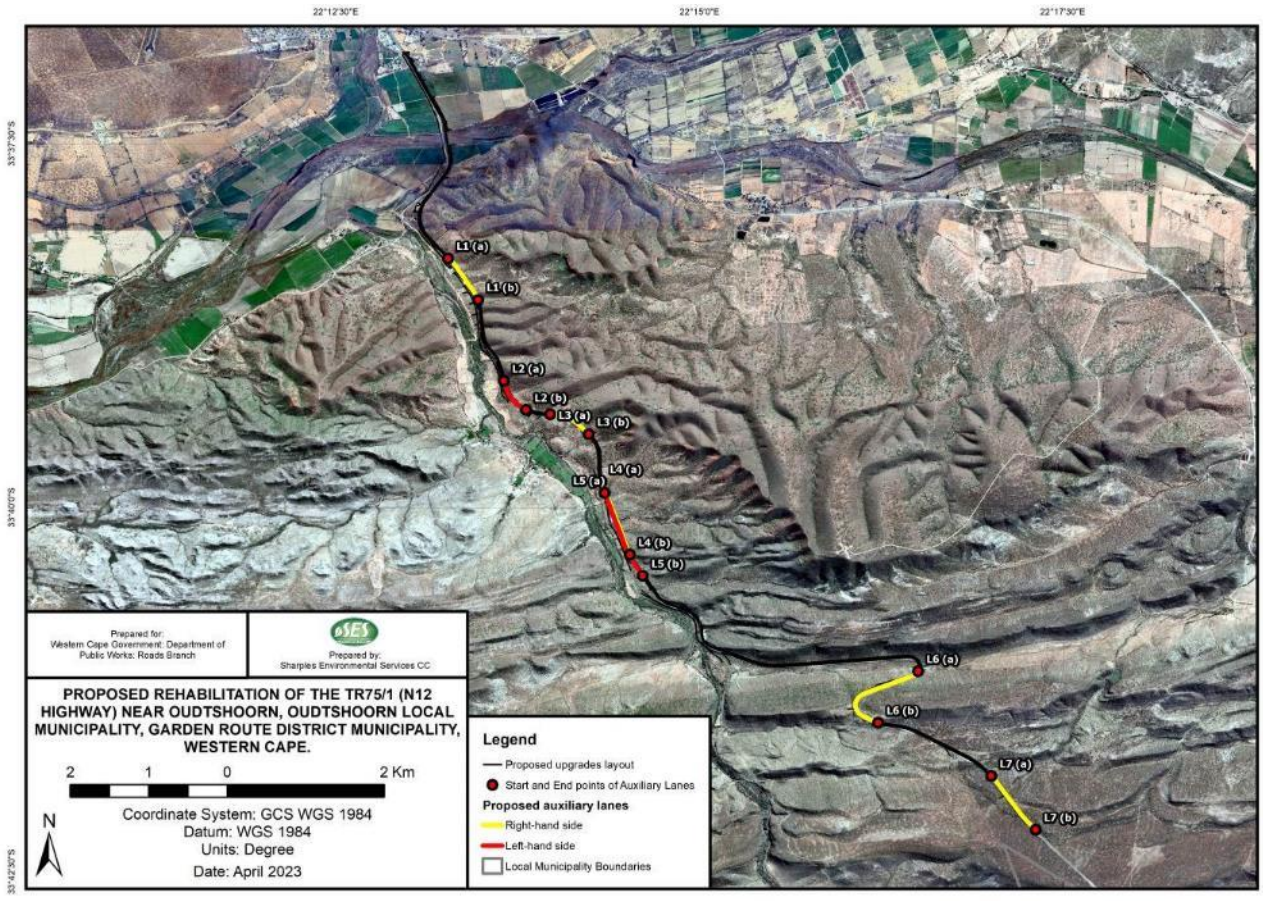

Figure 5. Location of proposed auxiliary lanes.

Major Culvert Infrastructure

The engineers (Kantey and Templer) identified nine (9) major culverts which would require works to be done, of these 9 culverts, it was determined that three (3) of the culverts would not be required to be extended past their current footprints, two (2) would possibly require extension and four (4) would definitely require to be extended past the current project footprint. The major culverts identified included C29, C31, C36, C46, C50, C55, C56, C59 and C63.

The following management measures are required for the various major culverts:

- C29 (1 x 1.45m x 2.45m Box Culvert) (No extension required):
  - Repair of a crack on this culvert.

- New invert slab to be installed with cut-offs.
- The inlet pathway is to be cleared of boulders and debris.

- C31 (1x 2.40m x 2.40m Box Culvert) (No extension required):
  - New invert slab to be installed with cut-offs.
  - Vegetation clearance around culvert to take place.
  - Hazard signage or guardrails to be installed as required.
- C36 (1 x 2.50m x 2.50m Box Culvert) (To be extended on both sides due to establishment of road shoulder and the installation of an auxiliary lane).
  - Extension on both sides required and the wingwalls to be replaced.
  - Repair corroded rebar and spalling, and inject cracks if structural damage has occurred.
  - Vegetation clearance to take place around the culvert.
  - Hazard signage or guardrails to be installed as required.
- C46 (1 x 2.50m x 2.50m Box Culvert) (To be extended on the Right hand side only with the left side fill profile to be confirmed):
  - Grouted stone pitch will be installed at the wingwalls.
  - The embankments are to be shaped and trimmed.
  - The fencing is to be reinstated.
  - Hazard signage or guardrails to be installed as required.
- C50 (1 x 2.40m x 2.40m Box Culvert) (No extension required)
  - The wingwall stability is to be assessed and strengthened or tied back if necessary.
  - New invert slab to be installed with cut-offs.
  - Repair corroded rebar and spalling, and inject cracks if structural damage has occurred.
  - Vegetation clearance to take place around the culvert.
  - Hazard signage or guardrails to be installed as required.
- C55 (1 x 2.40m x 2.40m Box Culvert) (Extension on both sides required due to the establishment of the road shoulder and the installation of an auxiliary lane on both sides of the road).
  - Extension on both sides required.
  - New invert slab to be installed with cut-offs.
  - Hazard signage or guardrails to be installed as required.
- C56 (1 x 2.50m x 1.20m Box Culvert) (Extension on both sides required due to the establishment of the road shoulder and the installation of an auxiliary lane on both sides of the road).
  - Erosion protection measures to be used at the outlet.
  - Hazard signage to be installed.
- C59 (1 x 2.40m x 2.40m Box Culvert) (Possible extension of the left hand side0
  - Extension of the let hand side of the road.
  - Hazard signage or guardrails to be installed as required.
- C63 (1 x 2.40m x 1.20m Box Culvert (Possible extension on both sides required due to the establishment of the road shoulder and the installation of an auxiliary lane on both sides of the road).
  - Definite extension of the Right-hand side.
  - Hazard signage to be installed.

The figure below indicates the locations of the major culverts listed above.

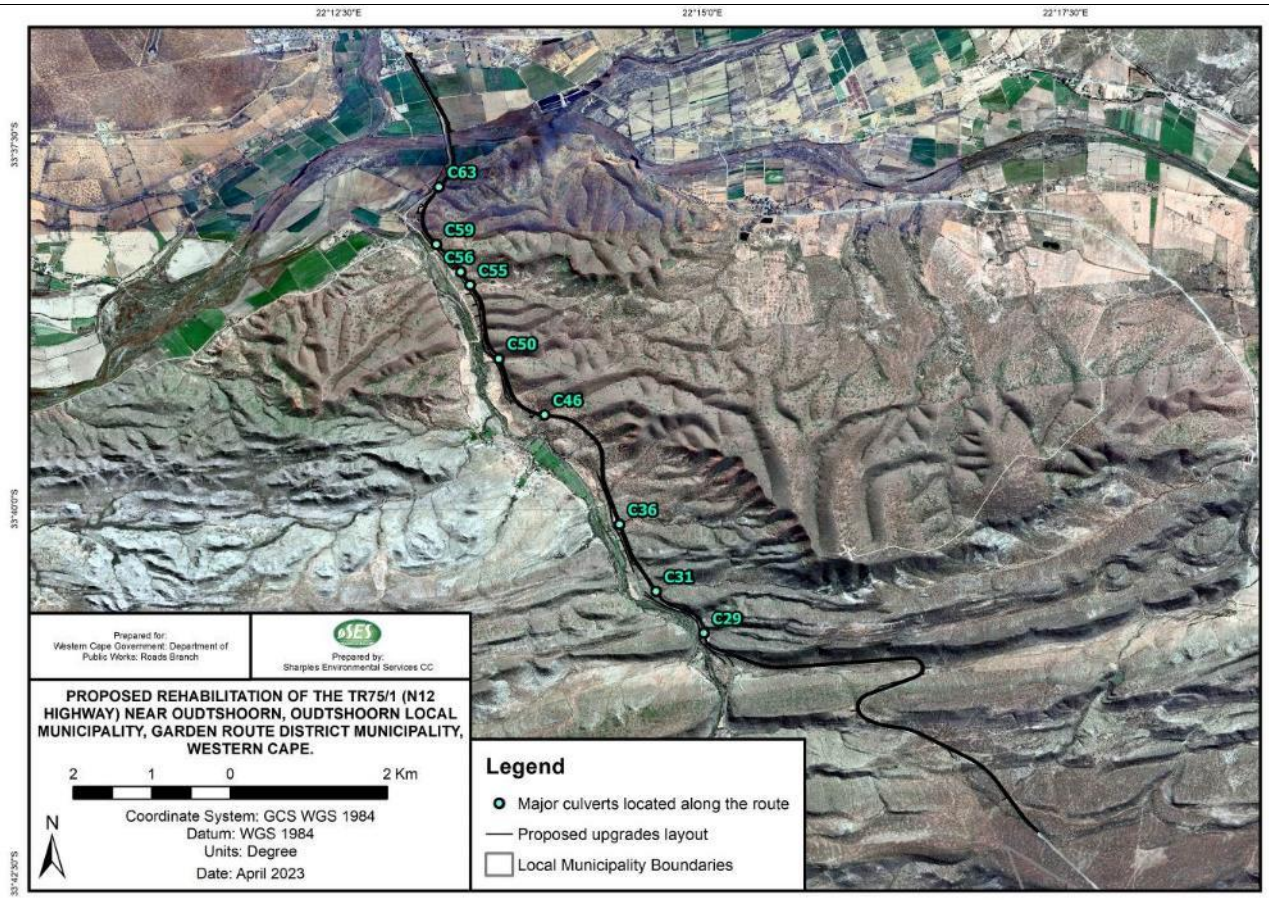

Figure 6. Location of major culverts along the route.

Minor Culvert infrastructure

The minor culverts to undergo alternations as a result of the proposed works, have been tabulated below.

For the purpose of the table below, the Work Classification was determined based on whether it is anticipated that the footprint of the existing infrastructure or impacts would be increased or not. Therefore, the following works classifications were determined:

- Construction:
  - Extension of the culvert infrastructure.
  - Extension of the headwalls.
  - Formalisation of the headwall.
  - Clearance of debris/siltation/vegetation.
  - Construction of erosion protection measures.
  - Clearance of the waterway's vegetation and subsequent shaping of the waterways.
- Maintenance:
  - Replacement of the headwall (It is noted that the works will have a greater installation footprint, however, the footprint/size of the headwall will remain the same).
  - Sealing of racks and repair of spalling.

Culvert name	Size and type	Proposed culvert works	Works classification
C1	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Extend both inlet and outlet's headwall	Construction
C2	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Extend both inlet and outlet's headwall	Construction
C3	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Extend both inlet and outlet's headwall	Construction
C4	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Extend both inlet and outlet's headwall	Construction
C5	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Extend both inlet and outlet's headwall	Construction
C6	1 x 0.6m Pipe Culvert	• Headwall of the inlet to be formalised. • Outlet's headwall to be replaced	Construction / Maintenance
C7	1 x 1.20m x 1.20 m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet.	Maintenance
C8	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced.	Maintenance

C9	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced.	Maintenance
C10	2 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced.	Maintenance
	1 x 0.6m,	• The culvert infrastructure of both the inlet and the outlet to be extended. • Headwalls of both the inlet and outlet to be replaced.	Construction / Maintenance
C11	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Headwalls of both the inlet and outlet to be replaced.	Construction / Maintenance
C12	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Headwalls of both the inlet and outlet to be replaced.	Construction / Maintenance
C13	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Headwalls of both the inlet and outlet to be replaced.	Construction / Maintenance
C14	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Headwalls of both the inlet and outlet to be replaced. • Construction of erosion protection measures at the outlet.	Construction / Maintenance
C15	1 x 0.45m Pipe Culvert	• Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced.	Construction / Maintenance
C16	1 x 0.6m Pipe Culvert	• Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced.	Construction / Maintenance
C17	1 x 1.80m x 1.20m Box Culvert	• The cracks and spalling to be sealed and repaired in both the inlet and outlets.	Maintenance
	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced.	Maintenance
C18	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Construction of erosion protection measures at the outlet.	Construction
C19	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced.	Maintenance
C20	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced.	Maintenance
C21	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced.	Maintenance
C22	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Cracks in the inlet to be sealed. • Construction of erosion protection measures at the outlet.	Construction/ Maintenance
C23	1 x 0.6m Pipe Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Construction of erosion protection measures at the outlet.	Construction/ Maintenance
C24	1 x 0.6m Pipe Culvert	• Debris to be cleared at both the inlet and outlet.	Maintenance
C25	1 x 0.6m Pipe Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Construction of erosion protection measures at the outlet.	Construction/ Maintenance
C26	1 x 0.6m Pipe Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Construction of erosion protection measures at the outlet.	Construction/ Maintenance
C27	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced. • Stone pitching at the outlet would possibly be required.	Construction/ Maintenance
C28	1 x 0.6m Pipe Culvert	• Siltation and debris to be cleared at both the inlet and outlet.	Maintenance
C30	1 x 2.45m x 2.45m Box Culvert	• The cracks and spalling to be sealed and repaired in both the inlet and outlet. • Debris to be cleared at both the inlet and outlet.	Maintenance
C32	1 x 0.6m Pipe Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Headwalls of both the inlet and outlet to be replaced. • The waterway at both the inlet and outlet to be shaped.	Construction/ Maintenance
C33	1 x 1.20m x 1.20m Pipe Culvert	• Inlet culvert to be extended. • Siltation, debris and vegetation to be cleared at both the inlet and outlet.	Construction/ Maintenance
C34	2 x 0.6m Pipe Culvert	• Inlet and outlet to be extended. • The waterway at both the inlet and outlet to be shaped.	Construction/ Maintenance

C35	1 x 1.20m x 1.20m Box Culvert	• Inlet and outlet to be extended. • The waterway at both the inlet and outlet to be shaped.	Construction/ Maintenance
C37	2 x 0.6m Pipe Culvert	• Inlet and outlet to be extended. • The waterway at both the inlet and outlet to be shaped. • Construction of erosion protection measures at the outlet.	Construction/ Maintenance
C38	1 x 1.80m x 1.80m Box Culvert	• Headwall of the inlet to be replaced. • Extension of the outlet required. • Reconstruction of the outlet's headwall required	Construction/ Maintenance
	1 x 0.6m Pipe Culvert	• Inlet and outlet to be extended. • Headwalls of both the inlet and outlet to be replaced.	Construction/ Maintenance
C39	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • The cracks and spalling to be sealed and repaired in the inlet. • Construction of erosion protection measures at the outlet.	Construction/ Maintenance
C40	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet.	Maintenance
C41	2 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced. • Siltation, debris and vegetation to be cleared at the inlet. • Vegetation to be cleared and embankments of the waterway leading from the outlet to be shaped.	Construction/ Maintenance
C42	1 x 1.20m x 1.20m Box Culvert	• Siltation to be cleared at the inlet. • The cracks on the inlet's wingwalls to be cleared. • The outlet culvert will be extended. • Scour protection at the outlet will be constructed; • Vegetation clearance in the waterway is required and the waterway will be shaped.	Construction/ Maintenance
C43	1 x 0.6m Pipe Culvert	• Siltation, debris and vegetation to be cleared at both the inlet and outlet. • The embankments of the inlet and outlet to be shaped. • Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced.	Construction/ Maintenance
C44	2 x 0.6m Pipe Culvert	• Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced.	Construction/ Maintenance
C45	1 x 0.6m Pipe Culvert	• Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced. • Construction of erosion protection measures at the outlet.	Construction/ Maintenance
C47	1 x 0.6m Pipe Culvert	• Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced. • The barrel of the outlet to be cleared of debris, siltation, and vegetation.	Construction/ Maintenance
C48	2 x 0.6m Pipe Culvert	• Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced. • The barrel of the outlet to be cleared of debris, siltation, and vegetation.	Construction/ Maintenance
C49	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced. • Debris in inlet waterway to be cleared and waterway to be shaped. • Debris and vegetation in outlet waterway to be cleared and waterway to be shaped.	Construction/ Maintenance
C51	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced. • Debris in waterway to be cleared and waterway to be shaped.	Maintenance
C52	1 x 1.80m x 1.80m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Cracks in both the inlet and outlet to be sealed. • The wingwall joint of the outlet will be required to be reinstated (this could possibly require the replacement of the headwall in its entirety).	Maintenance
C53	1 x 1.20m x 1.20m Box Culvert	• Siltation, debris and vegetation to be cleared at both the inlet and outlet.	Maintenance
C54	1 x 2.00m x 1.20m Box Culvert	• Siltation, debris and vegetation to be cleared at both the inlet and outlet. • The culvert of both the inlet and outlet to be extended and the headwalls to be replaced.	Construction/ Maintenance

		• Construction of erosion protection measures at the outlet.	
C57	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Cracks in both the inlet and outlet to be sealed. • The culvert of both the inlet and outlet to be extended and the headwalls to be replaced.	Construction/ Maintenance
C58	1 x 0.6m Pipe culverts	• Clear debris and vegetation at both the inlets and outlets. • Waterway to be shaped at the outlet infrastructure.	Construction/ Maintenance
C60	2 x 0.6m Pipe Culverts	• Clear debris and vegetation in the waterways at both the inlets and outlets. • Headwalls of both the inlet and outlet to be replaced. • Construct erosion protection measures at the outlet.	Construction/ Maintenance
C61	1 x 1.20m x 1.20m	• Clear debris and vegetation at both the inlets and outlets. • The cracks and spalling to be sealed and repaired in both the inlet and outlets. • Headwalls of both the inlet and outlet to be replaced.	Maintenance
C62	2 x 0.6m Pipe Culverts	• Clear debris and vegetation at both the inlets and outlets. • Headwalls of both the inlet and outlet to be replaced.	Maintenance
C64	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet.	Maintenance
C65	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet.	Maintenance
C66	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet.	Maintenance
C67	1 x 1.80m x 1.20m Box Culvert	• No action required	Maintenance

The figure below indicates the locations of the minor culverts listed above.

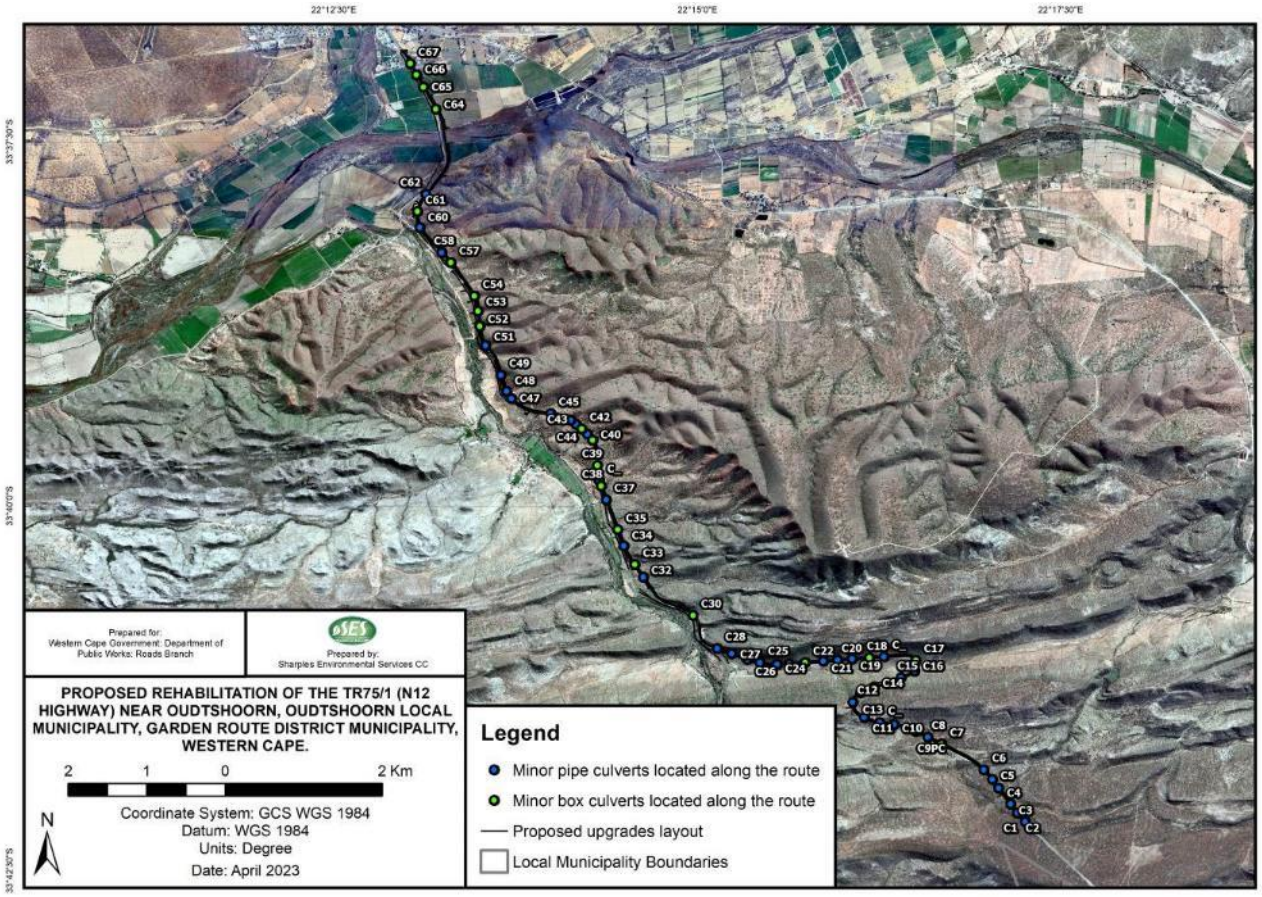

Figure 7. Location of the minor culverts along the route.

Access roads into minor farm portions

As part of the proposed strengthening project to the TR75/1 (Provincial name: Trunk Road 75), various access ways into minor farm portions and rest stops will be altered. The following work specifications have been provided for the minor farm portions and rest stop upgrades:

Km	SES Map Reference	Description	Type/Use frequency	Proposed action
16.50	A1	Public Formal Rest Area on Left-hand side	Gravel / Frequent	Formalize rest area
17.06	A2	Private Minor Access on Left-hand side (x2)	Gravel / Seldom	Reconstruct minor farm access
17.06	A3	Private Minor Access on Right-hand side	Gravel / Seldom	Reconstruct minor farm access
18.13	A4	Private Minor Access on Left-hand side	Gravel / Frequent	Reconstruct minor farm access
18.13	A5	Private Minor Access on Right-hand side	Gravel / Disused	Reconstruct minor farm access
19.92	A6	Private Minor Access on Left-hand side	Gravel / Seldom	Access to be closed (upon confirmation from DRE and the landowner)
19.92	A7	Private Minor Access on Right-hand side	Gravel / Frequent	Reconstruct minor farm access
21.20	A8	Private Major Access on Left-hand side	Gravel / Frequent	Construct major farm access as per standard plan
22.57	A9	Public Formal Rest Area on Right-hand side	Gravel / Frequent	Close rest area and reinstate road reserve
22.80	A10	Public Stopping Place on Right-hand side	Gravel / Frequent	Close rest area and reinstate road reserve
23.49	A11	Private Minor Access on Right-hand side	Gravel / Seldom	Reconstruct minor farm access
23.51	A12	Private Minor Access on Left-hand side	Gravel / Seldom	Reconstruct minor farm access
23.53	A13	Public Stopping Place on Left-hand side	Gravel / Frequent	Close rest area
24.09	A14	Private Major Access on Left-hand side	Gravel / Frequent	Construct major farm access as per standard plan
24.09	A15	Private Major Access on Right-hand side	Gravel / Frequent	Construct major farm access as per standard plan
24.59	A16	Private Major Access on Left-hand side	Surfaced / Frequent	Construct major farm access as per standard plan
24.67	A17(a)	Private Minor Access on Right-hand side	Gravel / Disused	Relocate this access to km 24.61 (opposite Chandelier) A17 (b)
25.72	A18	Private Minor Access on Left-hand side	Gravel / Disused	Access to be closed (upon confirmation from DRE and the landowner)
26.29	A19	Private Major Access on Left-hand side	Gravel / Frequent	Construct major farm access as per standard plan
26.46	A20	Private Minor Access on Left-hand side	Gravel / Seldom	Access to be closed (upon confirmation from DRE and the landowner)
26.50	A21	Private Minor Access on Right-hand side	Gravel / Disused	Access to be closed (upon confirmation from DRE and the landowner)
27.01	A22	Private Minor Access on Right-hand side	Gravel / Disused	Reconstruct minor farm access
28.01	A23	Public Formal Rest Area on Left-hand side	Gravel / Frequent	Close rest area and reinstate road reserve
28.14	A24	Private Minor Access on Right-hand side	Gravel / Seldom	Reconstruct minor farm access
28.22	A25	Private Major Access on Left-hand side	Gravel / Frequent	Construct major farm access as per standard plan
28.26	A26	Public Informal Rest Area on Right-hand side	Gravel / Frequent	Close rest area and reinstate road reserve
29.16	A27	Private Minor Access on Left-hand side	Gravel / Frequent	Reconstruct minor farm access
29.27	A28	Private Minor Access on Right-hand side	Gravel / Frequent	Reconstruct minor farm access
29.56	A29	Public Intersection (Left-hand side)	Surfaced / Frequent	To be resurfaced (as surfacing is in poor condition)
29.56	A30	Private Major Access on Right-hand side	Surfaced / Frequent	To be resurfaced (as surfacing is in poor condition)
30.35	A31	Private Minor Access on Right-hand side	Gravel / Disused	None
30.61	A32	Private Major Access on Left-hand side	Gravel / Frequent	Upgrade to main farm access as per standard plan

30.61	A33	Private Minor Access on Right-hand side	Gravel / Frequent	Install concrete edge beam
30.70	A34	Private Minor Access on Right-hand side	Gravel / Seldom	None – potentially disused
30.81	A35	Private Minor Access on Right-hand side	Gravel / Frequent	Install concrete edge beam
30.82	A36	Private Minor Access on Right-hand side	Gravel / Frequent	Install concrete edge beam

The figure below indicates the locations of the accesses/rest stops and intersections listed above.

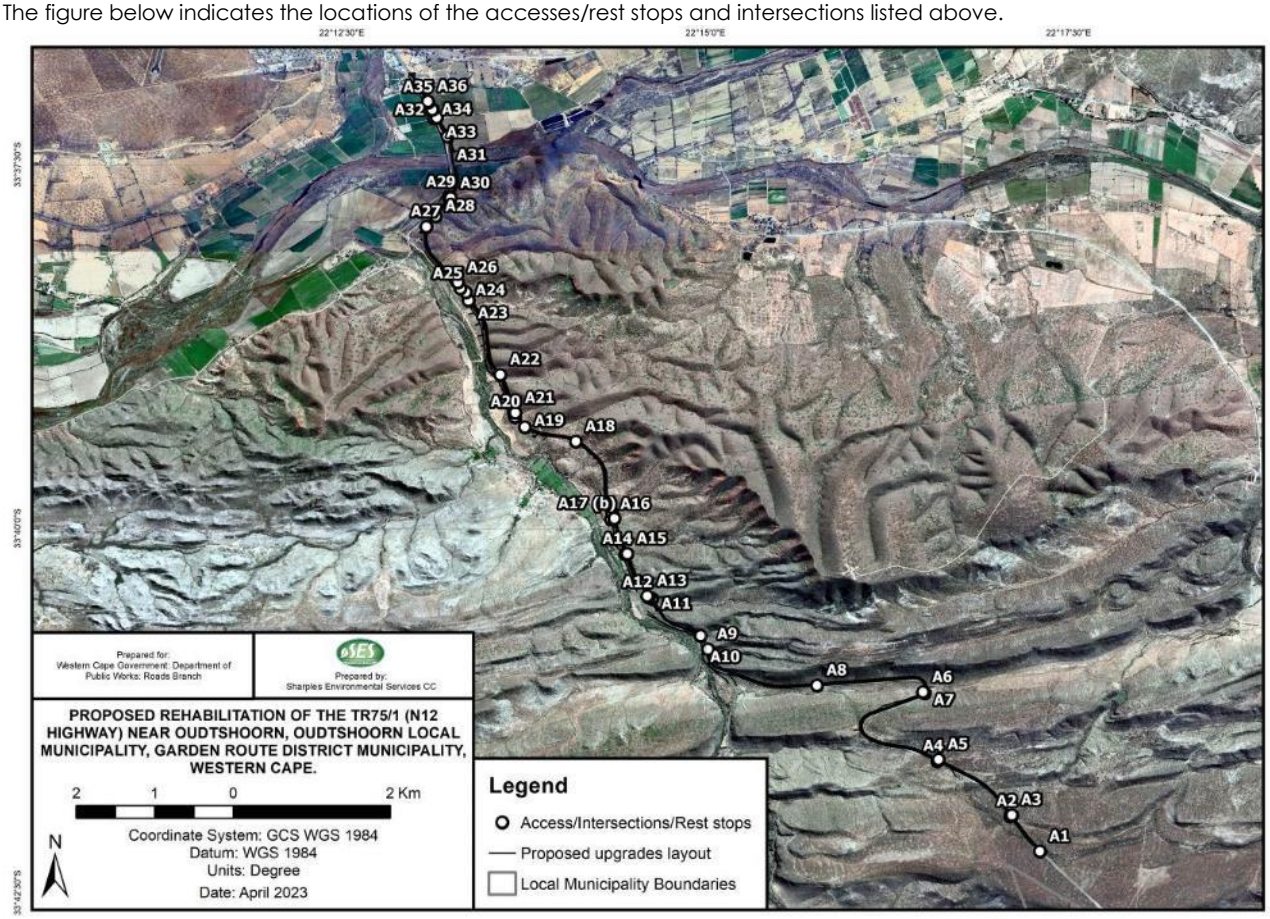

Figure 8. Location of accesses, rest stops and intersections that is proposed to be altered.

2.	Explain how the proposed development is in line with the existing land use rights of the property as you have indicated in the NOI and application form? Include the proof of the existing land use rights granted in Appendix E21.

The proposed project entails the widening and maintenance of the existing N12-highway. The proposed works will be predominantly located within the existing fenced area. The road TR75/1 is a proclaimed public road under the Roads Ordinance, 1976 (No 19 of 1976) (Proc No 267 dated 13 July). Please refer to Appendix E21 for the confirmation of existing land use rights.

3.	Explain how potential conflict with respect to existing approvals for the proposed site (as indicated in the NOI/and or application form) and the proposed development have been resolved.

No existing approvals for the proposed project have been identified.

4.	Explain how the proposed development will be in line with the following?
4.1	The Provincial Spatial Development Framework.

According to the Western Cape Provincial Spatial Development Framework (PSDF, 2014), the provincial strategies have been aimed towards achieving six strategic objectives which includes:

- Give spatial expression to the national (i.e. NDP) and provincial (i.e. OneCape 2040) development agendas;
- Serve as basis for coordinating, integrating and aligning 'on the ground' delivery of national and provincial departmental programmes;
- Support municipalities to fulfil their Municipal Planning mandate in line with the national and provincial agendas; and
- Communicate government's spatial development intentions to the private sector and civil society

These agendas will be forwarded by the following spatial principles:

- Spatial justice;
- Sustainability and resilience;
- Spatial Efficiency;

- Accessibility; and
- Quality and liveability.

In order to deliver on the Western Cape Government's (WCG) strategic objectives, a Provincial Spatial Agenda has been developed. This Agenda is summarised as follows:

- Growing the Western Cape Economy in Partnership with the Private Sector, non-governmental and community based organisations;
- Using infrastructure investment as primary lever to bring about the required urban and rural spatial transitions;
- Improving oversight of the sustainable use of the Western Cape's spatial assets.

The proposed project is in alignment with the second item on the Provincial agenda, which encompasses, amongst others the alignment of infrastructure, transport and spatial planning and the prioritisation of investment and on the ground delivery and maintaining existing infrastructure. The proposed road strengthening project will see to widening of the N12-Highway as well as the maintenance of major and minor culverts and access ways leading onto the N12. In addition to the proposed works aimed towards providing a safer, more efficient carriageway for the travellers commuting along the N12.

The proposal is therefore directly in line with objectives of the PSDF (WCG, 2014).

4.2	The Integrated Development Plan of the local municipality.

The Oudtshoorn integrated Development Plan (IDP) (5th Generation IDP, 2022-2017) aims to realise it's vision of sustainability managing the Klein Karoon region in a way that grows, works, plays and prospers through resilience. This is proposed to be realised through three governance strategies which are governed by numerous policies. These policies include:

- Strategy A: The Economy is the Environment: Towards Sustainable Resource Use.
- Strategy B: Accessibility for inclusive growth; and
- Strategy C: Sustainable growth management enabling New Development Opportunities

The proposed project aligns with the second and third strategies, where Strategy B reflects on establishing a clear primary and secondary regional route hierarchy, role, and investment priorities (which includes the N12 as a major priority), establishing connectivity between Oudtshoorn and the Great Karoo and the Garden Route coastal belt areas in an attempt to enable appropriate accessibility within and between settlements.

The proposed road strengthening project will see to widening of the N12-Highway as well as the maintenance of major and minor culverts and access ways leading onto the N12. In addition to the proposed works aimed towards providing a safer, more efficient carriageway for the travellers commuting along the N12. Additionally, a Maintenance Management Plan (MMP) will be submitted.

The proposal is therefore directly in line with objectives of the OLM IDP (5th Generation, 2022-2027).

4.3.	The Spatial Development Framework of the local municipality.

According to the Oudtshoorn Spatial Development Framework (OLM, 2020), the N12 highway, leading North-South, is one of 2 major regional tourism corridors in the Municipality (the other being the R62 leading East-West. The OSDF (2020) aims to align development objectives with the National, Provincial and District objectives, with the Municipal-Wide Spatial Policies (As described in the IDP of the Municipality) resting as the core informants to properly inform land use planning, infrastructure development, rural and urban development decision making within the Oudtshoorn Municipality.

Under these policies, the SDF projects the Rationalisation of the Regional Mobility Network (Policy B1) where the eventual goal of the policy encompasses the elevation of traffic along the R62 (which is essentially an extension of the N12-highway for the portion of the road leading through Oudtshoorn). The proposed project will create a safer and easier driving experience to all users of the road as the existing road will be widened, auxiliary lanes will be installed and accesses into pre-selected minor and major farm portions will be re-established. As indicated by the OSDF (2020) the core objective of Policy C4 (Asset Management and Maintenance), is for the Municipality to bring back the focus to maintaining assets and infrastructure that underpins existing urban grown and development.

It is through the OSDF (2020), that priority is placed on infrastructure maintenance and upgrading existing infrastructure instead of creating (expanding) new infrastructure.

The proposal is therefore directly in line with objectives of the OLM SDF (2014).

4.4.	The Environmental Management Framework applicable to the area.

As per liaison between the EAP and the OLM, no Environmental Management Framework has been adopted by the Municipality as yet.

5.	Explain how comments from the relevant authorities and/or specialist(s) with respect to biodiversity have influenced the proposed development.

Comments from relevant authorities and or specialists will be included after the 30-day Pre-application Public Participation Process has been undertaken as prescribed in Sub-Regulation 19 of the NEMA EIA Regulations of 2014, as amended (GNR 326 of 2017).

The following specialist assessments were conducted in order to evaluate the impact of the proposed development on the biodiversity of the proposed development site:

- A Terrestrial biodiversity and plant impact assessment

Three plant Species of Conservation Concern (SCCs) and select areas of medium and highly sensitive vegetation (Eastern Little Karoo) were identified within the fenced area of the road. The development footprint is not expected to impact upon the plant SCCs. However, as per the mitigation measures proposed for the project, prior to the commencement of the construction activities, a suitably qualified specialist must be appointed to identify and demarcate the SCCs on site and obtain the relevant permit should any SCCs identified at that time be impacted upon. For the proposed development, a minimum impact approach must be followed in order to limit the impacts of the proposed works on these sensitive receptors. Additionally, a rehabilitation plan will be required to be compiled for the proposed development in order to manage and monitor the success of the rehabilitation of the impacted areas. A permit will be required to be obtained from CapeNature for the impacting upon indigenous vegetation.

- An Animal impact assessment

  It was found that no animal SCCs, or suitable habitats for these species were identified within the project footprint. Therefore, no adaptive measures were required.
- An Aquatic biodiversity impact assessment

  As per the findings of the specialist assessment, 29 non-perennial watercourses and one large wetland system were identified along the proposed works, The specialist proposed a number of mitigation measures for the purpose of proposed project in order to limit the impact of the proposed works on the aquatic resources. Amongst these, adaptive measures included the adoption on a number of minimum impact areas around the watercourse. These buffers limited certain construction related activities within proximity to the watercourses.

6.	Explain how the Western Cape Biodiversity Spatial Plan (including the guidelines in the handbook) has influenced the proposed development.

According to the Western Cape Biodiversity Spatial Planning (WCBSP) (2017), the proposed development skirts two large terrestrial critical biodiversity areas (CBA's), while about half of the route runs through a terrestrial ecological support area (ESA). It also crosses numerous aquatic ESA's (non-perennial watercourses), including the Olifantsrivier which is indicated as a degraded ESA (ESA2).

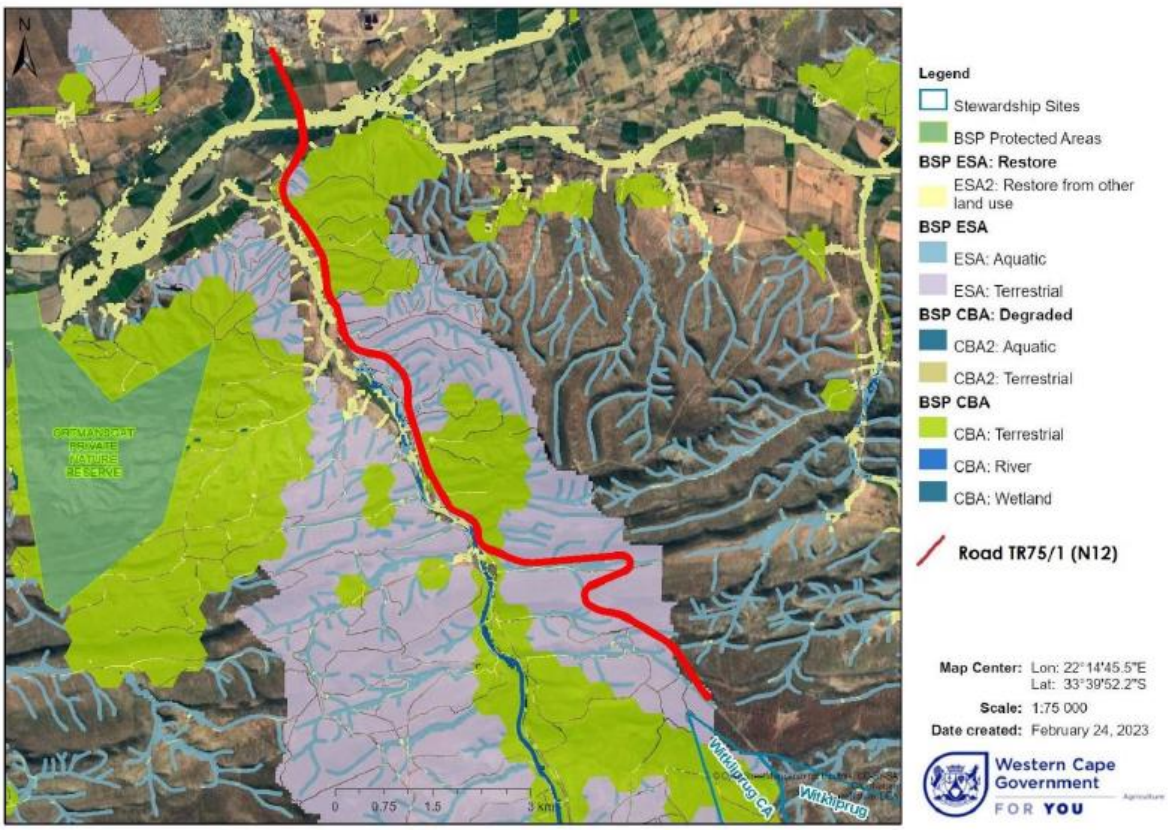

Figure 9. Sensitive features identified in terms of the Western Cape Spatial Biodiversity Plan (2017).

According to the SANBI website (as accessed on 17 January 2023), the primary purpose of mapping the CBAs and ESAs is to guide decision-making about where best to locate development. It should inform land-use planning, environmental assessment and authorisations, and natural resource management, by a range of sectors whose policies and decisions impact on biodiversity. It is the biodiversity sector's input into multi-sectoral planning and decision-making processes. The proposed project is located within such a CBA and ESA's. The description of the CBA located within the proposed project area is an area in a natural condition that is required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. The objective of this CBA is to maintain in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.

In conclusion, the proposed project has the potential to directly and indirectly impact upon the following areas in terms of the Western Cape Spatial Biodiversity Plan (2017):

- "CBA1 (Critical Biodiversity Areas)" Terrestrial- defined as areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.
- "ESA1 (Ecological Support Areas) Terrestrial/Aquatic"- defined as areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services.
- "ESA2: (Ecological Support Areas)" - Restore from other land use. These areas are defined as not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs and are often vital for delivering ecosystem services.

Suitably qualified specialists have been appointed to conduct specialist assessments to evaluate the anticipated impacts of the proposed project on the sensitive features identified within the project footprint. Due to the nature and the extent of the proposed works, the proposed works are expected to have a medium-low impact on the terrestrial biodiversity and plant SCCs and a low impact on the aquatic features identified within the project footprint. A number of mitigation measures have been proposed to limit and manage the impact of the proposed works on these resources. Amongst these are the implementation of minimum impact areas and the requirement to acquire the relevant permits and licences for works within the sensitive areas. In order to maintain and restore the impacted areas (adjacent to the project footprint) a rehabilitation and monitoring plan will also be required.

According to the National Data available, the proposed project will not intercept any protected areas in terms of the National Environmental Management: Protected Areas Act of 2003 (NEM:PAA) (Act 57 of 2003). The nearest declared Protected Areas in terms of the NEM:PAA is the Ortmansgat Private Nature Reserve, located approximately 1.9 km west of the proposed project, and the Witkliprug Nature Reserve, located approximately 1.2 km south east of the proposed project.

According to the National Vegetation Map 2018 (as updated in 2021), the dominant indigenous vegetation type for the site is mapped as the Eastern Little Karoo Vegetation Type and the Muscadel Riviere Vegetation Type. The Vegetation communities both have an ecological threat status of Endangered (in terms of the National Environmental Management: Biodiversity Act: Revised National List of Ecosystems that are Threatened and in need of Protection, GNR 2747 of 2022). According to the Western Cape Biodiversity Spatial Plan (2016), the Muscadel Riviere Ecosystem type has a threat status of Critically Endangered whereas the Eastern Little Karoo has an Ecosystem threat status of Vulnerable. The vegetation communities forms part of the Rainshadow Valley Karoo and the Inland Saline Vegetation Bioregions, respectively.

The Eastern Little Karoo Vegetation type occurs in the Western Cape within the Eastern basin of the Little Karoo from Calitzdorp to as far east as Oudtshoorn. The vegetation type occurs on irregularly flat plans and undulating piedmont hills covered by dense succulent shrublands dominated by numerous *Aizoaceae* species and non-succulent shrubs such as Nymania, Pteronia and Rhus (Mucina & Rutherford, 2006).

The Muscadel Riviere is a vegetation type which only occurs in the Western Cape and is formed by the river alluvia of the lower Breede River and is also embedded into the previously described Eastern Little Karoo Vegetation type. The vegetation type is located in flat, broad plains and supports complex thick riverine thickets, dominated by Acacia karroo (*Vachellia karroo*), accompanying succulent gannabos (*Salsola* species), and low vygie shrublands (Mucina & Rutherford, 2006).

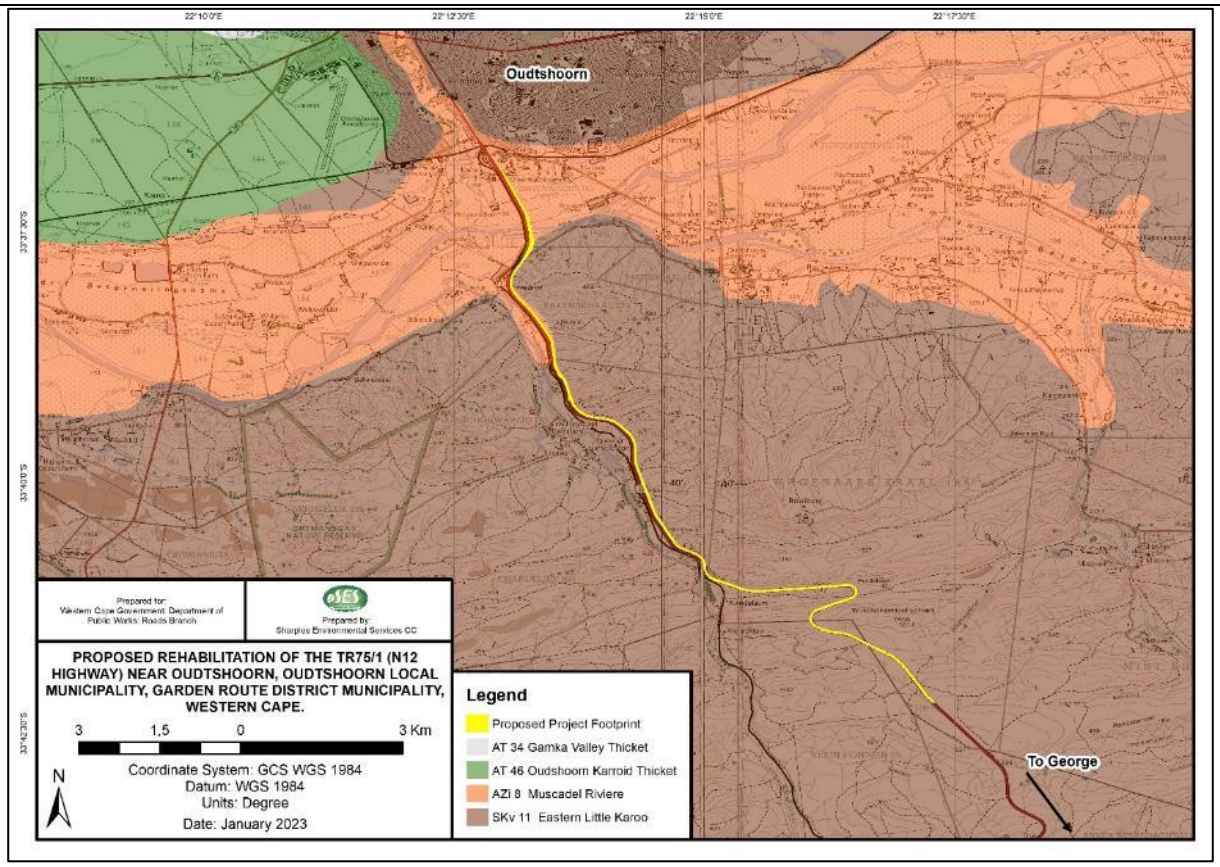

Figure 10. Vegetation community types identified in terms of the National Biodiversity Assessment (2018, as amended).

7.	Explain how the proposed development is in line with the intention/purpose of the relevant zones as defined in the ICMA.

The ICMA does not hold any relevance to the proposed project as the proposed works are located approximately 39 km from the High-Water Mark (HWM).

8.	Explain whether the screening report has changed from the one submitted together with the application form. The screening report must be attached as Appendix I.

The Application form for the proposed project has not yet been submitted for the proposed project.

9.	Explain how the proposed development will optimise vacant land available within an urban area.

For the proposed project, minimal activities will be located within the urban areas. Where works are located in the urban area, all proposed works will be located within the existing transportation corridor. The portion of the proposed strengthening project located outside of the urban edge (as defined in the Municipal IDP (OLM, 2022)) will be predominantly kept within the fenced-off areas cordoning the Road TR75/1 (Trunk Road 75/ N12-Highway). Due to the age of the road, very few intersecting properties have been subdivided following the completion of its original construction.

10.	Explain how the proposed development will optimise the use of existing resources and infrastructure.

The proposed project will see to the strengthening of the existing road infrastructure. The proposed project will be primarily located within the fenced off area around the N12-Highway. The proposal proposes the relayering of sections of the portion of the road under consideration for the proposed development (instead of building a whole new road). Additionally, the existing road and associated infrastructure will be widened, and auxiliary lanes will be installed in select locations. The proposed works associated with the proposed project as described in the section above, will use the existing infrastructure as the base of the proposed works and will only aim to improve, and expand the footprint of the road.

11.	Explain whether the necessary services are available and whether the local authority has confirmed sufficient, spare, unallocated service capacity. (Confirmation of all services must be included in Appendix E16).

This is not applicable to the proposed project.

12.	In addition to the above, explain the need and desirability of the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013) or the DEA's Integrated Environmental Management Guideline on Need and Desirability. This may be attached to this BAR as Appendix K.

The following Needs and Desirability description has been done in alignment with the DEA&DP's guideline on Need and Desirability (DEA&DP, 2013), the alignment with the Sustainability principles, and the Guidelines on Need and Desirability (DEA, 2017).

The Need and Desirability Guideline of 2017 explains that the need and desirability is determined by considering the broader community's needs and interests as reflected in a credible IDP, SDF and EMF for the area, and as determined by the EIA. It is further also highlighted that society in general should improve the efficiency and responsibility with which we use resources, and

improve on the level of integration of social, economic, ecological and governance systems. The need and desirability therefore need to illustrate how a development integrates the socio-economic, ecological and political aspect in a beneficial manner.

Need and Desirability relates to the nature, scale and location of the proposal where the *need* can be translated to time (in other words would the time of this proposal be considered the right time to commence with said proposal), and the desirability can be translated to the place (is the proposal located in the correct place for the proposed activities) (DEA&DP, 2013; DEA, 2017). Through these considerations, it can be determined whether a proposal would be considered to be in alignment with the sustainability principles as well as the National Development Plan 2030 (NDP 2030)'s principles toward the transitioning to an environmentally sustainable, low-carbon economy. This BAR strives to answer the questions on Need and Desirability as posed in the relevant guidelines for the purpose of due consideration of both the biophysical and the socio-economic environments.

Toward **"securing ecological sustainable development and use of natural resources"**
Under the Revised National List of Ecosystems that are threatened and in need of protection promulgated in November 2022 under the National Environmental Management Act of 2004 (Act No. 10 of 2004), the site is located in two (2) Endangered (EN) Ecosystems, the Muscadel Riviere (Azonal Vegetation) and the Eastern Litttle Karoo (Succulent Karoo). In addition to these vegetation types, the proposal will intersect a number of Terrestrial and Aquatic CBA's and ESA's (as indicated in Section E6 above).

Although the proposed works will be predominantly located within the fenced off area, due to the age of the infrastructure, areas along the road have been allowed to re-establish. Therefore, a number of highly and moderately sensitive areas have been identified. These areas have been identified by the appointed specialist and where possible, works in these areas will be limited. Where species of conservation concern (SCC) have been identified, permits for their removal/relocation will be obtained.

These sensitive areas, along with the watercourses delineated by the appointed aquatic specialist, serve as the ecological drivers of the area. Based on the requirements of the proposal (to improve the useability and safety of the road), work in these areas would be considered unavoidable. However, with the implementation of appropriate mitigation measures, the impacts on these natural resources on a site specific and local scale would be marginal.

The following specialists have been appointed to inform the sensitivity of the receiving environment:

- An aquatic Impact Specialits;
- A Heritage and Cultural Assessor;
- A Palaeontological Assessor;
- A Botanical Specialist; and
- An Animal Species specialist.

These specialists identified and assessed the direct and indirect impacts that will be seen on the natural resources within the area. Along with the determination of their impacts, they provided a series of mitigation measures so as to limit the impact of the construction and operational activities on the receiving environment. Although the impact on the natural resources would be deemed unavoidable, as the proposed works will follow the existing TR75/1 (Trunk Road 75/N12-Highway) alignment, with the appropriate mitigation measures, the cumulative impact of the proposed works can be mitigated to a Low-Medium.

In order to follow the risk-averse approach, the appointed specialists determined the current gaps in their knowledge. These gaps have been described in the Section J2. The risk associated with these gaps in knowledge is the possibility of not identifying all of the sensitive receptors (specifically from a floral and palaeontological perspective) that could be present on site. To mitigate this, it has been required that a search and rescue plan (in the relation to the floral sensitivities on site) and a Chance of Find of Fossils, including a pre-construction walkthrough the site by a palaeontological specialist (in relation to the anticipated palaeontological sensitivity of the site), be implemented prior to site establishment and the commencement of works.

Toward **"promoting justifiable economic and social development"**
The proposed road strengthening project will see to widening of the N12-Highway as well as the maintenance of major and minor culverts and access ways leading onto the N12. In addition to the proposed works aimed towards providing a safer, more efficient carriageway for the travellers commuting along the N12. Additionally, a Maintenance Management Plan (MMP) will be submitted. The safer roadway to be created as a result of the proposed activities will also provide the commuters traveling along the road with a heightened sense of comfort.

As the proposed project entails capital expenditure towards the strengthening of existing infrastructure, it aligns with the policies and strategies of the Municipal SDF and IDP, the District SDF and EMF and the Provincial SDF.

As part of the construction phase of the proposal, a number of temporary employment opportunities will be created. The workers will learn a number of skills during their time working under this contract. These skills will be transferable to future opportunities. In order to boost the positive socio-economic impacts of the proposed project, where possible, the contractor will be encouraged to approach workers from the local community in order to add to the local economic situation of the area. Thereby leading to a temporary improved quality of life for the labourers employed under this contract.

In order to obtain a clear indication of the socio-economic structure of the area and to obtain insight on the concerns from the public (regarding the proposed activities and the status quo of the road), a thorough Public Participation Process (PPP)will be undertaken. This PPP will be in line with Regulation 41 of the EIA Regulations of 2014, as amended. Comments received will be incorporated into this report prior to submission of the Final BAR.

SECTION F: PUBLIC PARTICIPATION

The Public Participation Process ("PPP") must fulfil the requirements as outlined in the NEMA EIA Regulations and must be attached as Appendix F. Please note that If the NEM: WA and/or the NEM: AQA is applicable to the proposed development, an advertisement must be placed in at least two newspapers.

1. Exclusively for linear activities: Indicate what PPP was agreed to by the competent authority. Include proof of this agreement in Appendix E22.

The following public participation procedures were proposed for the purpose of the proposed project. Based on the demographics analysis of the Oudtshoorn Local Municipality, it was found that 91.0% of the population is Afrikaans speaking, 4.8 % speaks Xhosa and 2.3 % speaks English. Therefore, the following documents will be made available in Afrikaans and English:

- Letter drop documents;
- Executive summary of the Draft Basic Assessment Report;
- All Site Notice(s);
- The Newspaper Advertisement (placed in the local newspaper);
- All other forms of notifications (such as emails)

This plan aims to be in line with Regulations 40 to 44 of the EIA Regulations of 2014, as amended (GNR 326 of 2017):

Table 3. Public Participation Planning for the proposed project.

Public participation requirement based on the EIA Regulations of 2014, as amended (GNR 326 of 2017)		**Proposed implementation**
40(1)	The public participation process (PPP) to which the (a) basic assessment report and EMPr was subjected to must give all potential or registered interested and affected parties, including the competent authority, a period of at least 30 days to submit comments on each of the basic assessment report, EMPr, scoping report and environmental impact assessment report.	The following Public Participation Timeframes are proposed for this proposal: • A 30-day PPP timeframe from the 31st of July to the 1st of September 2023 was conducted to allow all parties with time to provide comments/show interest on the Pre-Application Draft BAR. This phase of the proposal saw the fulfilment of the requirements of Sub-regulation 41 will be implemented. • A 30-day PPP timeframe in November/December 2023 which will allow all registered Interested and Affected Parties (I&APs) and Stakeholders/Organs of State the opportunity to provide comment on the Post-Application Draft BAR. • Throughout the PPP, Regulations 42 and 43 will be adhered to and the necessary documents (proof of Public Participation) will be included in both the Post-Application Draft BAR and the submission of the Final BAR.
41(1)	This regulation only applies in instances where adherence to the provisions of this regulation is specifically required.	As per Sub-Regulation 19(1)(a), a 30-day PPP period is required prior to the submission of the Final BAR.
41(2)	The person conducting a public participation process must take into account any relevant guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of an application or proposed application which is subjected to public participation by -	
41(2)(a)	fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of— (i) the site where the activity to which the application or proposed application relates is or is to be undertaken; and (ii) any alternative site;	Two Notice boards (one in Afrikaans and another in English) in line with Sub-regulation 41(3) and 41(4) were erected on site (at the most northern point of the proposal and the most southern point of the proposal). This portion of the Road TR75/1 (Trunk Road 75/ N12-Highway) does not intersect any major intersections. Additionally, in terms of the National Traffic Regulations of 2000 (GNR 225 of 2000), as promulgated in terms of the National Road Traffic Act (Act No. 93 of 1996), Regulation 323 (2) no person shall be on a freeway on foot unless certain exceptions are met. Therefore, in order to not promote illegal activities (such as pedestrians acting outside of the restrictions of the exceptions of the Road Traffic Act), no additional site notices will be erected for the proposed project.

		As no alternative sites are being proposed, therefore no additional site posters were required.
41(2)(b)	giving written notice, in any of the manners provided for in section 47D of the Act, to— the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken; (ii) owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken; (iii) the municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area; (iv) the municipality which has jurisdiction in the area; (v) any organ of state having jurisdiction in respect of any aspect of the activity; and (vi) any other party as required by the competent authority;	As part of the proposed public participation plan provided to DEA&DP prior to the distribution of the Pre-Application Draft BAR, all occupiers of the land affected by the proposed project will be notified of the proposal. This was done in the form of emails, postal addresses or physical addresses and letter drops (where no other contact details have been made available to the EAP). The I&AP register, including all affected landowners adjacent to the proposed project site, authorities, organs of state and other affected parties was compiled and will be maintained for the duration of the process.
41(2)I	Placing an advertisement ii) one local newspaper; or (ii) any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;	As only one local municipality will be affected by the proposed project, an advertisement was only placed in the local newspaper, The *Oudtshoorn Courant on the 28th of July 2023*, which was deemed accessible to the public.
41(2)(d)	placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in paragraph(c)(ii).	
41(2)(e)	using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to — (i) illiteracy; (ii) disability; or (iii) any other disadvantage.	All notifications and external communications (as stipulated above) were available in Afrikaans and English in order to reach the greatest audience possible. In addition to these measures, notifications were placed on Facebook and LinkedIn to notify the broader public of the availability of the Pre-Application Draft BAR. A hard copy of the Pre-Application Draft BAR was made available for review at the Oudtshoorn Library (3 Baron Van Reede Street, Oudtshoorn) for the duration of the 30-day Pre-Application PPP.

2. Confirm that the PPP as indicated in the application form has been complied with. All the PPP must be included in Appendix F.

The section above indicates the measures implemented on site. These measures speaks directly to the contents of the EIA Regulations of 2014, as amended, as well as the Application form submitted for the proposed development.

Proof of the public participation process conducted for the proposed development has been included as Appendix F2 of the BAR.

3. Confirm which of the State Departments and Organs of State indicated in the Notice of Intent/application form were consulted with.

State Department/Organ of State	Contact Person	Contact Details
Breede-Gouritz CMA	Mr. C Abrahams	cabrahams@bgcma.co.za
WCG: Department of Agriculture	Mr. C van der Walt	corvdw@elsenburg.com
WCG: Department of Forestry	Ms. M Koen	Mkoen@environment.gov.za
Oudtshoorn Local Municipality: Town and Regional Planner	Mr. G Cairnross	gilbert@oudtmun.gov.za
Oudtshoorn Local Municipality: Environmental and Heritage	Mr. A Carelse	ambrose@oudtmun.gov.za
Garden Route District Municipality Executive Manager: Planning and Economic Development	Mr. L Menze	info@gardenroute.gov.za
CapeNature: Land use – Landscape Easte	Mr. C Fordham	cfordham@capenature.co.za
	Ms. M Simons	msimons@capenature.co.za
Heritage Western Cape	Ms. S Barnardt	Stephanie.Barnardt@westerncape.gov.za
WCG: Infrastructure	Mr. X Smuts	Xander.smuts@westerncape.gov.za
	Dr. H Wolff	Herman.wolff@westerncape.gov.za
		Service@westerncape.gov.za
South African National Roads Agency	N. Abrahams	abrahamsn@nra.co.za
Not indicated on Application form (Consulted)		
Department of Rural Development & Land Reform	Mr. T Bolton	Tommie.Bolton@drdlr.gov.za
South African Civil Aviation Authority	Ms. L Stroh	strohL@caa.co.za
	Ms. E Shogola	ShogoleE@caa.co.za
Garden Route District Municipality Executive Manager: Community Services	Ms. C Africa	cafrica@gardenroute.gov.za
Garden Route District Municipality: Health and Environmental Services	Mr. J Compion	jcompion@gardenroute.gov.za
Garden Route District Municipality Executive Manager: Roads Services	Mr. J.G. Daniels	info@gardenroute.gov.za
Garden Route District Municipality: District Waste Management	Mr. M Hubbe	morton@edendm.co.za
Oudtshoorn Municipality: Chairperson: Development and Planning	Ms. B Owen	babara@oudtmun.gov.za
Ward Councillor – Ward 12	Cllr. R Wildschut	wildschut@oudtmun.gov.za
Oudtshoorn Public Library (CJ Langenhoven Library)	Ms. P Mfuku	phumla@oudtmun.gov.za
Eskom Holding SOC Ltd	Mr. O Peters	PetersOw@eskom.co.za
Transnet SOC Ltd	M. Moabelo	Mmetja.Moabelo@transnet.net
DEA&DP: Pollution Management	Mr. A McClelland	Arabel.McClelland@westerncape.gov.za

4. If any of the State Departments and Organs of State were not consulted, indicate which and why.

Please see Appendix F1 for the full I&AP and Stakeholder register for the individuals contacted during the public participation process.

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5. if any of the State Departments and Organs of State did not respond, indicate which.

State Department/Organ of State	Contact Person	Contact Details
DEA&DP: Pollution Management	Mr. A McClelland	Arabel.McClelland@westerncape.gov.za
Breede-Olifants CMA	Mr. C Abrahams	cabrahams@bgcma.co.za
*CapeNature: Land use – Landscape Easte	Mr. C Fordham	cfordham@capenature.co.za
	Ms. M Simons	msimons@capenature.co.za
WCG: Department of Forestry	Ms. M Koen	Mkoen@environment.gov.za
WCG: Department of Agriculture	Mr. C van der Walt	corvdw@elsenburg.com
	Mr. B Laymen	brandonl@elsenburg.com
WCG: Infrastructure	Mr. X Smuts	Xander.smuts@westerncape.gov.za
	Dr. H Wolff	Herman.wolff@westerncape.gov.za
Department of Rural Development & Land Reform	Mr. T Bolton	Tommie.Bolton@drdlr.gov.za
South African Civil Aviation Authority	Ms. L Stroh	strohL@caa.co.za
	Ms. E Shogola	ShogoleE@caa.co.za
Garden Route District Municipality Executive Manager: Community Services	Ms. C Africa	cafrica@gardenroute.gov.za
Garden Route District Municipality Executive Manager: Planning and Economic Development	Mr. L Menze	info@gardenroute.gov.za
Garden Route District Municipality Executive Manager: Roads Services	Mr. J.G. Daniels	info@gardenroute.gov.za
Garden Route District Municipality: District Waste Management	Mr. M Hubbe	morton@edendm.co.za
Oudtshoorn Local Municipality: Environmental and Heritage	Mr. A Carelse	ambrose@oudtmun.gov.za
Oudtshoorn Local Municipality: Town and Regional Planner	Mr. G Cairnross	gilbert@oudtmun.gov.za
Oudtshoorn Municipality: Chairperson: Development and Planning	Ms. B Owen	babara@oudtmun.gov.za
Ward Councillor – Ward 12	Cllr. R Wildschut	wildschut@oudtmun.gov.za
Eskom Holding SOC Ltd	Mr. O Peters	PetersOw@eskom.co.za
Transnet SOC Ltd	M. Moabelo	Mmetja.Moabelo@transnet.net
South African National Roads Agency	N. Abrahams	abrahamsn@nra.co.za

*There was liaison during the Pre-Application PPP, however no comments were received.

6. Provide a summary of the issues raised by I&APs and an indication of the manner in which the issues were incorporated into the development proposal.

Herewith a brief summary of the concerns raised during the Pre-Application Review of the BAR:

- **Palaeontological, botanical, faunal and aquatic sensitivity**: Concern was raised regarding the environmental resources that were observed within the project area and the management measures in place to ensure minimal impact to the resources. **EAP Response**: All environmental resources will be managed as per the recommendations of the appointed specialists and in line with the permit/licences obtained for the respective resources.
- **Waste management:** Additional waste management measures were proposed for inclusion into the BAR and EMPr. **EAP Response:** The necessary amendments have been made to the documentation.
- **Alternative descriptions:** It was requested that the design alternatives mentioned during the pre-Application PPP BAR be further detailed and the impacts of at least one of the design alternatives be evaluated. **EAP Response:** Section H has been updated to include the requested evaluation. Based on the assessment, it was found that the impact of the proposed alternative would be the environmentally preferable alternative.
- **Safety concerns:** It was indicated that the existing road conditions have proven to be dangerous for the people/establishments located along this portion of the road. The proposed works (especially the inclusion of the auxiliary lanes) were welcomed. **EAP Response:** Additional measures toward safeguarding the residents/establishments using the road as access has been included as design recommendations.

For a detailed description of the comments received and detailed responses to these comments, please refer to Appendix F3 of this BAR.

Note:

A register of all the I&AP's notified, including the Organs of State, and all the registered I&APs must be included in Appendix F. The register must be maintained and made available to any person requesting access to the register in writing.

The EAP must notify I&AP's that all information submitted by I&AP's becomes public information.

Your attention is drawn to Regulation 40 (3) of the NEMA EIA Regulations which states that *"Potential or registered interested and affected parties, including the competent authority, may be provided with an opportunity to comment on reports and plans contemplated in subregulation (1) prior to submission of an application but **must** be provided with an opportunity to comment on such reports once an application has been submitted to the competent authority."*

All the comments received from I&APs on the pre -application BAR (if applicable and the draft BAR must be recorded, responded to and included in the Comments and Responses Report and must be included in Appendix F.

All information obtained during the PPP (the minutes of any meetings held by the EAP with I&APs and other role players wherein the views of the participants are recorded) and must be included in Appendix F.

Please note that proof of the PPP conducted must be included in Appendix F. In terms of the required "proof" the following is required:

- a site map showing where the site notice was displayed, dated photographs showing the notice displayed on site and a copy of the text displayed on the notice;
- in terms of the written notices given, a copy of the written notice sent, as well as:
    - if registered mail was sent, a list of the registered mail sent (showing the registered mail number, the name of the person the mail was sent to, the address of the person and the date the registered mail was sent);
    - if normal mail was sent, a list of the mail sent (showing the name of the person the mail was sent to, the address of the person, the date the mail was sent, and the signature of the post office worker or the post office stamp indicating that the letter was sent);
    - if a facsimile was sent, a copy of the facsimile Report;
    - if an electronic mail was sent, a copy of the electronic mail sent; and
    - if a "mail drop" was done, a signed register of "mail drops" received (showing the name of the person the notice was handed to, the address of the person, the date, and the signature of the person); and
- a copy of the newspaper advertisement ("newspaper clipping") that was placed, indicating the name of the newspaper and date of publication (of such quality that the wording in the advertisement is legible).

SECTION G: DESCRIPTION OF RECEIVING ENVIRONMENT

All specialist studies must be attached as Appendix G.

1. GROUNDWATER

1.1.	Was a specialist study conducted?	YES	**NO**
1.2.	Provide the name and or company who conducted the specialist study.		
N/A			
1.3.	Indicate above which aquifer your proposed development will be located and explain how this has influenced your proposed development.		
Based on the Department of Water and Sanitation's Aquifer Boundary Data as obtained through CapeFarmMapper (11 May 2023), the project will be partially located over a major aquifer, with the largest portion thereof lying over a minor aquifer. The proposed project will be located on an aquifer with differing strengths. The northern section of the road works will be located upon an intergranular minor aquifer with a yield of 0.1 – 0.5 ℓ/s (approximately 1km of the road works), the middle section of the road will be located on a fractured minor aquifer with a yield of 0.0 – 0.1 ℓ/s, and the southern section of the road will be located on a fractured major aquifer with a yield of 0.0 – 0.5 ℓ/s (approximately 6.2 km of the road works).			
1.4.	Indicate the depth of groundwater and explain how the depth of groundwater and type of aquifer (if present) has influenced your proposed development.		
Based on the information available with regards to the proposed development area (in its entirety), the natural depth of the groundwater 14.04 and 16.50 meters below ground level with a groundwater recharge value ranging between 1.24 and 4.75 mm per annum with the higher groundwater recharge value found within the minor aquifer's region. The Electrical Conductivity of the site ranges between 150 and 370 mS/m. The proposed development site does not lie within an area of strategic importance. The nearest Strategic Water Source Area (SWSA) is located approximately 17.5 km south of the proposed works.			

2. SURFACE WATER

2.1.	Was a specialist study conducted?	**YES**	NO
2.2.	Provide the name and/or company who conducted the specialist study.		
Aquatic Biodiversity Theme: Confluent (Pty) Ltd. (SACNASP Reg: 114084)			
2.3.	Explain how the presence of watercourse(s) and/or wetlands on the property(ies) has influenced your proposed development.		
The road crosses twenty-nine (29) watercourses. Without exception, all watercourses can be classified as non-perennial rivers, with clearly discernible bed and banks, that are characterised by a highly intermittent hydroperiod (i.e. flowing for a short period – hours to a few–days - only after heavy rainfall events in the catchment area). The size of these watercourses varied from minor, first order drainage lines (approximately one meter in width) to broader second and third order streams (up to 5 m in width). All watercourses cross the TR75/1 road via formalised culverts and ultimately flow into the Klip River which runs adjacent to the TR75/1 road alignment. The Klip River is a large fifth order perennial river which eventually becomes a floodplain wetland prior to its confluence with the Olifants River. Given the relatively undeveloped catchment area, the Present Ecological State of each affected watercourse is B, Largely Natural. The watercourses are important in terms of connecting large areas of undisturbed terrestrial CBA areas to the lowland perennial Klip River system. For these reasons it is important that strengthening of the road is undertaken in a sensitive manner and that all mitigation measures are implemented. The figures below provide a representation of the proposed works in relation to the delineated watercourses.			

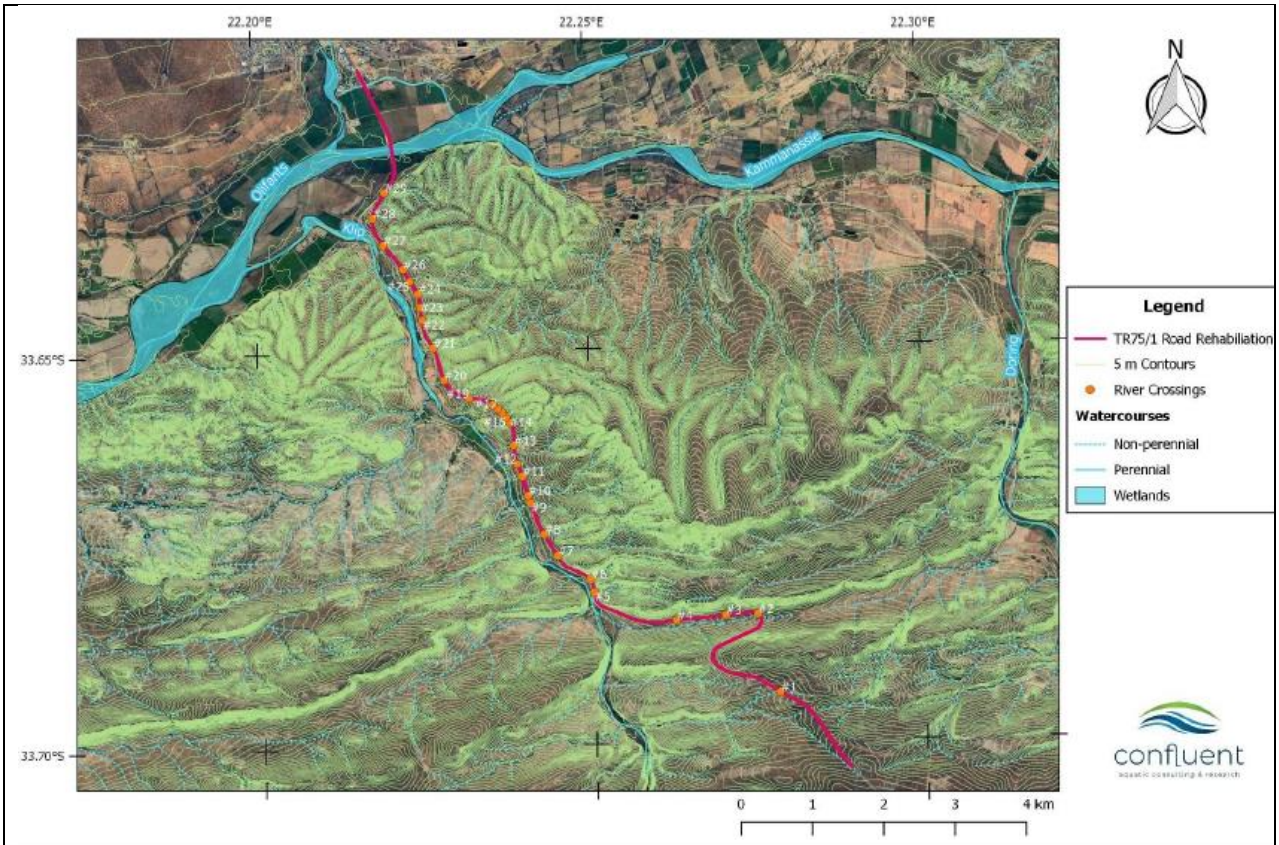


Figure 11. Watercourses located within proximity to the proposed refurbishment project.

The table indicates the proposed works that will be located within the various watercourses, in line with the project description provided above.

Watercourse number	Description	Present Ecologic Status	Ecological Importance and Sensitivity	Culvert	Proposed works
1	Non-perennial	B (largely natural)	Low	C7 (1.2m x 1.2m box culvert) (Minor)	• Siltation and debris to be cleared at both the inlet and outlet
2	Non-perennial	B (largely natural)	Low	C17 (1.8m x 1.2m box culvert) (Minor)	• The cracks and spalling to be sealed and repaired in both the inlet and outlets.
3	Non-perennial	B (largely natural)	Low	C18 (1.2m x 1.2m box culvert) (Minor)	• Siltation and debris to be cleared at both the inlet and outlet. • Construction of erosion protection measures at the outlet.
4	Non-perennial	B (largely natural)	Low	C22 (1.2m x 1.2m box culvert) (Minor)	• Siltation and debris to be cleared at both the inlet and outlet. • Cracks in the inlet to be sealed. • Construction of erosion protection measures at the outlet.
5	Non-perennial	B (largely natural)	Low	C29 (2.45m x 2.45m box culvert) (Major)	• Repair of a crack on this culvert. • New invert slab to be installed with cut-offs. • The inlet pathway is to be cleared of boulders and debris.

6	Non-perennial	B (largely natural)	Low	C30 (1.8m x 1.8m box culvert) (Minor)	• The cracks and spalling to be sealed and repaired in both the inlet and outlet. • Debris to be cleared at both the inlet and outlet
7	Non-perennial	B (largely natural)	Low	C31 (2.4m x 2.4m box culvert) (major)	• New invert slab to be installed with cut-offs. • Vegetation clearance around culvert to take place. • Hazard signage or guardrails to be installed as required.
8	Non-perennial	B (largely natural)	Low	C33 (1.2m x 1.2m box culvert) (minor)	• New invert slab to be installed with cut-offs. • Vegetation clearance around culvert to take place. • Hazard signage or guardrails to be installed as required.
9	Non-perennial	B (largely natural)	Low	C35 (1.2m x 1.2m box culvert) (minor)	• Inlet and outlet to be extended. • The waterway at both the inlet and outlet to be shaped.
10	Non-perennial	B (largely natural)	Low	C36 (2.5m x 2.5m box culvert) (major)	• Extension on both sides required and the wingwalls to be replaced. • Repair corroded rebar and spalling, and inject cracks if structural damage has occurred. • Vegetation clearance to take place around the culvert. • Hazard signage or guardrails to be installed as required.
11	Non-perennial	B (largely natural)	Low	C37 (2 x 0.6m pipe culvert) (minor)	• Inlet and outlet to be extended. • The waterway at both the inlet and outlet to be shaped. • Construction of erosion protection measures at the outlet.
12	Non-perennial	B (largely natural)	Low	C38 (1.8m x 1.8m box culvert)	• Headwall of the inlet to be replaced. • Extension of the outlet required. • Reconstruction of the outlet's headwall required
13	Non-perennial	B (largely natural)	Low	C39 (1.2m x 1.2m box culvert) (minor)	• Siltation and debris to be cleared at both the inlet and outlet. • The cracks and spalling to be sealed and repaired in the inlet. • Construction of erosion protection measures at the outlet.

14	Non-perennial	B (largely natural)	Low	C40 (1.2m x 1.2m box culvert) (minor)	• Siltation and debris to be cleared at both the inlet and outlet.
15	Non-perennial	B (largely natural)	Low	C41 (2 x 0.6m pipe culvert) (minor)	• Headwalls of both the inlet and outlet to be replaced. • Siltation, debris and vegetation to be cleared at the inlet. • Vegetation to be cleared and embankments of the waterway leading from the outlet to be shaped.
16	Non-perennial	B (largely natural)	Low	C42 (1.2m x 1.2 box culvert) (minor)	• Siltation to be cleared at the inlet. • The cracks on the inlet's wingwalls to be cleared. • The outlet culvert will be extended. • Scour protection at the outlet will be constructed; • Vegetation clearance in the waterway is required • and the waterway will be shaped.
17	Non-perennial	B (largely natural)	Low	C43 (0.6m pipe culvert) (minor)	• Siltation, debris and vegetation to be cleared at both the inlet and outlet. • The embankments of the inlet and outlet to be shaped. • Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced.
18	Non-perennial	B (largely natural)	Low	C44 (2 x 0.6 pipe culvert) (minor)	• Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced.
19	Non-perennial	B (largely natural)	Low	C46 (2.5m x 2.5m box culvert) (major)	• Grouted stone pitch will be installed at the wingwalls. • The embankments are to be shaped and trimmed. • The fencing is to be reinstated. • Hazard signage or guardrails to be installed as required.
20	Non-perennial	B (largely natural)	Low	C48 (2 x 0.6m pipe culvert) (minor)	• Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced. • The barrel of the outlet to be cleared of debris, siltation, and vegetation.
21	Non-perennial	B (largely natural)	Low	C50 (2.4m x 2.4m box culvert) (major)	• The wingwall stability is to be assessed and strengthened or tied back if necessary. • New invert slab to be installed with cut-offs. • Repair corroded rebar and spalling, and inject cracks if structural damage has occurred.

					• Vegetation clearance to take place around the culvert. • Hazard signage or guardrails to be installed as required.
22	Non-perennial	B (largely natural)	Low	C52 (1.8m x 1.8 box culvert) (minor)	• Siltation and debris to be cleared at both the inlet and outlet. • Cracks in both the inlet and outlet to be sealed. • The wingwall joint of the outlet will be required to be reinstated (this could possibly require the replacement of the headwall in its entirety).
23	Non-perennial	B (largely natural)	Low	C53 (1.2m x 1.2m box culvert) (minor)	• Siltation, debris and vegetation to be cleared at both the inlet and outlet.
24	Non-perennial	B (largely natural)	Low	C54 (2.0m x 1.2m box culvert) (minor)	• Siltation, debris and vegetation to be cleared at both the inlet and outlet. • The culvert of both the inlet and outlet to be extended and the headwalls to be replaced. • Construction of erosion protection measures at the outlet.
25	Non-perennial	B (largely natural)	Low	C55 (2.4m x 2.4m box culvert) (major)	• Extension on both sides required. • New invert slab to be installed with cut-offs. • Hazard signage or guardrails to be installed as required.
26	Non-perennial	B (largely natural)	Low	C56 (2.5m x 1.2m box culvert) (major)	• Extension on both sides required. • Erosion protection measures to be used at the outlet. • Hazard signage to be installed
27	Non-perennial	B (largely natural)	Low	C59 (2.4m x 2.4m box culvert) (major)	• Extension of the let hand side of the road. • Hazard signage or guardrails to be installed as required.
28	Non-perennial	B (largely natural)	Low	C61 (1.2m x 1.2m box culvert) (minor)	• Clear debris and vegetation at both the inlets and outlets. • The cracks and spalling to be sealed and repaired in both the inlet and outlets. • Headwalls of both the inlet and outlet to be replaced.
29	Non-perennial	B (largely natural)	Low	C63 (2.4m x 1.2m box culvert) (major)	• Definite extension of the Right-hand side. • Hazard signage to be installed.

According to DWS (2014), the **PES** of the Olifants River is **D, Largely Modified.** This is mainly due conversion of floodplain wetland habitat to agriculture, resulting in highly disturbed banks, removal of riparian vegetation, invasion of exotic tress, infilling and high rates of abstraction for irrigation. Modification of streamflow caused by the Stompdrift Dam (on the

Olifants River) and the Kamanassie Dam (on the Kamanassie River) has reduced the intensity and frequency of flood events which has resulted in the channel becoming clogged with *Phragmites australis*.

The **EIS** of the Olifants River is High (DWS, 2014), largely due its large size and diverse habitat types and because of its importance in terms of providing an important migration corridor for aquatic biota and for protecting threatened or near-threatened freshwater fish species that are indigenous to South Africa.

Appendix B1 provides a mapbook which clearly provides a representation of the location of the identified watercourses in proximity to the proposed works as identified above. These images also provide the construction limitations as provided by the appointed specialist. Although impacting upon these resources, it was acknowledged that impacting upon these resources would be unavoidable. Therefore, construction limitations (minimum impact areas) were recommended by the specialists, so as to safeguard the water resources located within the proposed footprint.

3. COASTAL ENVIRONMENT

3.1.	Was a specialist study conducted?	YES	**NO**
3.2.	Provide the name and/or company who conducted the specialist study.		
N/A			
3.3.	Explain how the relevant considerations of Section 63 of the ICMA were taken into account and explain how this influenced your proposed development.		
Section 63 of the ICMA does not hold any relevance to the proposed development as no activities linked to the coastal zones are going to be applied in terms of the EIA Regulations of 2014, as amended, as promulgated under the NEMA.			
3.4.	Explain how estuary management plans (if applicable) has influenced the proposed development.		
Due to the distance of the proposed development from any known estuaries, no estuary management plans had an influence on the proposed project.			
3.5.	Explain how the modelled coastal risk zones, the coastal protection zone, littoral active zone and estuarine functional zones, have influenced the proposed development.		
Due to the distance of the proposed development from any known estuaries, the HWM and the coastal protection zones, none of the features identified had an influence on the proposed project.			

4. BIODIVERSITY

4.1.	Were specialist studies conducted?	**YES**	NO
4.2.	Provide the name and/or company who conducted the specialist studies.		
To evaluate the Terrestrial landscape of the receiving environment, the following specialists were appointed: Terrestrial Biodiversity and Plant Species: Mark Berry Environmental Consultant (Pty) Ltd Animal Species: Cossypha Ecological (Robyn Phillips) Agricultural Compliance Statement: Johann Lanz			
4.3.	Explain which systematic conservation planning and other biodiversity informants such as vegetation maps, NFEPA, NSBA etc. have been used and how has this influenced your proposed development.		
According to the Terrestrial Biodiversity and Plant Species impact assessment conducted by Mark Berry Environmental Consultants, as extrapolated from the 2018 Vegetation Map of South Africa, as amended, the proposed project is located inside Eastern Little Karoo, with the northern end protruding into Muscadel Riviere (Figure 12).			

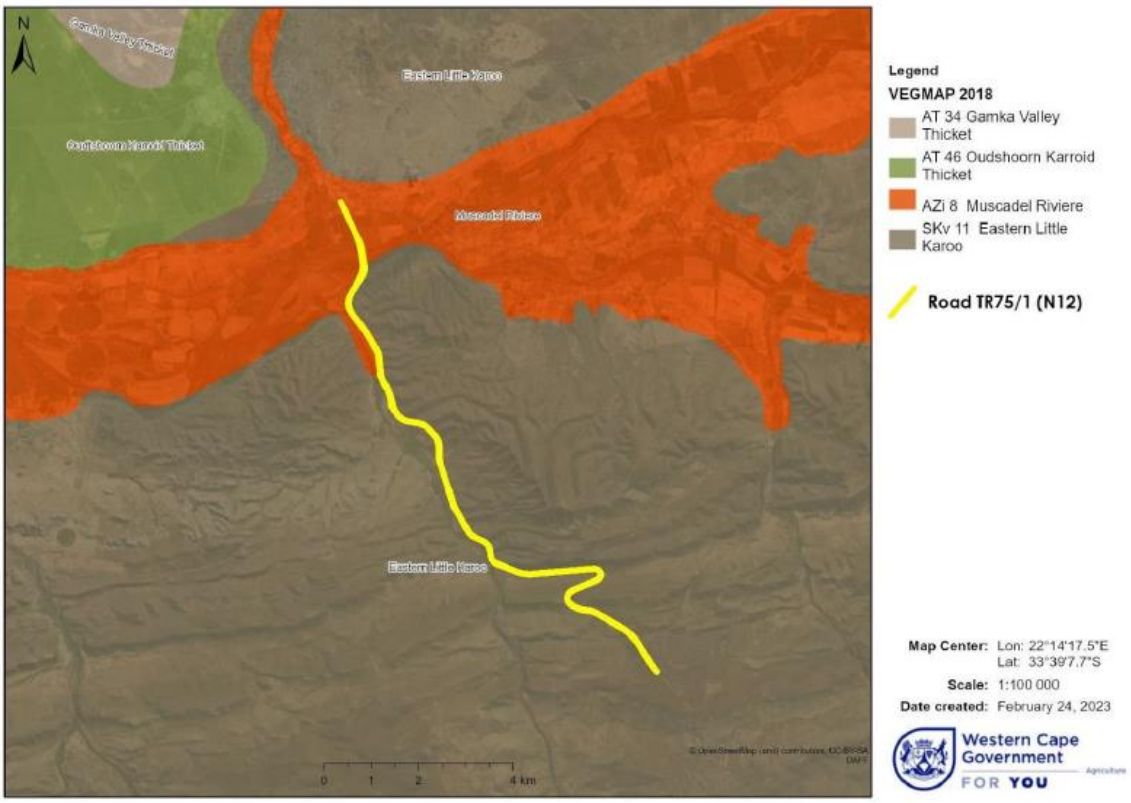


Figure 12. Extract of the 2018 SA Vegetation map.

Eastern Little Karoo is found in the eastern basin of the Little Karoo from Calitzdorp in the west to Oudtshoorn in the east (Mucina, 2006). It then continues as a series of narrow belts from east of Oudtshoorn towards Uniondale and Willowmore. In the landscape, it is described as "irregularly flat plains and undulating piedmont hills covered by dense succulent shrubland dominated by Aizoaceae (*Ruschia* and *Drosanthemum*), Crassulaceae (*Cotyledon*, *Crassula* and *Tylecodon*) and non-succulent shrubs, such as *Nymania*, *Pteronia* and *Searsia*" (Mucina, 2006). In a further refinement, Jan Vlok in his vegetation map of the Little Karoo2 mapped it as De Rust Sandolien-Spekboomveld, Kandelaars Gannaveld, Kandelaars Arid Spekboomveld and Blossoms Asbos-Gwarrieveld, based on the prominence of certain species and location (Figure 13.

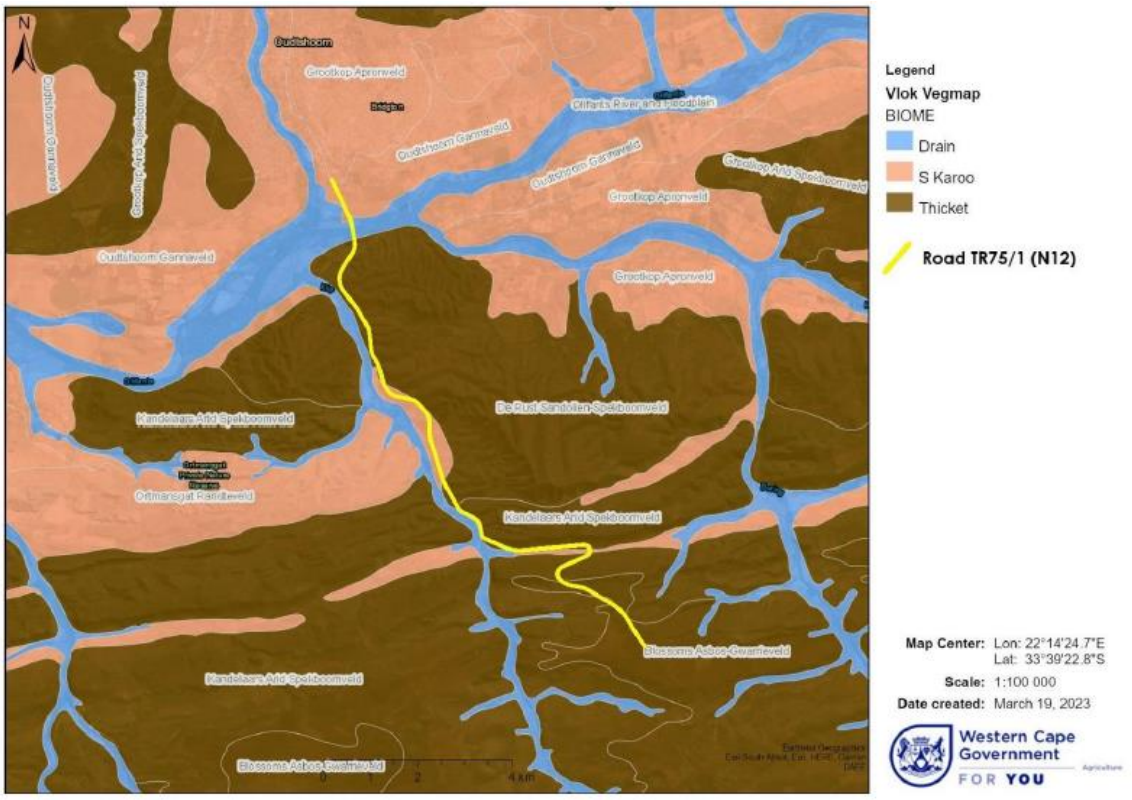


Figure 13. Extract of the Jan Vlok's Vegetation map.

Eastern Little Karoo is still well represented, with 87% remaining3. However, it is currently listed as Endangered in the revised National List of Threatened Ecosystems (DEA, 2022). Ecosystem data show a high disruption of biotic processes over more than 50% of its area in the last 50 years (see source in footnote below). It has been transformed for cultivation and dam-building (Mucina, 2006). Overgrazing and localised erosion are also problematic in certain areas (Mucina, 2006). Tiny bits (<1%) are protected in the Kammanassie and Swartberg East Nature Reserves (Mucina, 2006).

The road is located within sub-quaternary catchment (SQC) 8861 (Figure 14), which, according to the National Freshwater Ecosystem Priority Atlas (NFEPA, Nel et al., 2011), has been classified as an Upstream Management Area. These areas need to be managed to prevent degradation of downstream Freshwater Ecosystem Priority Areas (FEPAs) – which in this case includes several quinary catchments located along the Olifants River which have been designated as important fish corridors and are categorised as Fish Support Areas. Fish Support Areas are SQCs that are not necessarily in a good ecological condition but are still essential for protecting threatened or near-threatened freshwater fish species that are indigenous to South Africa. The management goal of Fish Support Areas is to prevent additional fish species from becoming threatened or to prevent threatened or near-threatened species from becoming extinct. In order to achieve these objectives, there should be no further deterioration in river condition.

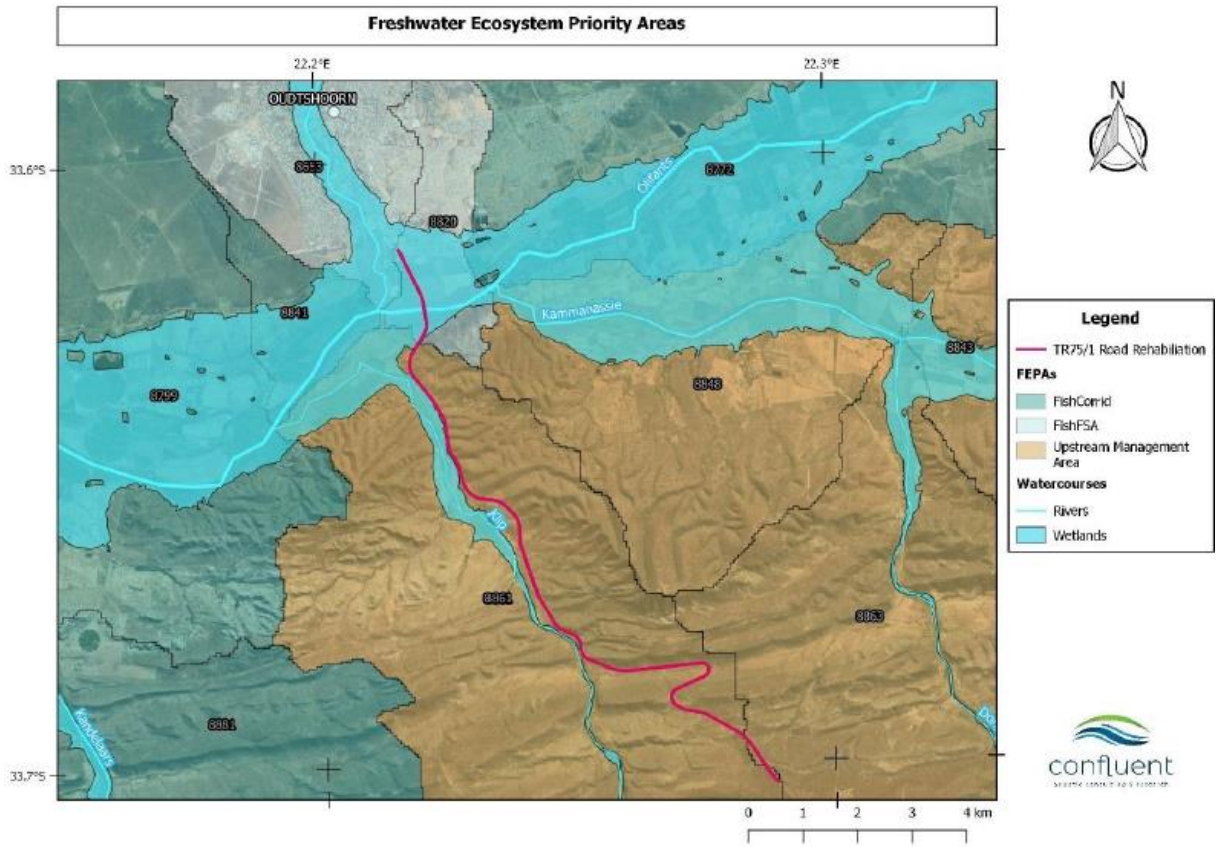


Figure 14. Extract of the National Freshwater Ecosystem Priority Areas (NFEPA) within proximity to the proposed project.

Agriculture

The screening tool sensitivity of the site is shown in the image below, but has limited relevance for agricultural impact in this case. Agricultural sensitivity is a direct function of the production potential of land. However, the screening tool classifies agricultural sensitivity according to only two independent criteria – whether the land is cropland or not and the land capability rating. The land capability rating only takes biophysical factors (soil, climate, terrain) into account and these are based on fairly course-scaled modelled data. However, agricultural production potential is not only a function of these things. There are other factors that influence whether a piece of land can practically deliver agricultural produce or not and which therefore influence its agricultural production potential. In this case the fact that the land is within a road reserve negates its potential for agricultural production. The sensitivity classification of the proposed development footprint by the screening tool is disputed and assessed here as being entirely of low agricultural sensitivity within the road reserve.

Generally, the climate, with rainfall below 300 mm per annum (Schulze, 2009), is the main biophysical limitation. The site is very varied in terms of soil and terrain and therefore land capability which ranges from 2 (very low) to 9 (moderate-high).

Even if the road strengthening project is required to extend beyond the existing road reserve in places, its proposed footprint does not impinge on any cropland and therefore will impinge, outside of the road reserve, on a maximum agricultural sensitivity of medium.

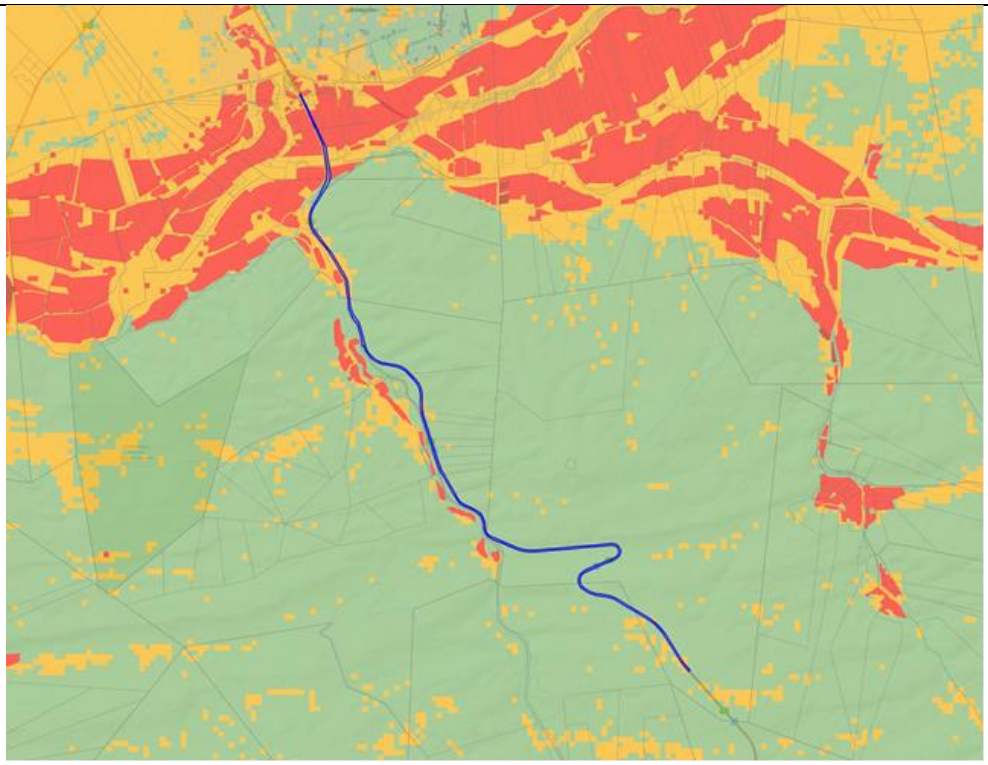


Figure 15. The footprint of the proposed development (blue outline) overlaid on agricultural sensitivity, as given by the screening tool (green = low; yellow = medium; red = high; dark red = very high). Note however that the screening tool sensitivity has limited relevance for the agricultural impact of this proposed development.

4.4.	Explain how the objectives and management guidelines of the Biodiversity Spatial Plan have been used and how has this influenced your proposed development.

According to the Oudtshoorn WCBSP (2017) there are numerous ESAs (aquatic) and CBAs (terrestrial) features. Many of the mapped watercourses have been categorized as aquatic Ecological Support Areas (ESAs). The definitions and associated management objectives of these biodiversity features are described in the table below:

Table 4. Management objectives of the WCBSP (2017): Oudtshoorn

Biodiversity Unit	Description	Management Objective
Aquatic ESA1	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services.	Maintain in a functional, near-natural state. Some habitat loss is acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised.
Terrestrial CBA1	Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.	Maintain in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.

The management objectives allow for some habitat loss provided that the ecological function of these watercourses is not compromised. Maintenance of existing road infrastructure (including maintenance or extension of culverts) can therefore be considered as an acceptable activity within the context of these objectives. Several mapped watercourses have not been categorized as aquatic biodiversity area but are indicated to occur in terrestrial Critical Biodiversity Areas (CBAs).

Although avoidance of impacting upon these areas will not possible, the aim of the mitigation proposed for the proposed project is to limit the extent to which these areas will be impacted upon. This will be done through the application of minimum impact areas placed around the watercourses (ESAs) and the continued minimum disturbance footprint to be enforced as part of the construction phase of the proposed development. Additionally, in order to promote the regrowth following the construction phase of the proposed development, a vegetation rehabilitation plan will also be required in order to monitor and evaluate the rehabilitation efforts on site. Through the mitigation proposed for the project, and as the proposed activities entails the strengthening of an existing road, the impacts and the extent of the impacts on the aquatic ESAs should be low and due to the sensitivity of the vegetation identified within the Terrestrial CBAs the impact should be Low-Medium after the mitigation measures have been applied.

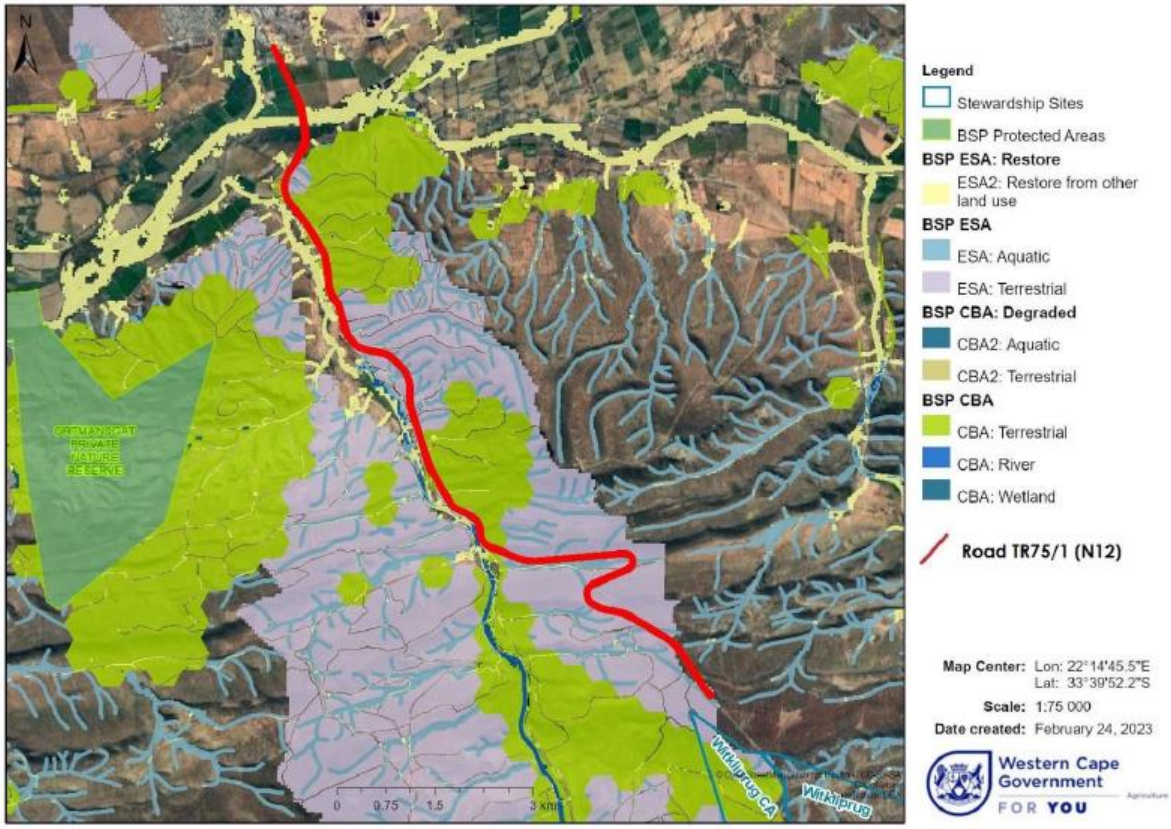


Figure 16. Ecosystem Support Areas and Critical Biodiversity Areas as demarcated in the WCBSP (2017).

4.5.	Explain what impact the proposed development will have on the site specific features and/or function of the Biodiversity Spatial Plan category and how has this influenced the proposed development.

Terrestrial Biodiversity and Plant Species

Apart from a few patches of reed (*Phragmites australis*) and a few shrubs/trees, the Olifantsrivier floodplain in the vicinity of the road is highly transformed by agriculture and roadworks. Sections of the road through the hills are still flanked by good quality vegetation (Eastern Little Karoo), albeit modified in places. Some of it is regarded as highly sensitive where SCC were recorded. The untoned sections of the road reserve are of low sensitivity due to a high degree of modification and lack of (or very little) biodiversity. This does not mean that these areas should be treated as such during the construction phase.

The vegetation inside the road 'reserve' (fenced-off area) is often highly modified due to past roadworks. Disturbances noted include cut-to-fill (along the steeper sections), infilling of watercourse crossings, road cuttings, lay-by's, farm entrances and stormwater trenches. Good (medium) quality vegetation is found along the length of the route from where the hills start just south of the Olifantsrivier floodplain. It includes areas slightly modified, as well as areas highly modified, but still covered with fair quality vegetation (secondary growth). Alien infestation is minimal, with only a few scattered invaders encountered, such as *Opuntia ficus-indica* and *Prosopis glandulosa*. The vegetation is highly modified in places, which affected its structural form and cover notably. Emergent species, such as *Euclea undulata, Portulacaria afra* and *Dodonaea viscosa*, are also prominent.

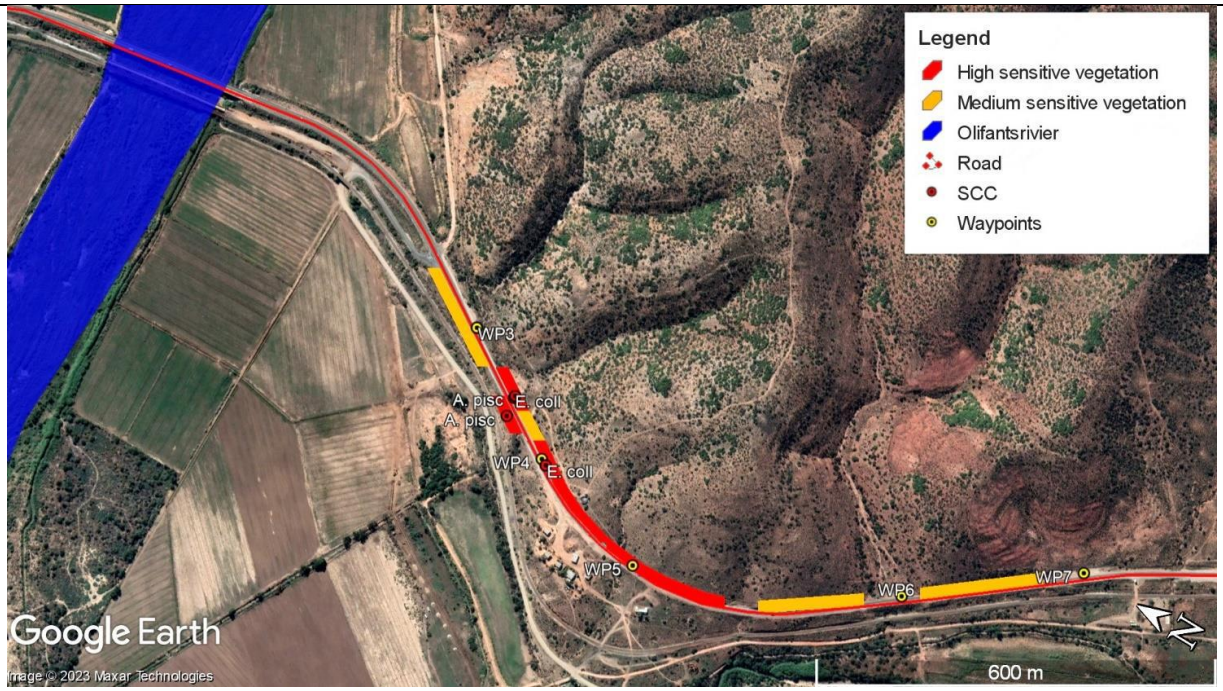


Figure 17. Botanical attributes of road reserve (WP3-WP7).

Figure 18. Botanical attributes of road reserve (WP8-WP12).

Figure 19. Botanical attributes of road reserve (WP12-WP18).

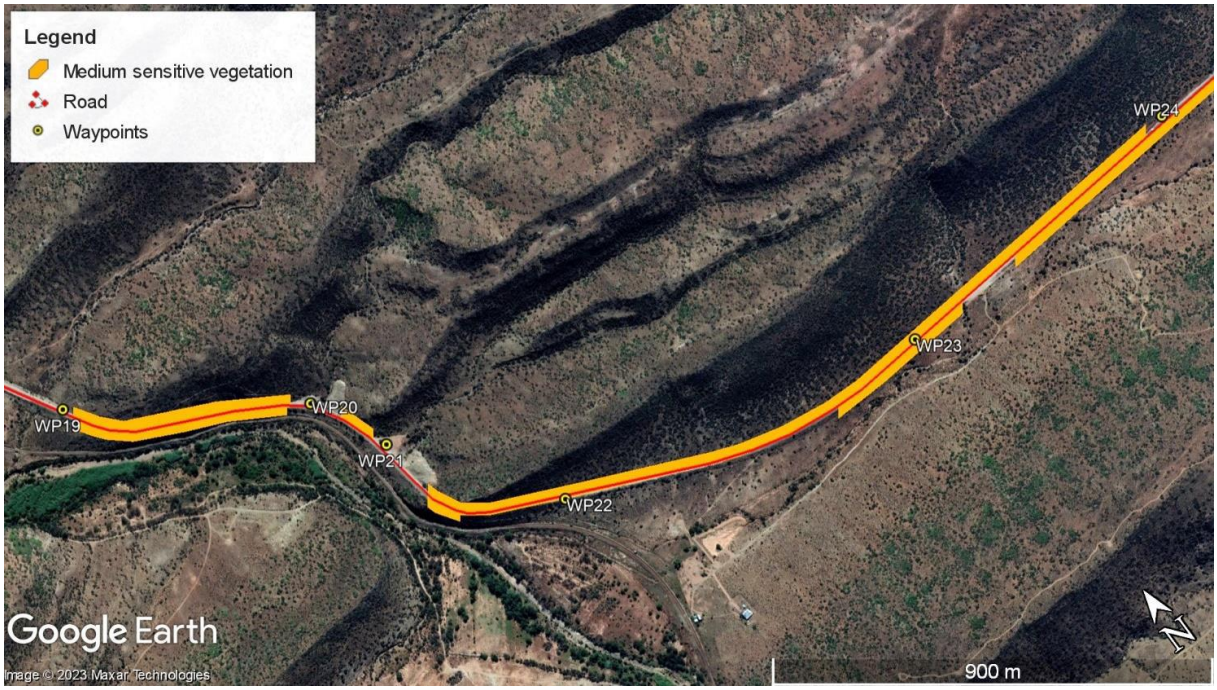


Figure 20. Botanical attributes of road reserve (WP19-WP24).

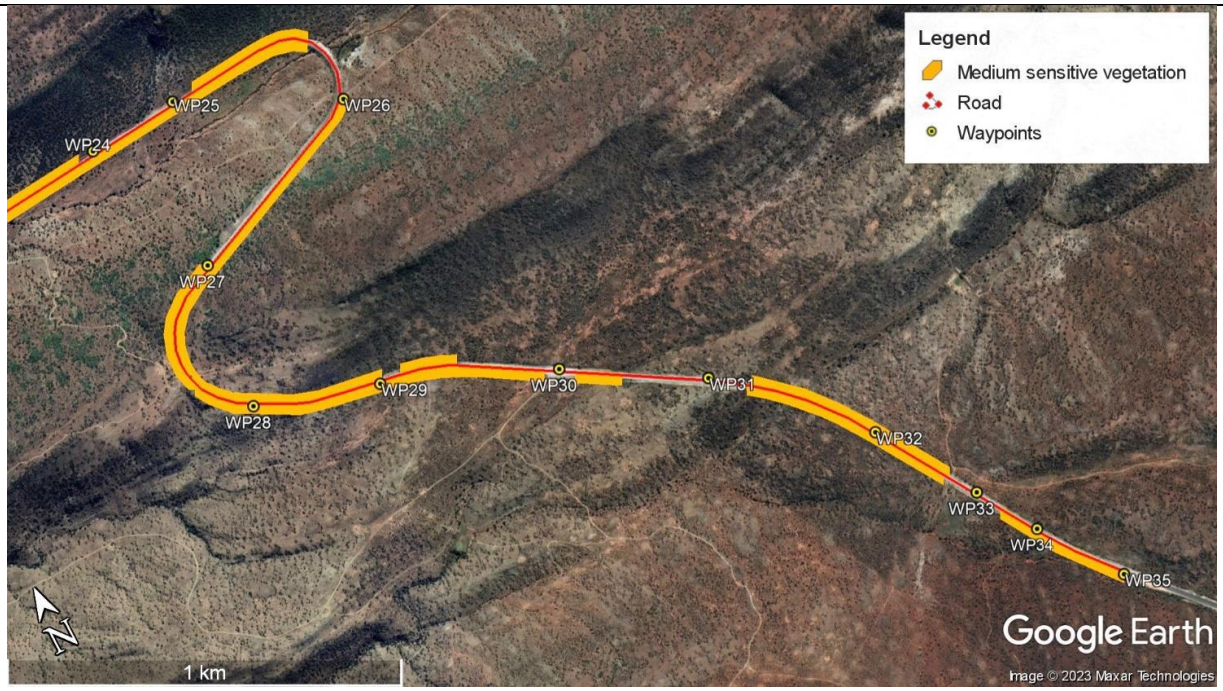


Figure 21. Botanical attributes of road reserve (WP24-WP35).

A fairly high number of indigenous shrub species were recorded, including *Pteronia incana* (dominant), *P. fasciculat69ariegate69culata, P. pallens, Atha69ariegate69urcata, Felicia filifolia, Helichrysum zeyheri, Dicerothamnus rhinocerotis* (dominant in places), *Senecio cotyledonis, Gazania krebsiana, Pentzia incana, Chrys69ariegailiata, Osteospermum cf incanum, O. sinuatum, Oedera humilis, Cuspidia cernua, Berkheya cuneata, Macledium spinosum, Gloveria integrifolia, Curio radicans, Ruschia pungens* (dominant), *R. cradockensis, Leipoldtia schultzei* (dominant), *Antimima piscodora, Glottiphyllum depressum, G. linguiforme, Hereroa odorata, H. muirii, Drosanthemum hispidum* (dominant), *D. praecultum, D. globosum, D. karrooense, D. barkerae, Mesembryanthemum junceum, M. englishiae, M. splendens, M. tortuosum, M. cf aitonis, M. nitidum, Cerochlamys pachyphylla, Pleiospilos compactus* ssp. *compactus, Malephora lutea* (dominant), *Aizoon africanum* (dominant), *Coty69ariegate69culata, Tylecodon cacalioides, Adromischus triflorus, A. filicaulis* ssp. *marlothii, Crassula subaphylla, C. atropurpurea, C. capitella, C. rupestris, C. cotyledonis, C. muscosa, C. expansa, Aloe ferox, Gon69ariegateiegata, Astroloba spiralis, Euphorbia mauritanica, E. colliculina, E. heptagona, Anacampseros telephiastrum, A. arachnoides, Vachellia karroo, Lotononis pungens, Rhigozum obovatum, Gymnosporia buxifolia, Euclea undulata, Lasiosiphon deserticola, Nymania capensis, Dodonaea viscosa, Lycium oxycarpum, L. cinereum, Carissa haematocarpa, Microloma sagittatum, Gomphocarpus fruticosus, Piaranthus geminatus* ssp. *geminatus, Grewia robusta, Roepera morgsana, Tetraena chrysopteros, Pappea capensis, Portulacaria afra* (dominant in places), *Searsia pallens, Pelargonium trifidum, P. cf laxum, Polygala myrtifolia* var. *pinifolia, Hermannia fillifolia, H. althaeifolia, Asparagus retrofractus, Tribulus terrestris, Lacomucinaea lineata* and *Aptosimum indivisum*. Hemicryptophytes and geophytes recorded include *Cenchrus setaceus, Albuca canadensis, Bulbine frutescens, Tulbaghia violacea, Oxalis stellata* and *Haemanthus coccineus*.

The majority of the recorded species are widespread and common in succulent karoo. Pioneer species, such as *Drosanthemum hispidum, Malephora lutea, Aizoon africanum* and the grass *Cenchrus setaceus*, cover the more disturbed areas directly next to the road. Floristic association with Eastern Little Karoo is strong with a large number of important taxa recorded, including *Leipoldtia schultzei*, *Glottiphyllum linguiforme, Astroloba spiralis*, *Tylecodon cacalioides, Euphorbia colliculina* and *Searsia pallens.*

Three SCC were recorded, namely *Antimima piscodora* (DDD), *Glottiphyllum linguiforme* (VU) and *Euphorbia colliculina* (EN). In addition to these, *Berkheya cuneata, Hereroa muirii, Cerochlamys pachyphylla, Pleiospilos compactus* ssp. *compactus, Tylecodon cacalioides, Astroloba spiralis* and *Polygala myrtifolia* var. *pinifolia* are regional endemics. As far as the author can detect (from iNaturalist records), *Syringodea derustensis* is the only other listed SCC recorded within 5 km from the road. However, there is a good chance that others, such as sensitive species 54 and 842, may also occur in the area. No protected tree species were recorded or are expected to occur in the area.

Should the floral SCCs be impacted upon by the proposed construction works, the appropriate permit must be obtained from CapeNature. As indicated by the specialist, a permit will be required for the impacts upon the indigenous vegetation.

As per the mitigation measures proposed by the specialist, search and rescue of succulents and bulbs must be done for replanting in the disturbed or rehabilitation areas after the construction phase. Topsoil, cuttings and seedbearing plant material can also be salvaged for this purpose, especially cuttings from succulents and Pelargonium species. Bulbs should be removed along with some soil, placed in gel, bagged and then taken to a nursery for temporary storage or transplanted directly in the receiving area.

All mitigation measures provided in Section H4 of this report, in the EMPr and Appendix G2 of the BAR must be strictly adhered to.

The detailed map book of the sensitivity overlays of the site and the proposed development layout has been included as Appendix B2 of the BAR.

Agricultural

According to the Agricultural Compliance Statement conducted by Johann Lanz, an agricultural impact is a change to the future agricultural production potential of land. The significance of the agricultural impact is directly proportional to the extent of the change in production potential. Due to the status of the land as a road reserve, it has no agricultural production potential and the development will not therefore result in any change to that potential. There is therefore zero agricultural impact. Even if the road works is required to extend beyond the existing road reserve in places, its proposed footprint would only impinge on the very edge of agricultural land and would therefore have negligible impact.

The agricultural impact of the proposed development is assessed as being acceptable because it results in no, or at most negligible loss of future agricultural production potential. From an agricultural impact point of view, it is recommended that the development be approved.

It is hereby confirmed that all reasonable measures have been taken through micro-siting to avoid or minimise fragmentation and disturbance of agricultural activities because all impact occurs along the edges of agricultural lands. Erosion risk will be managed by the storm water management that will be an inherent part of the road engineering of the development. There are no additional Environmental Management Programme inputs required for the protection of agricultural potential.

4.6.	If your proposed development is located in a protected area, explain how the proposed development is in line with the protected area management plan.

The proposed road refurbishment project is not located within, or in vicinity, to any protected areas recognised in terms of the NEMPAA. (Act 57 of 2003). The nearest declared Protected Areas in terms of the NEM:PAA is the Ortmansgat Private Nature Reserve, located approximately 1.9 km west of the proposed project, and the Witkliprug Nature Reserve, located approximately 1.2 km south east of the proposed project.

4.7.	Explain how the presence of fauna on and adjacent to the proposed development has influenced your proposed development.

According to the Compliance Statement undertaken, following a site visit conducted between the 4th and the 6 of April 2023, the assessment area was relatively disturbed and was comprised mostly of secondary vegetation or alien plants. No animal SCC were observed on the site and are unlikely to utilise the vegetation next to the road. This confirmed the ecological sensitivity for terrestrial fauna to be Low.

Faunal activity on the site was generally low with only common and generalist birds and small / medium mammals recorded, usually around the riparian areas and drainage lines. Some of the bird species recorded in the study area included Cape Turtle-Dove (*Streptopelia capicola*), Cape Bulbul (*Pycnonotus capensis*), Karoo Prinia (*Prinia maculosa*), Southern Double-collared Sunbird (*Cinnyris chalybeus*), Chestnut-vented Tit-Babbler (Curruca subcoerulea), and Bokmakierie (*Telophorus zeylonus*). A few common mammal species observed during the field surveys including Scrub Hare (*Lepus saxatilis*), Cape Grey Mongoose (*Galerella pulverulenta*), and Chacma Baboon (*Papio ursinus*).

No faunal SCC were recorded during the site surveys. The habitat along the route is largely disturbed and exists in a narrow strip that is somewhat fragmented due to the proximity to the roadway. It is unlikely that the available habitat would support any individuals or populations of faunal SCC, and such species are more likely to utilise the better-quality habitat that exists in the adjacent natural areas in far larger and more viable quantities.

5. GEOGRAPHICAL ASPECTS

Explain whether any geographical aspects will be affected and how has this influenced the proposed activity or development.
The landscape of the portion of the road TR75/1 within which the proposed activities will be exercised can be described as undulating hills cut by a network of non-perennial rivers with the low-lying reaches of the proposed works located within a floodplain. Limited activities will occur within the floodplain area.

6. HERITAGE RESOURCES

6.1.	Was a specialist study conducted?	**YES**	NO
6.2.	Provide the name and/or company who conducted the specialist study.		
ASHA Consulting – Jayson Orton (Cultural Heritage and Archaeological Specialist) Elize Butler (Palaeontological Specialist)			
6.3.	Explain how areas that contain sensitive heritage resources have influenced the proposed development.		

In accordance with Section 38 of National Heritage Resources Act, 1999 (Act No. 25 of 1999), the project needs to be evaluated by an appropriate specialist and the relevant heritage department needs to be informed of the project. Subsequent to the site visits conducted by the Cultural and Landscape Heritage Consultant and the Palaeontological Consultant, respectively, it was found that the project would have a low impact on the cultural heritage. Additionally, it was found that the Palaeontological Sensitivity of the site was considered to be High as significant impacts to fossils located within the road reserve were expected.

Following the initial correspondence received from HWC on 25 May 2023, a full Heritage Impact Assessment was undertaken. The findings of the HIA have been summarised below:

Banzai Environmental (Pty) Ltd. (Elize Butler) was appointed to undertake the palaeontological assessment for the proposed project. During her site investigations, a number of well-preserved fossils were identified within the existing road cuttings. These fossils included a number of trace fossils, bi-valves and possible occurrences of trilobites. The image below provides an indication as to where the fossils were found in relation to the proposed project. As evident in this image, the fossils were mainly found in the southern reaches of the proposed project. The fossils observed within the study area have a scientific grading value of IIIB.

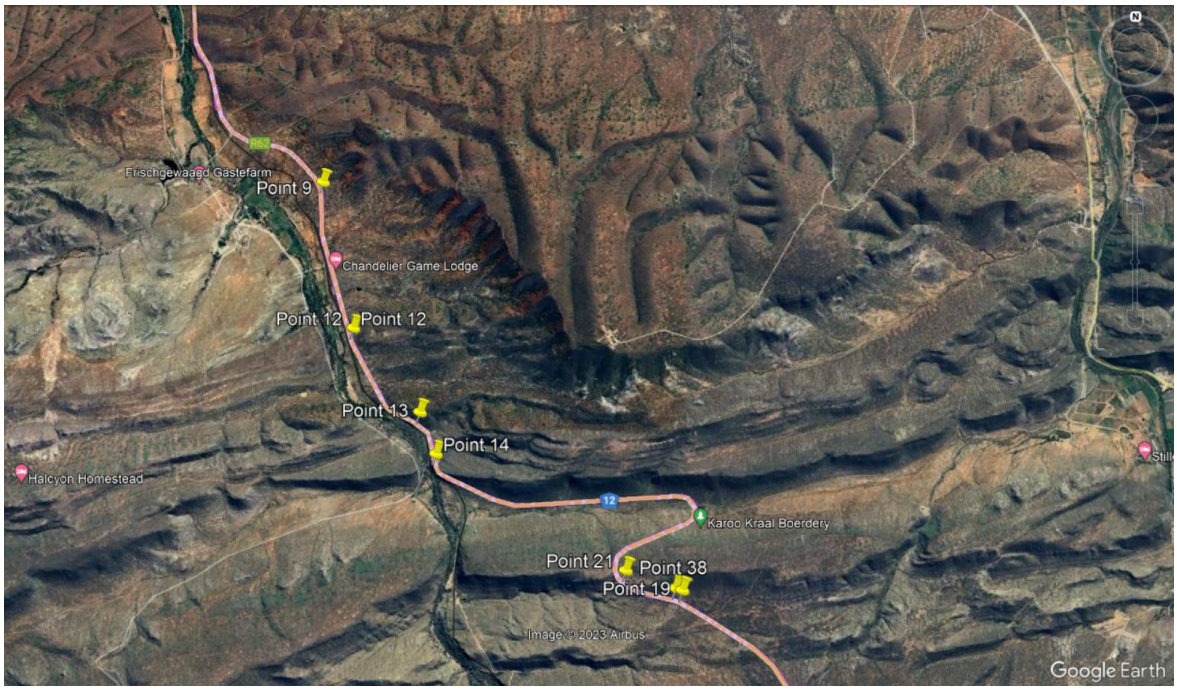
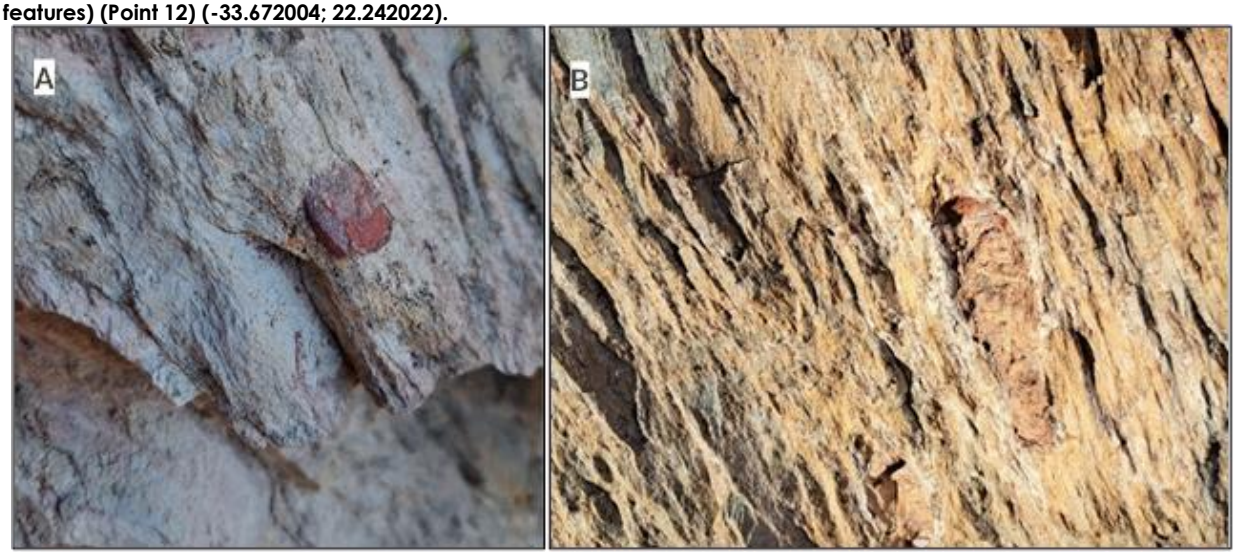


Figure 22. Palaeontological attributes identified within proximity to the proposed project.

The images below provide a visual representation of the fossils identified during the site visit:

Trace fossils - round shapes on surface may be of the Skilithos ichnofossil, with casts of bivalves (red oval shaped features) (Point 12) (-33.672004; 22.242022).

Invertebrate fossils - internal brachial valve of brachiopod. (-33.691704; 22.273171).



Sandstone unit containing A) bivalves and B) tube like fossils in the finer beds. (-33.689770; 22.267929)

Trace fossils – a) bivalves and b-c) possible Teichichnus (-33.691819; 22.273814)

Trace fossils and possible bivalves (bivalves red). Bivalves occurring as cast within the lithology. (-33.678214; 22.247971)

The specialist proposed a number of mitigation measures, which have been incorporated into both this report and the EMPr compiled for the proposed project.

7. HISTORICAL AND CULTURAL ASPECTS

Explain whether there are any culturally or historically significant elements as defined in Section 2 of the NHRA that will be affected and how has this influenced the proposed development.

According to the Notice of Intent to Develop as submitted by the Heritage Specialist (Submitted: 8 May 2023), the site holds the following features:

Places, buildings, structures, and equipment of cultural significance

There are many historical buildings in Oudtshoorn but very few were noted to occur along the N12. The nearest is about 60 m from the road. The N12 itself may be around 60 years old. It pre-dates 1964, but the large bridge over the Oliphants River is from the 1970s. The concrete culverts under the road may all be original (and likely older than 60 years) but are not significant heritage features. Although only a selection was examined (many were very difficult to access down steep slopes with thick bush and were not safely accessible or were located in areas with no place to stop safely), they all seemed to be built the same way suggesting that all the others are similar Their alteration is of no concern. Layering of tarmac suggested that the original road surface is still present but this, too, is not significant. Therefore, no significant Heritage impacts are anticipated with regard to the Cultural Heritage of the site.

Historical settlements and townscapes

Oudtshoorn is a historic settlement but the core part of town is far from the part of the N12 proposed for strengthening works. No significant impacts are anticipated with regard to the historical settlements and townscapes.

Landscapes and natural features of cultural significance and scenic importance

The Klein Karoo and Swartberg Mountains are generally scenic. The strengthening works will not change the character of the road and thus will not change people's perceptions of the aesthetic qualities of the surrounding environment. The N12 is regarded as a scenic route due to the aesthetic qualities of the environment through which it runs. However, because the road is already in existence and is a modern road, its alteration will not result in any character change that could affect the scenic route. Therefore, there will be no impact on the Cultural landscape of the area.

Further to this, a Heritage Impact Assessment was undertaken for the proposed development. Through this a number of features were identified by the appointed specialist. These features were not necessarily heritage concern; however, they do assist in understanding the history of the study area better. The locations of these features have been provided in the image below.

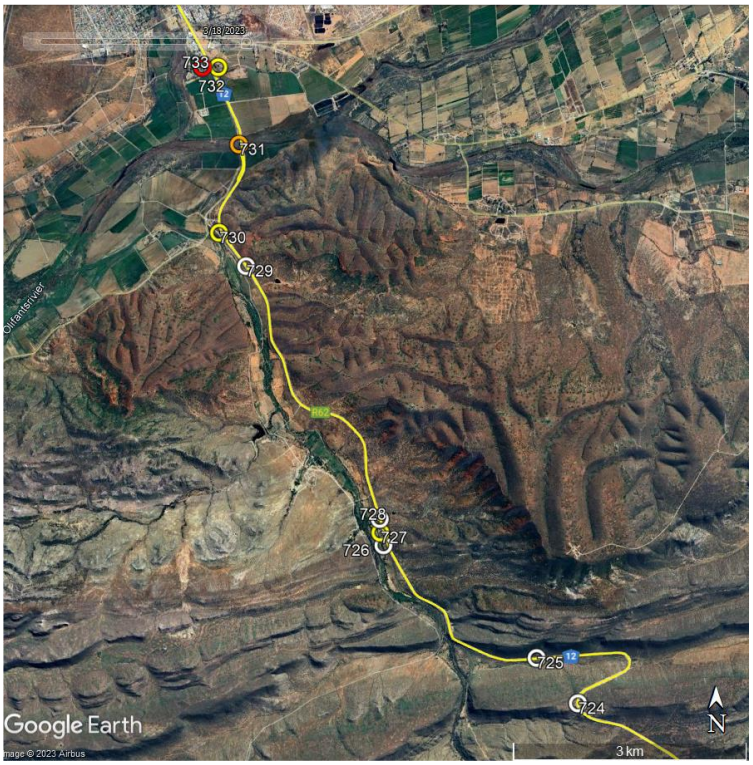


Figure 23. Features of Cultural Heritage Interest within proximity to the proposed project (per grade).

The features identified included:

- Accident markers;
- A number of culverts;
- A ruined cottage (which is located 60 m away form the road and will not be impacted upon);
- A house older than 60 years of age (which is located 44 m away from the road and will not be impacted upon); and
- Specific locations of the road infrastructure were highlighted by the specialist.

As concluded by the specialist, the grading of the resources observed on site can be done as follows:

- No archaeological resources were identified.
- The palaeontological resources are deemed to have medium cultural significance at the local level for their scientific value and can be **graded IIIB**.
- The built heritage resources (houses and the railway culverts) are deemed to have low to medium cultural significance at the local level for their architectural value. Most are either NCW or possibly **IIIC**, but the older railway and road bridges are considered at least **IIIB** and the likely ostrich place at waypoint 732 could be graded **IIIA**.
- The cultural landscape is largely a natural landscape with aesthetic value and is rated as having low cultural significance at the local level. It can be graded **IIIC**.

8. SOCIO/ECONOMIC ASPECTS

8.1.	Describe the existing social and economic characteristics of the community in the vicinity of the proposed site.

Demographic analysis

As per the Socio-Economic profile of the Garden Route District Municipality (2021), the average population growth rate from between 2013 and 2018 was 0.5%. The population projections for Oudtshoorn apply to the entire municipal area and not only for the town. More recently, revised population projections were undertaken for Oudtshoorn in 2018. This showed a stabilisation in population numbers and small decrease up until 2024. Currently Eden's population is growing slower than the Provincial Population (2.56%) but faster than the national average of 0.87%. At present, Oudtshoorn Local Municipality has an estimated population size of 95,933 with a population growth rate of 0.37% per annum. The population density of the municipality is the 4th largest in the District (26 people / km^2). Due to shrinking household size numbers the number of households are expected to grow from 23 065 households in 2018 to 24 569 households in 2030.

The total population is broken down into three different groups: Age 0 - 14: children; Age 15 - 65: working age population; Age 65+: seniors. The comparison with the base year (2011) and the estimated numbers for 2023 shows growth in all age cohorts with the highest growth in the working age population for Oudtshoorn.

The majority of Oudtshoorn's population is concentrated between the ages of 20 to 39, which is possibly reflective of an influx of young working professionals into the region (increased employment opportunities as a result of positive economic growth in the region). It is also noticeable that the population numbers in the older age categories remain relatively high in comparison to other districts.

The annual income for households is divided into three categories, namely the proportion of people that fall within the low, middle- and high -income brackets. Poor households fall under the low-income bracket, which ranges from no income to just over R50 000 annually (R4 166 per month). An increase in living standards can be demonstrated by a rising number of households entering the middle- and high-income brackets.

Approximately 55.8 percent of households fall within the low-income bracket, of which 9 percent have no income. Less than 50 percent of households fall within the middle to higher income categories, split between 43.7 percent in middle income group and 0.5 per cent in the higher income group.

Economic analysis

The regional gross domestic product of the Municipality amounted to R3.9 billion in 2013. The tertiary sector is boosted by the agricultural, forestry and fishing sector, the manufacturing sector and the financing and construction sectors. Finance, insurance, real estate and business services sector and the wholesale, retail trade, catering and accommodation sector. With the construction sector contributing 8% of the income into the municipality.

The local economy of the Oudtshoorn municipal area is driven by the Agricultural, forestry and fishing sector (17.3 percent), the manufacturing sector (12.4 percent), and the insurance, financing and construction sectors have a combined contribution of (26.4 percent), here the estimated GDPR growth rate of the municipality is 3.5 percent.

8.2.	Explain the socio-economic value/contribution of the proposed development.

During the construction phase a number of employment opportunities will be made available. These opportunities will allow for the development of transferable skills, specifically with regards to the following aspects of the road works:

- Traffic management
- Construction of drainage infrastructure
- Stone pitching cut-off drains
- Construction of guardrails and fencing
- Construction of stone masonry walls
- Installation of road signage

The proposed project will see to a capital contribution towards the infrastructure of the TR75/1 (Trunk Road 75/N12-Highway) of R127.3 million. This contribution will ensure a safer road for all users commuting along this road when traveling from Oudtshoorn to George.

8.3.	Explain what social initiatives will be implemented by applicant to address the needs of the community and to uplift the area.

Local labour and Small Micro Medium Enterprises (SMMEs) will be used during the construction phase of the proposed refurbishment activities. All employment opportunities will be granted in line with the Applicant's policies.

8.4.	Explain whether the proposed development will impact on people's health and well-being (e.g. in terms of noise, odours, visual character and sense of place etc) and how has this influenced the proposed development.

It is recognised that numerous features of cultural heritage and historical significance are located within the area, as the proposed project entails the refurbishment of existing road, and the works will predominantly remain within the existing reserve, the sense of place for the people regularly commuting along this road will not be imposed upon. The impacts (general) of the construction works will be of temporary nature and through mitigation, the impacts are expected to be insignificant to low.

Following the completion of the construction phase of the proposed project, there will be a significant improvement of the safety the road, providing road users with peace of mind whilst traveling along this portion of the road. This is considered a long term improvement to the road infrastructure.

SECTION H: ALTERNATIVES, METHODOLOGY AND ASSESSMENT OF ALTERNATIVES

1. DETAILS OF THE ALTERNATIVES IDENTIFIED AND CONSIDERED

1.1.	Property and site alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.

Provide a description of the preferred property and site alternative.

The following land parcels will be affected by the proposed project:

- Portion 5 of the Farm Wagenaars 166
- Remainder of the Farm Wagenaars 166
- Remainder of portion 31 of the Farm Klein Fontein 22
- Farm Wagenaars Kraal 251
- Remainder of the Farm Wagenaars Kraal Railway Reserve 167
- Portion 15 of the Farm Frischgewaagd 163
- Portion 17 of the Farm Frischgewaagd 163
- Portion 18 of the Farm Frischgewaagd 163
- Portion 20 of the Farm Frischgewaagd 163
- Portion 22 of the Farm Frischgewaagd 163
- Portion 24 of the Farm Frischgewaagd 163
- Portion 36 of the Farm Frischgewaagd 163
- Portion 39 of the Farm Frischgewaagd 163
- Portion 47 of the Farm Frischgewaagd 163
- Portion 48 of the Farm Frischgewaagd 163
- Portion 66 of the Farm Frischgewaagd 163
- Portion 68 of the Farm Frischgewaagd 163
- Portion 69 of the Farm Frischgewaagd 163
- Portion 70 of the Farm Frischgewaagd 163
- Remainder of the Farm Bakenskraal 239
- Portion 4 of the Farm Bakenskraal 239
- Portion 8 of the Farm Bakens Kraal 164
- Portion 9 of the Farm Bakens Kraal 164
- Remainder of the Farm Onverwag B 241
- Portion 10 of the Farm Onverwag 143
- Portion 29 of the Farm Onverwag 143
- Portion 53 of the Farm Onverwag 143
- Portion 62 of the Farm Onverwag 143
- Portion 90 of the Farm Onverwag 143
- Portion 92 of the Farm Onverwag 143
- Portion 94 of the Farm Onverwag 143
- Portion 106 of the Farm Onverwag 143
- Portion 127 of the Farm Onverwag 143
- Portion 207 of the Farm Onverwag 143

The zoning of the properties to be impacted upon have been identified as Agricultural Zone I and Transport Zone I. The proposed works will be predominantly located within the existing fenced area. The road TR75/1 is a proclaimed public road under the Roads Ordinance, 1976 (No 19 of 1976) (Proc No 267 dated 13 July). Please refer to Appendix E21 for the confirmation of existing land use rights.

The Figure below provides an overview of the affected land parcels. A detailed mapbook can be found as part of Annexure A3.

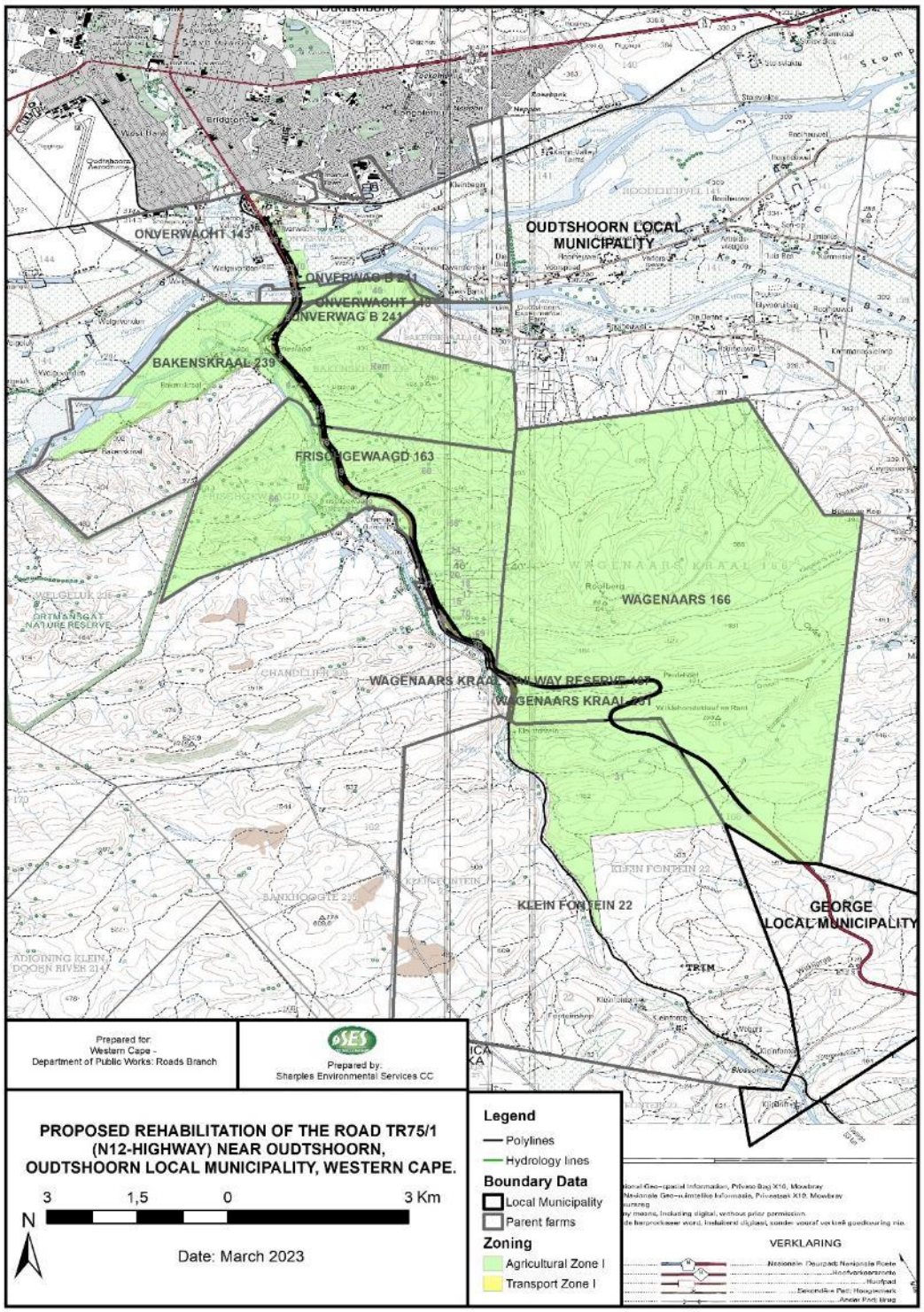


Figure 24. Zoning of the affected properties that overlaps with the existing road reserve (See Appendix A3).

Provide a description of any other property and site alternatives investigated.
No site alternative was brought forth for the purpose of the proposed road refurbishment project.
Provide a motivation for the preferred property and site alternative including the outcome of the site selectin matrix.
Based on the evaluation (done by Kantey & Templer Consulting Engineers), a need to refurbish the section of the Road TR75/1 under scrutiny for the purpose of this application, was identified. Site selection was done to remain on the existing road prism as far as practically possible. Where deep cuts and high fills are impacted, the option with the lesser impact was chosen and the alignment was marginally offset to widen only one cut face or fill slope where practically possible. This also allows for one property owner to be impacted and not widening the road by a small slither, but an economically sensible manner.

Provide a full description of the process followed to reach the preferred alternative within the site.

The preferred site alternative was obtained through verifications done by the consulting engineers (Kantey & Templer Consulting Engineers). The evaluation of the road and all associated infrastructure was done in order to inform the strength, safety and vulnerability of the road infrastructure. An investigation of the impact of the alternatives detailed above was undertaken. The resulting proposal was considered the most time and cost efficient.

Provide a detailed motivation if no property and site alternatives were considered.

Based on the status quo of this portion of the existing TR75/1 (Trunk Road 75/ N12-Highway), there was a need to strengthen and to do maintenance to the selected portion of the road. The strengthening and road management measures are required in order to improve the safety of the road as this is a highly trafficked roadway due to it being the direct link between two major towns in the Western Cape (George and Oudtshoorn). The safety of this portion of the road also has an indirect impact on numerous other sectors, including the tourism sector where a number of attractions within the proximity to Oudtshoorn relies on safe passage via this route to obtain access into the premises.

List the positive and negative impacts that the property and site alternatives will have on the environment.

Positive impacts on the environment:

- Risk to aquatic features were found to be low, after mitigation.
- Risk to terrestrial features was found to be medium-low, after mitigation.
- Opportunity for multiple employment opportunities for labour of various skill levels.
- The pipeline is the most feasible and reasonable option.
- Opportunity for alien invasive clearance in this area, and rehabilitation.
- Disturbance is temporary, and the area can be re-established within 2-years, except in forest environments.

Negative impacts on the environment:

- Indigenous vegetation will be lost.
- Impacts on palaeontological resources.
- Alien invasive encroachment due to disturbance.
- Temporary nuisances.
- Landowner negotiations to obtain servitudes within private land. The land will be expropriated, and the owners will be compensated.
- Potential disgruntled landowners.
- Access/traffic impacts

1.2.	Activity alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.

Provide a description of the preferred activity alternative.

The Department of Infrastructure: Transport Infrastructure Branch proposes to rehabilitate the road TR75/1 (Trunk Road 75/N12-Highway) near Oudtshoorn, Oudtshoorn Local Municipality, Garden Route District Municipality. The proposed works will be approximately 14.9km in length and will be located over a number of properties zoned as either Transport I or Agriculture I under the Oudtshoorn Municipal Land Use Scheme.

The strengthening works will include the widening of existing cut and fill slopes at select locations. This will require the reconstruction of the existing pavement, subbase and base layers and a new surfacing seal. The road will be widened and strengthened to accommodate a Class 3 cross-section (from the existing low order surfaced road - as described in this document) and will also include the construction of auxiliary lanes at select locations. The works will also include the works to select accesses to main and minor farm portions, as applicable. Further to these works, the maintenance of existing minor and major culvert inlet and outlet structures will be undertaken.

General maintenance to the culverts will include the repair of the cracks which have developed in the culverts and the scouring which has occurred. Specific to the road B4691 over the Olifants River including repair of honeycombing in the concrete and the replacement of bridge joints. Residual works associated with the project will include the construction of concrete lined drains, the installation of road signs, the painting of road markings, the installation of guardrails and the installation of fencing, including the clearing of vegetation along the fence line.

The figures below provide an overview of the activities required to successfully rehabilitate the road infrastructure with a thorough description of the proposed layout and design activities presented in 1.3 below.

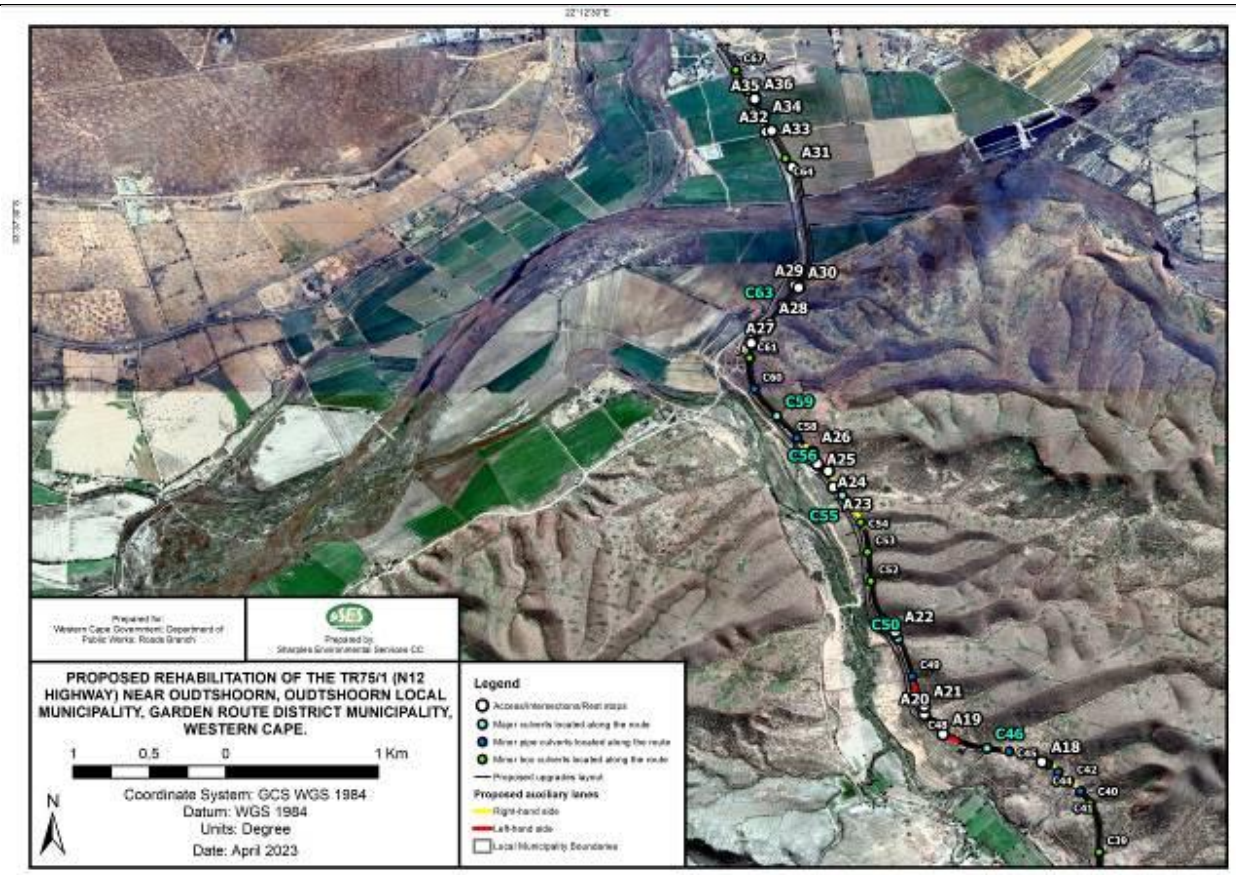


Figure 25. Location of proposed works as detailed in the specifications (North).

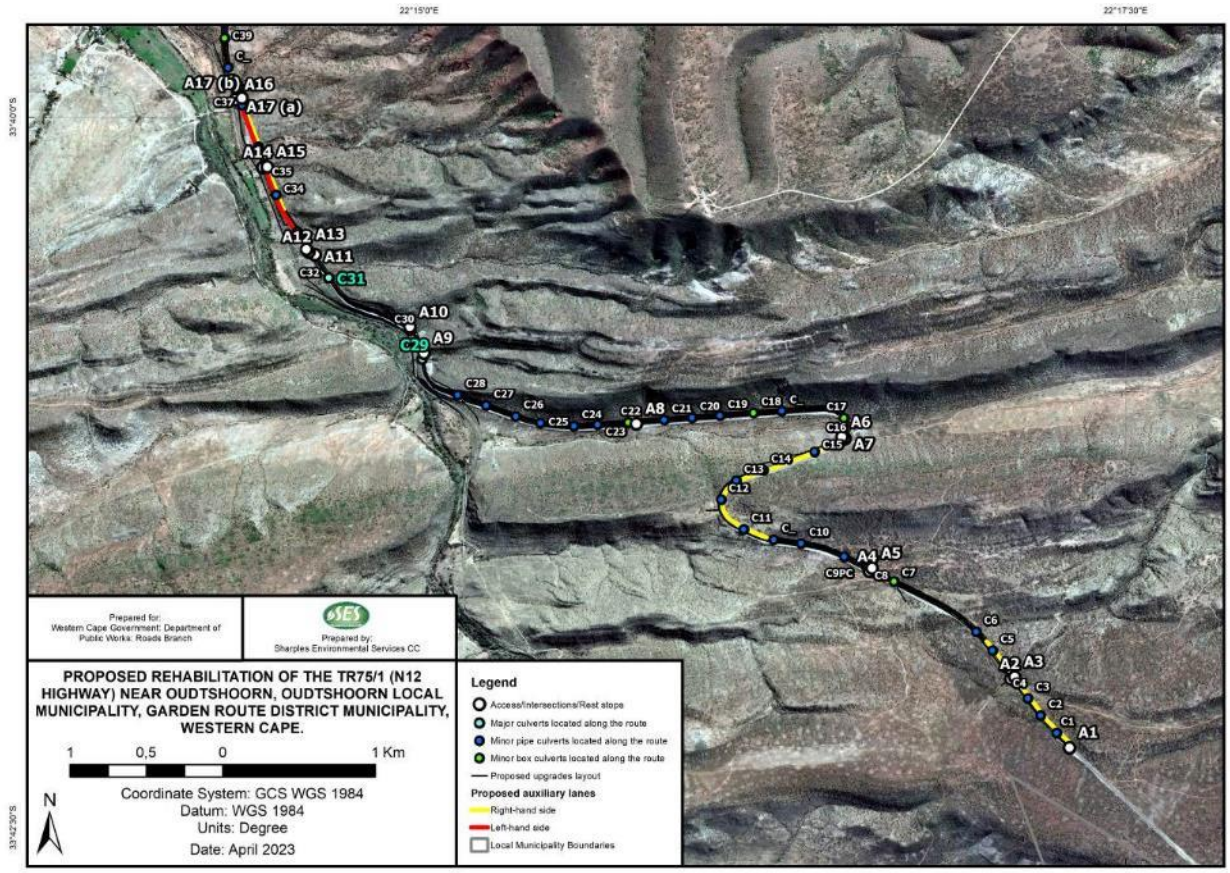


Figure 26. Location of proposed works as detailed in the specifications (South).

Provide a description of any other activity alternatives investigated.

No activity alternatives were investigated for purpose of the proposed project.

Provide a motivation for the preferred activity alternative.

Based on the status quo of the existing road, there is a need for the implementation of the works proposed in this proposal so as to improve the safety of the road. The proposal is also in line with all strategic planning documentation where the use and improvement to existing infrastructure is promoted in order to avoid additional impacts to the receiving environment.

Provide a detailed motivation if no activity alternatives exist.

The motivation for why there are no activity alternatives is similar to the reasoning for why the preferred activity alternative was proposed. Due to the safety hazard of the existing road infrastructure, there is a need to strengthen the portion of the road. As mentioned above, this proposal is in line with all strategic planning documentation where the use and improvement to existing infrastructure is promoted in order to avoid additional impacts to the receiving environment.

List the positive and negative impacts that the activity alternatives will have on the environment.

Positive impacts on the environment:

- Risk to aquatic features were found to be low, after mitigation.
- Risk to terrestrial features was found to be medium-low, after mitigation.
- Opportunity for multiple employment opportunities for labour of various skill levels.
- The pipeline is the most feasible and reasonable option.
- Opportunity for alien invasive clearance in this area, and rehabilitation.
- Disturbance is temporary, and the area can be re-established within 2-years, except in forest environments.

Negative impacts on the environment:

- Indigenous vegetation will be lost.
- Alien invasive encroachment due to disturbance.
- Potential impacts on palaeontological resources.
- Temporary nuisances.
- Landowner negotiations to obtain servitudes within private land.
- Potential disgruntled landowners.
- Access/traffic impacts

1.3.	Design or layout alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts

Provide a description of the preferred design or layout alternative.

As part of the proposed project, in addition to the general widening of the TR75/1 (Trunk Road 75/N12-Highway), the following structures are proposed to be installed/refurbished:

Additional lanes/auxiliary lanes

It is proposed to add additional lanes to portions of the TR75/1 (Trunk Road 75/N12-Highway). The table below indicates the portions of the road which will be widened for the purpose thereof.

Start Km	SES Map Ref	End Km	SES Map Ref	Extent (km)	Proposed works
28.38	L1(a)	27.74	L1(b)	0.64	Auxiliary lane on Right-hand side
26.70	L2(a)	26.14	L2(b)	0.56	Auxiliary lane on Left-hand side
25.96	L3(a)	25.46	L3(b)	0.5	Auxiliary lane on Right-hand side
24.86	L4(a)	23.84	L4(b)	1.02	Auxiliary lane on Right-hand side
24.70	L5(a)	23.55	L5(b)	1.15	Auxiliary lane on Left-hand side
19.94	L6(a)	18.70	L6(b)	1.24	Auxiliary lane on Right-hand side
17.36	L7(a)	16.50	L7(b)	0.86	Auxiliary lane on Right-hand side

Major Culvert Infrastructure

The engineers (Kantey and Templer) identified nine (9) major culverts which would require works to be done, of these 9 culverts, it was determined that three (3) of the culverts would not be required to be extended past their current footprints, two (2) would possibly require extension and four (4) would definitely require to be extended past the current project footprint. The major culverts identified included C29, C31, C36, C46, C50, C55, C56, C59 and C63.

The following management measures are required for the various major culverts:

- C29 (1 x 1.45m x 2.45m Box Culvert) (No extension required):
    - Repair of a crack on this culvert.
    - New invert slab to be installed with cut-offs.
    - The inlet pathway is to be cleared of boulders and debris.
- C31 (1x 2.40m x 2.40m Box Culvert) (No extension required):
    - New invert slab to be installed with cut-offs.
    - Vegetation clearance around culvert to take place.
    - Hazard signage or guardrails to be installed as required.

- C36 (1 x 2.50m x 2.50m Box Culvert) (To be extended on both sides due to establishment of road shoulder and the installation of an auxiliary lane).
    - Extension on both sides required and the wingwalls to be replaced.
    - Repair corroded rebar and spalling, and inject cracks if structural damage has occurred.
    - Vegetation clearance to take place around the culvert.
    - Hazard signage or guardrails to be installed as required.
- C46 (1 x 2.50m x 2.50m Box Culvert) (To be extended on the Right hand side only with the left side fill profile to be confirmed):
    - Grouted stone pitch will be installed at the wingwalls.
    - The embankments are to be shaped and trimmed.
    - The fencing is to be reinstated.
    - Hazard signage or guardrails to be installed as required.
- C50 (1 x 2.40m x 2.40m Box Culvert) (No extension required)
    - The wingwall stability is to be assessed and strengthened or tied back if necessary.
    - New invert slab to be installed with cut-offs.
    - Repair corroded rebar and spalling, and inject cracks if structural damage has occurred.
    - Vegetation clearance to take place around the culvert.
    - Hazard signage or guardrails to be installed as required.
- C55 (1 x 2.40m x 2.40m Box Culvert) (Extension on both sides required due to the establishment of the road shoulder and the installation of an auxiliary lane on both sides of the road).
    - Extension on both sides required.
    - New invert slab to be installed with cut-offs.
    - Hazard signage or guardrails to be installed as required.
- C56 (1 x 2.50m x 1.20m Box Culvert) (Extension on both sides required due to the establishment of the road shoulder and the installation of an auxiliary lane on both sides of the road).
    - Erosion protection measures to be used at the outlet.
    - Hazard signage to be installed.
- C59 (1 x 2.40m x 2.40m Box Culvert) (Possible extension of the left hand side)
    - Extension of the let hand side of the road.
    - Hazard signage or guardrails to be installed as required.
- C63 (1 x 2.40m x 1.20m Box Culvert (Possible extension on both sides required due to the establishment of the road shoulder and the installation of an auxiliary lane on both sides of the road).
    - Definite extension of the Right-hand side.
    - Hazard signage to be installed.

Minor Culvert infrastructure

The minor culverts included as part of the proposed works have been tabulated below.

Culvert name	Size and type	Proposed culvert works
C1	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Extend both inlet and outlet's headwall
C2	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Extend both inlet and outlet's headwall
C3	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Extend both inlet and outlet's headwall
C4	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Extend both inlet and outlet's headwall
C5	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Extend both inlet and outlet's headwall
C6	1 x 0.6m Pipe Culvert	• Headwall of the inlet to be formalised. • Outlet's headwall to be replaced
C7	1 x 1.20m x 1.20 m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet.
C8	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced.
C9	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced.
C10	2 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced.
	1 x 0.6m,	• The culvert infrastructure of both the inlet and the outlet to be extended. • Headwalls of both the inlet and outlet to be replaced.
C11	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Headwalls of both the inlet and outlet to be replaced.
C12	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Headwalls of both the inlet and outlet to be replaced.
C13	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Headwalls of both the inlet and outlet to be replaced.
C14	1 x 0.6m Pipe Culvert	• Extension on both sides of road required. • Headwalls of both the inlet and outlet to be replaced. • Construction of erosion protection measures at the outlet.
C15	1 x 0.45m Pipe Culvert	• Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced.
C16	1 x 0.6m Pipe Culvert	• Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced.

C17	1 x 1.80m x 1.20m Box Culvert	• The cracks and spalling to be sealed and repaired in both the inlet and outlets.
	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced.
C18	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Construction of erosion protection measures at the outlet.
C19	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced.
C20	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced.
C21	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced.
C22	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Cracks in the inlet to be sealed. • Construction of erosion protection measures at the outlet.
C23	1 x 0.6m Pipe Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Construction of erosion protection measures at the outlet.
C24	1 x 0.6m Pipe Culvert	• Debris to be cleared at both the inlet and outlet.
C25	1 x 0.6m Pipe Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Construction of erosion protection measures at the outlet.
C26	1 x 0.6m Pipe Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Construction of erosion protection measures at the outlet.
C27	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced. • Stone pitching at the outlet would possibly be required.
C28	1 x 0.6m Pipe Culvert	• Siltation and debris to be cleared at both the inlet and outlet.
C30	1 x 2.45m x 2.45m Box Culvert	• The cracks and spalling to be sealed and repaired in both the inlet and outlet. • Debris to be cleared at both the inlet and outlet.
C32	1 x 0.6m Pipe Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Headwalls of both the inlet and outlet to be replaced. • The waterway at both the inlet and outlet to be shaped.
C33	1 x 1.20m x 1.20m Pipe Culvert	• Inlet culvert to be extended. • Siltation, debris and vegetation to be cleared at both the inlet and outlet.
C34	2 x 0.6m Pipe Culvert	• Inlet and outlet to be extended. • The waterway at both the inlet and outlet to be shaped.
C35	1 x 1.20m x 1.20m Box Culvert	• Inlet and outlet to be extended. • The waterway at both the inlet and outlet to be shaped.
C37	2 x 0.6m Pipe Culvert	• Inlet and outlet to be extended. • The waterway at both the inlet and outlet to be shaped. • Construction of erosion protection measures at the outlet.
C38	1 x 1.80m x 1.80m Box Culvert	• Headwall of the inlet to be replaced. • Extension of the outlet required. • Reconstruction of the outlet's headwall required
	1 x 0.6m Pipe Culvert	• Inlet and outlet to be extended. • Headwalls of both the inlet and outlet to be replaced.
C39	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • The cracks and spalling to be sealed and repaired in the inlet. • Construction of erosion protection measures at the outlet.
C40	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet.
C41	2 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced. • Siltation, debris and vegetation to be cleared at the inlet. • Vegetation to be cleared and embankments of the waterway leading from the outlet to be shaped.
C42	1 x 1.20m x 1.20m Box Culvert	• Siltation to be cleared at the inlet. • The cracks on the inlet's wingwalls to be cleared. • The outlet culvert will be extended. • Scour protection at the outlet will be constructed; • Vegetation clearance in the waterway is required and the waterway will be shaped.
C43	1 x 0.6m Pipe Culvert	• Siltation, debris and vegetation to be cleared at both the inlet and outlet. • The embankments of the inlet and outlet to be shaped. • Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced.
C44	2 x 0.6m Pipe Culvert	• Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced.
C45	1 x 0.6m Pipe Culvert	• Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced. • Construction of erosion protection measures at the outlet.
C47	1 x 0.6m Pipe Culvert	• Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced. • The barrel of the outlet to be cleared of debris, siltation, and vegetation.
C48	2 x 0.6m Pipe Culvert	• Extension on both side of road required. • Headwalls of both the inlet and outlet to be replaced. • The barrel of the outlet to be cleared of debris, siltation, and vegetation.
C49	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced. • Debris in inlet waterway to be cleared and waterway to be shaped.

		• Debris and vegetation in outlet waterway to be cleared and waterway to be shaped.
C51	1 x 0.6m Pipe Culvert	• Headwalls of both the inlet and outlet to be replaced. • Debris in waterway to be cleared and waterway to be shaped.
C52	1 x 1.80m x 1.80m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Cracks in both the inlet and outlet to be sealed. • The wingwall joint of the outlet will be required to be reinstated (this could possibly require the replacement of the headwall in its entirety).
C53	1 x 1.20m x 1.20m Box Culvert	• Siltation, debris and vegetation to be cleared at both the inlet and outlet.
C54	1 x 2.00m x 1.20m Box Culvert	• Siltation, debris and vegetation to be cleared at both the inlet and outlet. • The culvert of both the inlet and outlet to be extended and the headwalls to be replaced. • Construction of erosion protection measures at the outlet.
C57	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet. • Cracks in both the inlet and outlet to be sealed. • The culvert of both the inlet and outlet to be extended and the headwalls to be replaced.
C58	1 x 0.6m Pipe culverts	• Clear debris and vegetation at both the inlets and outlets. • Waterway to be shaped at the outlet infrastructure.
C60	2 x 0.6m Pipe Culverts	• Clear debris and vegetation in the waterways at both the inlets and outlets. • Headwalls of both the inlet and outlet to be replaced. • Construct erosion protection measures at the outlet.
C61	1 x 1.20m x 1.20m	• Clear debris and vegetation at both the inlets and outlets. • The cracks and spalling to be sealed and repaired in both the inlet and outlets. • Headwalls of both the inlet and outlet to be replaced.
C62	2 x 0.6m Pipe Culverts	• Clear debris and vegetation at both the inlets and outlets. • Headwalls of both the inlet and outlet to be replaced.
C64	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet.
C65	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet.
C66	1 x 1.20m x 1.20m Box Culvert	• Siltation and debris to be cleared at both the inlet and outlet.
C67	1 x 1.80m x 1.20m Box Culvert	• No action required

Access roads into minor farm portions

As part of the proposed strengthening to the TR75/1 (Provincial name: Trunk Road 75), various access ways into minor farm portions and rest stops will be altered. The following work specifications have been provided for the minor farm portions and rest stop upgrades:

Km	SES Map Reference	Description	Type/Use frequency	Proposed action
16.50	A1	Public Formal Rest Area on Left-hand side	Gravel / Frequent	Formalize rest area
17.06	A2	Private Minor Access on Left-hand side (x2)	Gravel / Seldom	Reconstruct minor farm access
17.06	A3	Private Minor Access on Right-hand side	Gravel / Seldom	Reconstruct minor farm access
18.13	A4	Private Minor Access on Left-hand side	Gravel / Frequent	Reconstruct minor farm access
18.13	A5	Private Minor Access on Right-hand side	Gravel / Disused	Reconstruct minor farm access
19.92	A6	Private Minor Access on Left-hand side	Gravel / Seldom	Access to be closed (upon confirmation from DRE and the landowner)
19.92	A7	Private Minor Access on Right-hand side	Gravel / Frequent	Reconstruct minor farm access
21.20	A8	Private Major Access on Left-hand side	Gravel / Frequent	Construct major farm access as per standard plan
22.57	A9	Public Formal Rest Area on Right-hand side	Gravel / Frequent	Close rest area and reinstate road reserve
22.80	A10	Public Stopping Place on Right-hand side	Gravel / Frequent	Close rest area and reinstate road reserve
23.49	A11	Private Minor Access on Right-hand side	Gravel / Seldom	Reconstruct minor farm access

23.51	A12	Private Minor Access on Left-hand side	Gravel / Seldom	Reconstruct minor farm access
23.53	A13	Public Stopping Place on Left-hand side	Gravel / Frequent	Close rest area
24.09	A14	Private Major Access on Left-hand side	Gravel / Frequent	Construct major farm access as per standard plan
24.09	A15	Private Major Access on Right-hand side	Gravel / Frequent	Construct major farm access as per standard plan
24.59	A16	Private Major Access on Left-hand side	Surfaced / Frequent	Construct major farm access as per standard plan
24.67	A17(a)	Private Minor Access on Right-hand side	Gravel / Disused	Relocate this access to km 24.61 (opposite Chandelier) A17 (b)
25.72	A18	Private Minor Access on Left-hand side	Gravel / Disused	Access to be closed (upon confirmation from DRE and the landowner)
26.29	A19	Private Major Access on Left-hand side	Gravel / Frequent	Construct major farm access as per standard plan
26.46	A20	Private Minor Access on Left-hand side	Gravel / Seldom	Access to be closed (upon confirmation from DRE and the landowner)
26.50	A21	Private Minor Access on Right-hand side	Gravel / Disused	Access to be closed (upon confirmation from DRE and the landowner)
27.01	A22	Private Minor Access on Right-hand side	Gravel / Disused	Reconstruct minor farm access
28.01	A23	Public Formal Rest Area on Left-hand side	Gravel / Frequent	Close rest area and reinstate road reserve
28.14	A24	Private Minor Access on Right-hand side	Gravel / Seldom	Reconstruct minor farm access
28.22	A25	Private Major Access on Left-hand side	Gravel / Frequent	Construct major farm access as per standard plan
28.26	A26	Public Informal Rest Area on Right-hand side	Gravel / Frequent	Close rest area and reinstate road reserve
29.16	A27	Private Minor Access on Left-hand side	Gravel / Frequent	Reconstruct minor farm access
29.27	A28	Private Minor Access on Right-hand side	Gravel / Frequent	Reconstruct minor farm access
29.56	A29	Public Intersection (Left-hand side)	Surfaced / Frequent	To be resurfaced (as surfacing is in poor condition)
29.56	A30	Private Major Access on Right-hand side	Surfaced / Frequent	To be resurfaced (as surfacing is in poor condition)
30.35	A31	Private Minor Access on Right-hand side	Gravel / Disused	None
30.61	A32	Private Major Access on Left-hand side	Gravel / Frequent	Upgrade to main farm access as per standard plan
30.61	A33	Private Minor Access on Right-hand side	Gravel / Frequent	Install concrete edge beam
30.70	A34	Private Minor Access on Right-hand side	Gravel / Seldom	None – potentially disused
30.81	A35	Private Minor Access on Right-hand side	Gravel / Frequent	Install concrete edge beam
30.82	A36	Private Minor Access on Right-hand side	Gravel / Frequent	Install concrete edge beam

Provide a description of any other design or layout alternatives investigated.

The current road class is a low order surfaced road, and is proposed to be upgraded to a Class 3 road with a portion (between km 29.44 and 31.22) classified as Class 1. As a design alternative that holds relevance to the proposed project, the establishment of the various road classes (Class 1, 2 or 3) throughout the length of the project was investigated.

However, as indicated in Section 5 of Appendix L1 of the BAR, further reclassing of the road (from Class 3 to a Class 2/1 for example) would require realignment of the existing road, and would have a significantly larger impact on the environment. This was not considered alternatives as realignment and / or a further Class upgrades have significant impacts to the project cost and are not considered feasible.

The table below provides an indication of the ground truthing requirements for the various Class alternatives investigated (should the Class be translated throughout the entirety of the portion of the road under consideration as part of the proposed project).

	Road cross section		
	Class 3	**Class 2**	**Class 1**
Total Cut (m³)	24 512	36 235	53 359
Total Fill (m³)	21 731	25 079	31 467
Excess cut (m³)	2 781	11 156	21 892

Retaining Structure (m)	80	310	530
Expropriation Area (ha) (approximate)	0.7	1.0	1.5
Major culverts impacted	7 out of 9	9 out of 9	9 out of 9
Impact on services	Minor	Vast realignment	Vast realignment

The principle of an increased impact corresponding with an increased surfaced width can be drawn from the table. The existing road prism varies in width over the length of the road. The gravel shoulder can be as narrow as 0.6m through cuttings or as wide as 2.0m on low height fills. Consequently, the increased width of a Class 2 and Class 1 cross section impacts significantly on the volume of excess material generated.

The Class 2 and Class 1 cross sections result in long lengths of retaining structures being required at high fills.

The variance of the expropriation areas is seemingly negligible when comparing the various options, especially considering the surrounding land use and value. Nine existing major culverts are located between km 16.50 and km 29.44. The introduction of the auxiliary lanes necessitates the extension of three major culverts, while the introduction of a Class 3 cross section requires the extension of four additional major culverts. A Class 2 and Class 1 cross section will require the extension of all major culverts.

Only Telkom overhead services running parallel to the road reserve were observed during the inspection undertaken during the inception stage of the project. It is believed that this is the fibre optic line connecting Oudtshoorn and George. Relocation of this line would not be required for the Class 3 cross section, with vast relocations for the Class 2 and Class 1 cross sections.

For the purpose of this BAR, the proposed design alternative was evaluated against the implementation of a Class 1 road.

Provide a motivation for the preferred design or layout alternative.

Based on the evaluation done by Kantey & Templer Consulting Engineers), a need to refurbish the section of the Road TR75/1 under scrutiny for the purpose of this application, was identified.

The site selection matrix was not used for the purpose of the proposed development as no site locations have been considered.

Provide a detailed motivation if no design or layout alternatives exist.

The preferred activity alternative was obtained through verifications done by the consulting engineers (Kantey & Templer Consulting Engineers). The evaluation of the road and all associated infrastructure was done in order to inform the strength, safety and vulnerability of the road infrastructure.

List the positive and negative impacts that the design alternatives will have on the environment.

Preferred (As proposed)

Positive impacts on the environment:

- Risk to aquatic features were found to be low, after mitigation.
- Risk to terrestrial features was found to be medium-low, after mitigation.
- Opportunity for multiple employment opportunities for labour of various skill levels.
- The design approach is the most economically feasible and reasonable option.
- Opportunity for alien invasive clearance in this area, and rehabilitation.
- Disturbance is temporary, and the area can be re-established within 2-years.

Negative impacts on the environment:

- Indigenous vegetation will be lost.
- Alien invasive encroachment due to disturbance.
- Potential impacts on palaeontological resources.
- Temporary nuisances.
- Landowner negotiations to obtain servitudes within private land.
- Potential disgruntled landowners.
- Access/traffic impacts

Alternative Design (Class 1)

Positive impacts on the environment:

- Opportunity for multiple employment opportunities for labour of various skill levels.
- Opportunity for alien invasive clearance in this area, and rehabilitation.
- Disturbance is temporary, and the area can be re-established within 2-years.

Negative impacts on the environment:

- An increased amount of indigenous vegetation will be lost.
- Alien invasive encroachment due to disturbance.
- Increased significance in potential impacts on palaeontological resources.
- Temporary nuisances.
- Landowner negotiations to obtain servitudes within private land (increased capital expenditure due to increased land acquisition demands).
- Potential disgruntled landowners.
- Access/traffic impacts
- The design approach is the least economically feasible and reasonable option.
- Significant impacts on the aquatic features.
- Risk to terrestrial features, including habitats and SCCs, due to the increased servitude demand (due to realignment of the road).
- Agricultural Resources would be impacted upon.

1.4.	Technology alternatives (e.g., to reduce resource demand and increase resource use efficiency) to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.

Provide a description of the preferred technology alternative:

No technology alternatives are applicable to the proposed project. All construction materials, designs and methodologies to be adopted on site are considered to be the best practicable measures to promote the integrity of the proposed works.

Provide a description of any other technology alternatives investigated.

Provide a motivation for the preferred technology alternative.

Provide a detailed motivation if no alternatives exist.

List the positive and negative impacts that the technology alternatives will have on the environment.

1.5.	Operational alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.

Provide a description of the preferred operational alternative.

As the proposal relates to an existing road, the preferred operational alternative is the continued use of the TR75/1 (Trunk Road 75/N12-Highway) as a major passageway between Oudtshoorn and George.

Provide a description of any other operational alternatives investigated.

No operational alternatives were investigated for the proposed project.

Provide a motivation for the preferred operational alternative.

The proposed project will see to the upliftment of existing infrastructure within the Oudtshoorn Local Municipality. This form of capital expenditure is supported by Policies and Strategies of the Municipal IDP and SDP, the District IDP and the Provincial EMF.

Provide a detailed motivation if no alternatives exist.

Similar to the motivation for the preferred operational alternative, the strategic planning for the area supports the reinstatement of existing infrastructure. This will allow for the sustainable use of the landscape and infrastructure assets already available within the province.

List the positive and negative impacts that the operational alternatives will have on the environment.

Positive impacts on the environment:

- Risk to aquatic features were found to be low, after mitigation.
- Risk to terrestrial features was found to be medium-low, after mitigation.
- Opportunity for multiple employment opportunities for labour of various skill levels.
- The pipeline is the most feasible and reasonable option.
- Opportunity for alien invasive clearance in this area, and rehabilitation.
- Disturbance is temporary, and the area can be re-established within 2-years, except in forest environments.

Negative impacts on the environment:

- Indigenous vegetation will be lost.
- Alien invasive encroachment due to disturbance.
- Potential impacts on palaeontological resources.
- Temporary nuisances.
- Landowner negotiations to obtain servitudes within private land.
- Potential disgruntled landowners.
- Access/traffic impacts

1.6.	The option of not implementing the activity (the 'No-Go' Option).

Provide an explanation as to why the 'No-Go' Option is not preferred.

The No-Go option of the proposed development would be for the TR75/1 road (Trunk Road 75/ N12-Highway) to remain as is, with no refurbishments/extensions or improvements done to the road. Therefore, the safety risks associated with the status quo remains as is adding to the heightened potential for accidents to occur along this route. Additionally, the economic benefits of capital contributions to infrastructure and socio-economic benefits of the employment opportunities to be created during the construction phase of the proposal.

1.7.	Provide and explanation as to whether any other alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist.

Due to the need of this project, no other alternatives were considered. This is due to the need for the portion of the road to be strengthened to ensure the safety of the road for all users thereof. At current, this would be considered a safety hazard for commuters frequenting the portion of the road between Oudtshoorn and George, but also those traveling to the tourist attractions relying on this road for access into their facilities (such as the Chandelier lodge).

1.8.	Provide a concluding statement indicating the preferred alternatives, including the preferred location of the activity.
The preferred location, site and layout alternative is considered the preferred alternative for the purpose of approving the proposed project as the measures proposed will lead to increased safety aspect of the road.	

2. "NO-GO" AREAS

Explain what "no-go" area(s) have been identified during identification of the alternatives and provide the co-ordinates of the "no-go" area(s).
Although numerous areas of high sensitivity were raised (by both the aquatic biodiversity specialist and the terrestrial biodiversity and plant specialist), it is recognised that impacts on these areas are unavoidable. The areas beyond the working areas stipulated in this report will be considered no-go areas, with the fence line demarcating the maximum boundary of the site, unless where otherwise required.

3. METHODOLOGY TO DETERMINE THE SIGNIFICANCE RATINGS OF THE POTENTIAL ENVIRONMENTAL IMPACTS AND RISKS ASSOCIATED WITH THE ALTERNATIVES.

Describe the methodology to be used in determining and ranking the nature, significance, consequences, extent, duration of the potential environmental impacts and risks associated with the proposed activity or development and alternatives, the degree to which the impact or risk can be reversed and the degree to which the impact and risk may cause irreplaceable loss of resources.

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

The impacts have henceforth been determined through the following parameters:

- The **extent** of the anticipated impact.
- The **duration** for which the impact will be exercised.
- The **probability** of occurrence of the anticipated impact.
- The **significance** of the anticipated impact.
- How **reversible** the anticipated impact would be.
- How **mitigable** the anticipated impact would be.
- The **degree of loss** of the resources.
- The **cumulative impact** of the anticipated aspect.
- The significance of the **consequence** of the aspect.

Determination of the Extent (Scale)	
Site specific	On site or within 100m of the site boundary, but not beyond the property boundary
Local	The impacted area includes the whole or a measurable portion of the site and property, but could affect the area surrounding the development, including the neighbouring properties and wider municipal area.
Regional	The impact would affect the broader region (e.g. neighbouring towns) beyond the boundaries of the adjacent properties.
National	The impact would affect the whole country (if applicable)

Determination of Duration	
Temporary	The impact will be limited to the construction phase
Short term	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than 8 months after the completion of the construction phase.
Medium term	The impact will last up to the end of the construction phase, where after it will be entirely negated in a period shorter than 3 years after the completion of construction activities.
Long term	The impact will continue for the entire operational lifetime of the development, but will be mitigated by direct human action or by natural processes thereafter.
Permanent	This is the only class of impact that will be non-transitory. Such impacts are regarded to be irreversible, irrespective of what mitigation is applied.

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

Determination of Significance (without mitigation)	
No significance	The impact is not substantial and does not require any mitigation action.
Low	The impact is of little importance but may require limited mitigation.
Medium	The impact is of sufficient importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impact to acceptable levels.
Medium-High	The impact is of high importance and is therefore considered to have a negative impact. Mitigation is required to manage the negative impacts to acceptable levels.
High	The impact is of great importance. Failure to mitigate with the objective of reducing the impact to acceptable levels could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.

Very High	The impact is critical. Mitigation measures cannot reduce the impact to acceptable levels. As such the impact renders the proposal unacceptable.

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

Determi9nation of Reversibility	
Completely Reversible	The impact is reversible with implementation of minor mitigation measures
Partly Reversible	The impact is partly reversible but more intensive mitigation measures
Barely Reversible	The impact is unlikely to be reversed even with intense mitigation measures
Irreversible	The impact is irreversible, and no mitigation measures exist.

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

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

Determination of Cumulative Impact	
Negligible	The impact would result in negligible to no cumulative effects.
Low	The impact would result in insignificant cumulative effects.
Medium	The impact would result in minor cumulative effects.
High	The impact would result in significant cumulative effects.

Determination of Consequence significance	
Negligible	The impact would result in negligible to no consequences.
Low	The impact would result in insignificant consequences.
Medium	The impact would result in minor consequences.
High	The impact would result in significant consequences.

4. ASSESSMENT OF EACH IMPACT AND RISK IDENTIFIED FOR EACH ALTERNATIVE

Note: The following table serves as a guide for summarising each alternative. The table should be repeated for each alternative to ensure a comparative assessment. The EAP may decide to include this section as Appendix J to this BAR.

Alternative:	**Preferred Design (Class 3)**	**Alternative Design (Class 1)**	**No-Go Alternative**
PLANNING, DESIGN AND DEVELOPMENT PHASE			
Potential impact and risk:	**Compliance with legislative requirements** The proposed works are subject to a number of approvals and permits from various spheres of the environment. Commencement of activities without all relevant permits/permissions/approvals including registered servitudes, permits to remove specific vegetation, etc. as well as commencing without implementation of specialist recommendations, including search and rescue, and compliance with EMPr pre-construction activities, can result in penalties, time delays and excessive costs. All stemming from poor planning. Climate change considerations need to be addressed at this stage, and where possible, adaption/mitigation measures found to be feasible must be integrated into the final design/planning during construction, and financial provision must be made where necessary. Dependent on the scope of the alternative design (location/alignment, etc), the scale of the project would likely increase as a complete re-alignment would be required, with additional land acquisition concerns and possibly extended environmental processes to be followed.		No change in the status quo
Nature of impact:	Negative	Negative	No impact
Extent and duration of impact:	Local / Short to medium term	Regional / Medium to Long term	
Consequence of impact or risk:	Non-compliance with the relevant approvals • Penalties or fines to be issued		
Probability of occurrence:	Low	Moderate	
Degree to which the impact may cause irreplaceable loss of resources:	Low	Moderate	
Degree to which the impact can be reversed:	Reversible	Reversible	
Indirect impacts:	Increased traffic impacts as a result of the status quo of the existing infrastructure.		
Cumulative impact prior to mitigation:	Low	Medium	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium**	**Medium-High**	
Degree to which the impact can be avoided:	High	High	

Degree to which the impact can be managed:	High (can be managed)	High	
Degree to which the impact can be mitigated:	High (can be mitigated)	High	
Proposed mitigation:	General mitigation: • Ensure programme of works is planned accordingly and includes recommended measures where necessary, such as implementing search and rescue activities. • Ensure financial allowances are made for the recommended measures, such as search and rescue plans, rehabilitation, etc. • Ensure all relevant permits/licenses/approvals are in place and are valid prior to commencing with works. • Ensure that the Contractor has accepted the approved EMPr and Environmental Authorization (and any other relevant permits/licenses, etc), as a part of their Tender Document, to ensure that they are fully aware of their responsibilities in terms of the implementation of these documents. • Ensure that the Contractor provides method statements for activities intended to be undertaken, and these are checked and approved by the ECO as well as the Engineer. • Inform ECO of planned works ahead, so as to ensure inductions are undertaken timeously. • Involve ECO in selection of site camp location. Following the Public Participation Process, the following design specifications need to be taken into account: • Upon detailed design phase, additional signage is to be included to enhance the safety of the road. These safety signs include, but are not limited to the inclusion of road junction signs indicating major access roads into existing establishments. Climate Change Considerations including adaption, must be integrated into the final design, and mitigation must be integrated into the construction scope of works, where necessary, all financial provision must be made: • Daily assessment of weather conditions should be completed during construction stage, to ensure conditions are viable for labourers to be working outside (ie: temperatures are not excessive). • Potable water should be available for consumption during construction, to keep labourers hydrated. • Ensure that a safety officer is always on site and ensuring that working conditions are acceptable and safe. • Implement rainwater capturing system for temporary storage of water to be utilized for washing tools, etc. • Utilize hand sanitizer for washing hands. • Request that labour use their own water bottles, to be filled up, rather than drinking from taps. • Increase fire risk: o Position fire safety equipment at all proposed reservoir sites. o Establish non-smoking signage at all reservoir and pump station sites, to remind maintenance teams that this activity must be avoided. o During development fires should be strictly prohibited, smoking must be discouraged on site. (If the Contractor allows this activity there must be a designated area within the site camp, with an appropriate bin to contain discarded cigarettes, with an appropriately heavy cover, only permitted within the site camp where it can be controlled) No smoking is permitted within the working corridor.		

	○ If security is positioned on site, at night, they must be briefed on fire hazard risks. ○ During construction no uncontrolled fires are allowed. ○ Ensure emergency numbers are readily available with a working cell-phone on site, and if construction teams are split, the foreman responsible for each team is to ensure that he has these emergency numbers, and can contact emergency services immediately.		
Residual impacts:	None	Due to extended timeframes, the status quo of the roadway remains as is for the foreseeable future.	
Cumulative impact post mitigation:	Low	Medium	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Medium (-)**	No impact
Potential impact and risk:	**Site establishment and Pre-construction activities** Poor site establishment can lead to long-term issues on site. Failure to appropriately designate working corridors can result in works exceeding the approved assessed footprint, resulting in non-compliance and potentially penalties and delays.		
Nature of impact:	Negative	Negative	No change to the status quo of the site
Extent and duration of impact:	Local and short-medium term	Local and short-medium term	
Consequence of impact or risk:	• Site camp location may create issues and can lead to additional listed activities. • Non-compliance with approved documentation.		
Probability of occurrence:	Low	Low	
Degree to which the impact may cause irreplaceable loss of resources:	Low	Low	
Degree to which the impact can be reversed:	Reversible	Reversible	
Indirect impacts:	Penalties, fines and time delays	Penalties, fines and time delays	
Cumulative impact prior to mitigation:	Medium	Medium	
Significance rating of impact prior to mitigation (e.g. Low, Medium,	**Medium**	**Medium**	

Medium-High, High, or Very-High)			
Degree to which the impact can be avoided:	High	High	
Degree to which the impact can be managed:	High (can be managed)	High (can be managed)	
Degree to which the impact can be mitigated:	High (can be mitigated)	High (can be mitigated)	
Proposed mitigation:	General: • Inform ECO of planned works ahead, so as to ensure inductions are undertaken timeously. • Involve ECO in selection of site camp location. • Ensure all labour and sub-contractors undergo environmental inductions. • Ensure flora permits are in place timeously (PNCO only) – allow at least 1 or 2 months before commencement. • Environmental Awareness and training (EAT) – Ensure all labour are informed and plant operators are aware of risks, issues, dos and don'ts and no-go areas. Landowners; • Notify landowners of the construction programme to ensure that they are aware that construction activity may bring about delays/obstructions as well as ensuring that they are aware of any risks. • Ensure clear signage is erected on the access road. • Ensure that landowners are notified before private roads are crossed and this is done in a timeous and practical manner in order to ensure access is always available. Site Camp Establishment: • Ensure site selected is inspected and approved by ECO. • Utilize disturbed or transformed areas for site camp establishment. • Ensure the site camp is positioned on a levelled area and is easily accessible. • Ensure site camp is fenced off with appropriate fencing and shade cloth, to block out activities within. • Ensure access to site is at one point, unless to existing points of entry/exit are identified. • Ensure access onto site is controlled. • Ensure there is 24hr security. • Designate specific areas for specific purpose, including storage areas, machinery storage areas, parking areas, waste disposal areas, etc. • Ensure an Environmental File is established on site that remains on site for the duration of construction, for auditing purposes. This file should contain as a minimum: - Copies of audit reports. - Copies of disposal/cleaning slips related to waste disposal at a registered waste disposal site and from company appointed to clean toilets. - Copies of purchase orders for rehabilitation material etc. - Copies of all approvals, including: Environmental Authorization, EMPr, and any other license/permit/approval. - Incident register. - Complaints register.		

	- Copies of induction registers. • Infographics must be available on site in public areas, including information on safety measures, potential harmful fauna (ie. snakes common to the areas, and emergency contact information, including, but not limited to: Snake catchers, Ambulance; Fire Department; the closest hospital, veterinarian (ie: for anti-venom, etc). • Must contain a spill-kit. • Plan positioning of Potable Toilets for labour working along the route. • Consider designating a vehicle for the transportation of labourers to toilets> the vehicle can be equipped with a spill-kit. • Clean potable water must be available to workers on site during construction. • Potable Toilets: - Ensure toilets are positioned on levelled areas and are protected from wind and rain that could result in them blowing over and spilling waste contents. - Ensure toilets are positioned at least 32m's from any watercourse. - Ensure toilets are rented from a registered company, with whom arrangements should be made for cleaning of these toilets on a weekly basis. - Disposal slips/cleaning slips from this company must be obtained following every cleaning and must be filed in the Environmental File. - Ensure an adequate quantity of toilets are provided at each working area. • Hazardous substances including oil/fuel etc. should be: - Stored in bunded areas, on hardened/impermeable surfaces, where the barrels/drums/containers are protected from the natural elements. - Appropriate signage indicating hazardous/flammable materials are stored. - A fire extinguisher and contact details for the fire department and other emergency numbers must be positioned in close proximity. - May only be decanted/filled on the aforementioned surface. - Must be disposed of as hazardous waste, at an appropriately registered facility. Waste Management: • Designate areas for temporary waste storage, this area should be: o Protected from wind/rain displacement. o Should be on a levelled surface. o An appropriate number of skips/bins must be made available on site, to accommodate the various types of waste generated, as waste must be separated. o Ensure weighted covers are positioned on skips/bins, to ensure that animals cannot get into the bins as well as to avoid waste dispersion. o Label bins appropriately. o Ensure that the nearest appropriate waste disposal facility is identified and ensure that disposal is undertaken when waste has reached 75% capacity of the bin/skip.	

	○ Waste containers for general waste and hazardous waste must be disposed in appropriate and clearly marked containers and kept in a designated area/s. • No waste/excavated soil/ etc. intended to be removed from site may remain on site for more than 90-days. • Ensure waste receptacles are available where works are being undertaken, this can take the form of black bin bags, etc. however it must: • Be sufficient to hold the waste without tearing/spilling. • It must be removed from working area on a daily basis and re-established at the start of every day, when works occurs in that area. • Request that the foreman responsible for the labour team in a specific area, is responsible for ensuring that this waste receptacle is utilized, removed and established daily. Working Corridor: • Designate working corridor, where possible and especially in sensitive areas (ie. forest areas and watercourses/riparian areas), utilize the smallest possible working corridor. • Utilize a physical barrier to indicate the extent of the working corridor, ie. poles and mesh fencing. • Refer to EMPr for areas indicated as very sensitive, to ensure that the working corridors in these areas are reduced as much as possible. • Ensure the search and rescue plan (of both the plant SCC species where potentially affected and the palaeontological receptors) is undertaken, prior to the commencement of construction activities.		
Residual impacts:	None	None	
Cumulative impact post mitigation:	Low	Low	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Low (-)**	No impact
Potential impact and risk:	**Aquatic impact: Impact of stormwater management structures** Poor planning of construction of stormwater management structures could lead to increased erosion of watercourses.		
Nature of impact:	Negative	Negative	No impact
Extent and duration of impact:	Site specific / Permanent	Local / Permanent	
Consequence of impact or risk:	Disturbance of surface water flow patterns		
Probability of occurrence:	Highly probable	Definite	
Degree to which the impact may cause	Low	Medium	

irreplaceable loss of resources:			
Degree to which the impact can be reversed:	Reversible	Irreversible	
Indirect impacts:	Disruption of down stream flow of water	Disruption of watercourse functions	
Cumulative impact prior to mitigation:	Moderate	High	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Moderate	High	
Degree to which the impact can be avoided:	High (can be avoided)	High (can be avoided)	
Degree to which the impact can be managed:	High (can be managed)	High (can be managed)	
Degree to which the impact can be mitigated:	High (can be mitigated)	High (can be mitigated)	
Proposed mitigation:	<u>Specialist mitigation</u> • No drop in height should occur between the downstream invert of a culvert and the watercourse bed to avoid erosion caused by high flows. • Methods to disperse flows and reduce flow velocities on culvert outflows must be implemented. • Erosion protection (e.g. stone pitching) must be implemented in channels that convey stormwater off the road and into watercourses.		
Residual impacts:	None	Permanent disruption of watercourse function	
Cumulative impact post mitigation:	Low	High	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Negligible (-)**	**High (-)**	No impact
CONSTRUCTION PHASE			
Potential impact and risk:	**Impact on Agricultural Resources** Based on the compliance statement provided by the Agricultural Specialist, there will be no significant impact on the Agricultural resources of the area. This is due to the absence of cultivated land within the footprint of the proposed development site. Agricultural land use is mostly grazing with some pasture crops in the northern part. The proposed footprint of the development however does not impinge anywhere on these pasture croplands. Through the implementation of the design alternative, the road will be required to be realigned and a significantly wider reserve will be required. Therefore, there will be an impact on the active croplands located within proximity to the roadworks.		
Nature of impact:	Negative	Negative	No impact

Extent and duration of impact:	Site specific / short term	Local / Permanent	
Consequence of impact or risk:	Loss of agricultural resources		
Probability of occurrence:	Improbable	Definite	
Degree to which the impact may cause irreplaceable loss of resources:	Marginal loss of resource	Significant loss of resource	
Degree to which the impact can be reversed:	Completely reversible	Irreversible	
Indirect impacts:	None	None	
Cumulative impact prior to mitigation:	Negligible	Low	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Negligible	Low	
Degree to which the impact can be avoided:	High	Low	
Degree to which the impact can be managed:	High	Medium	
Degree to which the impact can be mitigated:	High	Low	
Proposed mitigation:	Agricultural Specialist recommendation: No mitigation measures proposed. General mitigation: • A minimum footprint approach must be followed for the purpose of the works associated with the proposal.		
Residual impacts:	None	Active croplands will be lost due to the realignment of the road.	
Cumulative impact post mitigation:	Negligible	Medium	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Negligible (-)**	**Low (-)**	No impact
Potential impact and risk:	**Cultural landscape impact:** The rural landscape may be negatively affected by the construction work.		

Nature of impact:	Negative	Negative	No impact expected (neutral)
Extent and duration of impact:	Local / Short term	Local / Long term	
Consequence of impact or risk:	Alteration of the cultural landscape.		
Probability of occurrence:	Definite	Definite	
Degree to which the impact may cause irreplaceable loss of resources:	Marginal loss of resource	Marginal loss of resource	
Degree to which the impact can be reversed:	Mostly Reversible	Mostly Reversible	
Indirect impacts:	None identified.	None identified.	
Cumulative impact prior to mitigation:	Low	Medium	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	Medium	
Degree to which the impact can be avoided:	Medium (Avoidable)	Low	
Degree to which the impact can be managed:	Medium (Can be partially managed)	Medium	
Degree to which the impact can be mitigated:	Medium (Can be mitigated)	Medium	
Proposed mitigation:	Specialist recommendation: • Clearance of natural vegetation must be minimised. • Cuts and fills and landscape scarring in general must be minimised. • All disturbed areas not needed during operation of the road must be rehabilitated. • If any archaeological material, fossils, or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist or palaeontologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.		
Residual impacts:	None	None	
Cumulative impact post mitigation:	Low	Medium	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Medium (-)**	No impact expected (neutral)

Potential impact and risk:	**Palaeontological impact:** There were a number of paleontologically sensitive receptors identified within the road reserve.		
Nature of impact:	Negative	Negative	No impact expected (neutral)
Extent and duration of impact:	Site Specific / Permanent	Local / Permanent	
Consequence of impact or risk:	Loss of palaeontological resources of significance.		
Probability of occurrence:	Probable	Definite	
Degree to which the impact may cause irreplaceable loss of resources:	Marginal loss of resource	Significant loss of resource	
Degree to which the impact can be reversed:	Reversible	Reversible	
Indirect impacts:	None identified.	None identified	
Cumulative impact prior to mitigation:	Medium	Medium	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High	Very High	
Degree to which the impact can be avoided:	High (Avoidable)	High (Avoidable)	
Degree to which the impact can be managed:	Medium (Can be partially managed)	Medium (Can be partially managed)	
Degree to which the impact can be mitigated:	High (Can be mitigated)	High (Can be mitigated)	
Proposed mitigation:	Specialist recommendation: • Fossils will be required to be extracted; • A realistic monitoring programme for the palaeontologically sensitive areas of the road strengthening must be compiled by a professional palaeontologist. • The beforementioned specialist will require an HWC-approved Workplan for the collection of palaeontological materials and must conform to international best practice for palaeontological fieldwork and the study (e.g., data collecting, collecting of fossil as well as report writing) should meet the minimum standards for Phase 2 palaeontological studies suggested by HWC. • Feedback from Heritage Western Cape must be received regarding this aspect. General: • A Chance of Find protocol must be implemented on site throughout the construction phase of the proposed project. • A search and rescue of fossils is required prior to site establishment.		

	• A suitably qualified palaeontological specialist must be appointed to oversee the search and rescue activities. Palaeontological monitoring must also take place during expansion of the road cuttings. A suitable schedule for inspections has been included as an Appendix to the EMPr.		
Residual impacts:	None	None	
Cumulative impact post mitigation:	Low	None	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium (-)**	**High (-)**	No impact expected (neutral)
Potential impact and risk:	**Aquatic impact:** Impact of storage and management of construction materials on instream habitat		
Nature of impact:	Negative	Negative	No impact
Extent and duration of impact:	Local / Short term	Local / Short term	
Consequence of impact or risk:	Poor management of construction camps and laydown areas can lead to unnecessary physical disturbance and/or pollution of aquatic habitats.		
Probability of occurrence:	Highly probable	Highly probable	
Degree to which the impact may cause irreplaceable loss of resources:	Marginal loss of resource	Marginal loss of resource	
Degree to which the impact can be reversed:	Reversible	Reversible	
Indirect impacts:			
Cumulative impact prior to mitigation:	Low	Low	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Minor	Minor	
Degree to which the impact can be avoided:	High (Avoidable)	High (Avoidable)	
Degree to which the impact can be managed:	Medium (Can be partially managed)	Medium (Can be partially managed)	
Degree to which the impact can be mitigated:	High (Can be mitigated)	High (Can be mitigated)	
Proposed mitigation:	<u>General mitigation</u> • All construction vehicles must be equipped with a drip tray. This drip tray must be placed beneath the vehicles once stationary.		

	• Mixing of dangerous/hazardous substances may not take place on the bare soil surface. • Mixing of dangerous/hazardous substances must take place on a level area, on top of an impermeable surface and where possible inside of a bunded area (fixed or mobile). • Storage of dangerous/hazardous substances must take place within a designated area within the site camp. This storage area must be lined by an impermeable surface and must subsequently be bunded in order to prevent runoff from contaminating groundwater resources. <u>Aquatic Specialist recommendation</u>: • Construction camps, equipment and material lay down areas must be located at least 30 m from any watercourse. • Concrete, cement and bitumen mixing may not be permitted at or in the vicinity of the watercourse. • Cement and bitumen mixing cannot take place on bare ground. An impermeable or bunded area must be established in a way that cement slurry will not run off into the surrounding environment. • Any soil or material stockpiles must be covered with a geotextile or plastic and bunded (e.g. with sand bags) to prevent erosion of the material down slopes into the watercourse. • Excess cement or other materials must be left to dry out before being removed and disposed of at an appropriate facility. Construction should be planned to avoid seasonal rainfall peaks.		
Residual impacts:	None	None	
Cumulative impact post mitigation:	Negligible	Negligible	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Negligible (-)**	**Negligible (-)**	**No impact**
Potential impact and risk:	**Aquatic impact:** Impact of the operation of heavy machinery and vehicles on water quality and instream habitat.		
Nature of impact:	Negative	Negative	
Extent and duration of impact:	Local / permanent	Local / permanent	
Consequence of impact or risk:	Operation of vehicles and machinery within and in close proximity to watercourses can lead disturbance of aquatic habitat (riparian vegetation and the bed and banks of the watercourse) and/or to spills and leaks of hydrocarbons which can pollute water resources		
Probability of occurrence:	Probable	Probable	
Degree to which the impact may cause irreplaceable loss of resources:	Marginal loss of resource	Marginal loss of resource	
Degree to which the impact can be reversed:	Reversible	Reversible	

Indirect impacts:	Downstream sedimentation as a result of instream activities		
Cumulative impact prior to mitigation:	Low		
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Minor	Minor	
Degree to which the impact can be avoided:	High (Avoidable)	High (Avoidable)	
Degree to which the impact can be managed:	High (Can be managed)	High (Can be managed)	
Degree to which the impact can be mitigated:	High (Can be mitigated)	High (Can be mitigated)	
Proposed mitigation:	Aquatic Specialist recommendation: • Vehicle access roads to construction areas must not cross watercourses. Vehicles must be diverted back to the existing road at these points (i.e. watercourses must not become traffic thoroughfares). • Access to the watercourse can only be for work specifically being conducted to enlarge the crossings and culvert areas. In these areas, access must be limited to essential equipment only. • Fuel storage and vehicle refuelling areas must be located at least 50 m from any watercourse. • Discontinue construction during periods of high rainfall. Vehicles and machinery must be inspected for leaking fuel before accessing the site, and leaking vehicles must not be permitted to work at the site.		
Residual impacts:	None	None	
Cumulative impact post mitigation:	Negligible	Negligible	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Negligible (-)**	**Negligible (-)**	**No impact**
Potential impact and risk:	**Aquatic impact:** Impact of increased numbers of labourers in and around watercourses on water quality and instream habitat		
Nature of impact:	Negative	Negative	No impact – Status quo remains as is
Extent and duration of impact:	Local / Short term	Local / Short term	
Consequence of impact or risk:	Increased human activity in and around watercourses can lead to unnecessary disturbance and/or pollution of watercourses.		
Probability of occurrence:	Highly probable	Highly probable	
Degree to which the impact may cause	Marginal loss of resource	Marginal loss of resource	

irreplaceable loss of resources:			
Degree to which the impact can be reversed:	Completely reversible	Completely reversible	
Indirect impacts:	Downstream sedimentation as a result of stormwater management structures that are not placed at the same base heights		
Cumulative impact prior to mitigation:	Low	Low	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Minor	Minor	
Degree to which the impact can be avoided:	High (Avoidable)	High (Avoidable)	
Degree to which the impact can be managed:	Medium (Can be partially managed)	Medium (Can be partially managed)	
Degree to which the impact can be mitigated:	High (Can be mitigated)	High (Can be mitigated)	
Proposed mitigation:	Aquatic Specialist recommendation: • Provide bins or waste bags for waste and place them in an area designated for break-time. Ensure bins are cleaned out on a regular basis. • Provide portable chemical toilets on-site (1 toilet per 10 workers). Waste from toilets is to be disposed of regularly, at least weekly, in a responsible manner by a registered waste contractor. Toilets must be located more than 30 m away from watercourses. • All workers must be briefed that no waste is to be disposed of in the environment. • All workers must be briefed that no access to watercourses is permitted for the duration of construction works unless this is related to maintenance or construction of road infrastructure.		
Residual impacts:	None	None	
Cumulative impact post mitigation:	Negligible	Negligible	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Negligible (-)**	**Negligible (-)**	**No impact**
Potential impact and risk:	**Aquatic impact:** Impact of soil disturbance on erosion		
Nature of impact:	Negative	Negative	No impact – Status quo remains as is.
Extent and duration of impact:	Local / Long term	Local / Long term	

Consequence of impact or risk:	Maintenance and strengthening activities will most likely lead to localised disturbance of soil which can lead to increased erosion and sedimentation of watercourses and/or modifications to the bed and banks of watercourses (bank erosion and destabilisation).		
Probability of occurrence:	Highly probable	Definite	
Degree to which the impact may cause irreplaceable loss of resources:	Marginal loss of resource	Marginal loss of resource	
Degree to which the impact can be reversed:	Partially reversible	Partially reversible	
Indirect impacts:	None identified	None identified	
Cumulative impact prior to mitigation:	Medium	Medium	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Minor	Moderate	
Degree to which the impact can be avoided:	High (Avoidable)	Medium	
Degree to which the impact can be managed:	Medium (Can be partially managed)	Medium	
Degree to which the impact can be mitigated:	High (Can be mitigated)	High	
Proposed mitigation:	Aquatic Specialist recommendation: Following the completion of construction, disturbed areas must be: • Cleared of construction debris and any blockages. • Cleared of alien invasive vegetation. • Reshaped to free-draining and non-erosive contours where possible. • Re-vegetated with indigenous vegetation suitable to the area.		
Residual impacts:	None	None	
Cumulative impact post mitigation:	Negligible	Low	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Negligible (-)**	**Minor / Low (-)**	**No impact**
Potential impact and risk:	**Aquatic impact:** Loss of instream habitat due to widening of the road.		
Nature of impact:	Negative	Negative	

Extent and duration of impact:	Local / permanent	Local / permanent	No impact – Status quo remains as is
Consequence of impact or risk:	Widening of the road and the associated extension of culverts will result in loss of instream habitat at affected watercourses. This loss of habitat represents very small proportion of the length of each watercourse and the overall impact is therefore considered to be minor.		
Probability of occurrence:	Highly probable	Definite	
Degree to which the impact may cause irreplaceable loss of resources:	Marginal loss of resource	Significant loss of resource	
Degree to which the impact can be reversed:	Completely reversible	Completely reversible	
Indirect impacts:	None identified	Impact on bank stability	
Cumulative impact prior to mitigation:	Low	Medium	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Minor	High	
Degree to which the impact can be avoided:	High (Avoidable)	Low (Unavoidable)	
Degree to which the impact can be managed:	High (Can be managed)	High (Can be managed)	
Degree to which the impact can be mitigated:	Low (Cannot be mitigated)	Low (Cannot be mitigated)	
Proposed mitigation:	Aquatic Specialist recommendation: • Cannot be mitigated. General: • Implement a rehabilitation programme. Construction and rehabilitation of the watercourse banks must occur successively. • Erosion control measures, as required, must be implemented by the contactor.		
Residual impacts:	None	None	
Cumulative impact post mitigation:	Negligible	High	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Minor (-)**	**Moderate (-)**	**No impact**

Potential impact and risk:	Animal Species Theme: Impact on Faunal SCC		
Nature of impact:	Negative	Negative	No impact – Status quo remains as is
Extent and duration of impact:	Site Specific / Temporary	Local / Long term	
Consequence of impact or risk:	Loss of species of concern due to the disturbance of their preferred habitat		
Probability of occurrence:	Low	Low	
Degree to which the impact may cause irreplaceable loss of resources:	No loss to Resource	No loss to Resource	
Degree to which the impact can be reversed:	Reversible	Reversible	
Indirect impacts:	Loss of biodiversity	Loss of biodiversity	
Cumulative impact prior to mitigation:	Low	Medium	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	Medium	
Degree to which the impact can be avoided:	Can be avoided	Partially avoidable (Medium)	
Degree to which the impact can be managed:	Can be managed	Can be managed (High)	
Degree to which the impact can be mitigated:	Can be partly mitigated	Can be partly mitigated (Medium)	
Proposed mitigation:	Specialist: • An experienced, independent Environmental Control Officer (ECO) must be appointed to oversee the construction activities and compliance with the EMPr. • Sensitive areas such as riparian areas, drainage lines, rocky ledges, and pockets of indigenous vegetation that comprise Aloe sp. and succulent plants, must be disturbed as little as possible. (Refer to the botanical report for any specific mitigation measures for succulent plants and Aloe sp.) • The natural vegetation in the surrounding areas must be designated no-go areas for construction camps and crews. Construction camps must be placed within the footprint or within disturbed areas that are already modified. • During construction, no wild animal may under any circumstance be handled, removed, or be interfered with by construction workers. No wild animal may under any circumstance be hunted, snared, captured, injured, or killed. This includes animals perceived to be vermin. Alien plant eradication and control must be undertaken throughout the construction phase and the operational phase.		
Residual impacts:	None	Loss of habitat potentially containing SCCs	

Cumulative impact post mitigation:	Low	Medium	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Negligible (-)**	**Medium (-)**	No impact
Potential impact and risk:	Terrestrial Biodiversity: Impact on terrestrial biodiversity		
Nature of impact:	Negative (-)	Negative (-)	No impact – Status quo remains as is
Extent and duration of impact:	Site Specific / Permanent	Local / Permanent	
Consequence of impact or risk:	• Vegetation loss mostly modified (secondary) Eastern Little Karoo. Sections have been identified as highly sensitive. • Slight impact on biodiversity network. • Increased alien infestation. Erosion due to poor rehabilitation efforts.		
Probability of occurrence:	Definite	Definite	
Degree to which the impact may cause irreplaceable loss of resources:	High	High	
Degree to which the impact can be reversed:	Medium	Medium	
Indirect impacts:	None	None	
Cumulative impact prior to mitigation:	Medium-high	Medium-high	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium-High	High	
Degree to which the impact can be avoided:	Partially avoidable	Unavoidable (Low)	
Degree to which the impact can be managed:	Can be managed	Can be managed	
Degree to which the impact can be mitigated:	Partly mitigable	Partly mitigable	
Proposed mitigation:	<u>Specialist Recommendations:</u> • During the construction phase, demarcate/fence off the construction footprint. Restrict all construction activities, such as stockpiling and parking, to already disturbed lay-by's away from natural vegetation and watercourses. The contractor(s) must be made aware of the sensitive surroundings. The succulent karoo outside the road footprint must be declared a 'no-go' area and not be disturbed in any way.		

	• Remove topsoil and seedbearing plant material from the vegetated areas to be disturbed for use in the rehabilitation of disturbed areas after construction. • Rehabilitate/revegetate all the disturbed surfaces, especially the newly created slopes directly above and below the road. Erosion prevention measures may be needed on the steep slopes, such as silt fences, logs or netting, to slow down runoff and potential erosion. Mulching and seeding with indigenous grass seed may also be needed. • As a long-term maintenance requirement, engage in alien clearing, focussing on invasive species such as castor-oil plant, honey mesquite, prickly pear and wild tobacco. These species are category 1b and 2 invaders that require compulsory control as part of an invasive species control programme. • Allow at least 24 months for the monitoring of rehabilitation success and alien infestation post construction (Please see Section I.3 of the BAR). General: • Concrete and cement mixing is not to occur near muddy areas. Where mixing of concrete and cement occurs, the area must be bunded or surrounded by an impermeable material to prevent any runoff into the surrounding environment and existing road. • Stockpiles of materials and soil must all be covered by a geotextile or plastic covering, which must also be bunded (e.g., sandbags) when the piles are not in use on the site. This will prevent the material from washing away and contaminating the substrate of the site which likely still contains useful seeds and soil organisms. • The use of filled sandbags can reduce the intensity of water flow over the site in strategic areas where water flow is anticipated to be altered during construction. During the construction phase of the proposed project, a minimum working area is to be adopted, specifically working within the moderate and highly sensitive vegetation areas.		
Residual impacts:	None	Loss of terrestrial resources	
Cumulative impact post mitigation:	Medium	High	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium-low (-)**	**Medium-High (-)**	No impact
Potential impact and risk:	Terrestrial Biodiversity: Impact of the project on indigenous flora and SCC.		
Nature of impact:	Negative (-)	Negative	No impact – Status quo remains as is
Extent and duration of impact:	Site Specific / Long term	Local / Permanent	
Consequence of impact or risk:	• Loss of moderately irreplaceable vegetation resources. • Loss of plant species of conservation concern.		
Probability of occurrence:	High probability	Definite	
Degree to which the impact may cause	Partial loss of resource	Significant loss of resource	

irreplaceable loss of resources:			
Degree to which the impact can be reversed:	Can be partially avoided	Unavoidable	
Indirect impacts:	None Identified	None identified	
Cumulative impact prior to mitigation:	Medium – High	High	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium-high	High	
Degree to which the impact can be avoided:	Can be avoided (High)	Low	
Degree to which the impact can be managed:	Can be managed (High)	High	
Degree to which the impact can be mitigated:	Can be mitigated (High)	High	
Proposed mitigation:	General • During the construction phase of the proposed project, a minimum working area is to be adopted, specifically working within the moderate and highly sensitive vegetation areas. • For the purpose of conserving the vegetation resources, a botanical specialist must be appointed prior to the commencement of the works in order to clearly demarcate the plant SCCs identified by the botanical specialist. As per the current designs, the plant SCCs will be avoided (please refer to Appendix B2 and Section I below). • The demarcation of the plant SCCs must be done well in advance (prior to the commencement of site establishment activities) of the commencement of the construction phase. Should the layout designs change and these SCCs be impacted upon, a permit from CapeNature must be obtained prior to work commencing in those areas. • A Vegetation rehabilitation and monitoring plan must be compiled for the proposed development. A Draft Rehabilitation plan has been included as an Appendix to the Environmental Management Programme (EMPr). • The Rehabilitation plan must be implemented concurrently with construction works of the proposed project (as construction in a specific area concludes, the rehabilitation procedures must be implemented). Specialist: • During the staking out of the construction area take cognisance of the highly sensitive and medium sensitive areas next to the road. Try and avoid or minimise disturbance of these areas as far as practically possible. • Search and rescue succulents and bulbs from the construction area for replanting in the disturbed or rehabilitation areas after construction. Topsoil, cuttings and seedbearing plant material can also be salvaged for this purpose, especially cuttings from succulents and Pelargonium species. Bulbs should be removed along with some soil, placed in gel, bagged and then taken to a nursery for temporary storage or transplanted directly in the receiving area.		

	• Search and rescue should be done at an appropriate time of the year, preferably when the soil is wet during the raining season. Ideally, bulbs should be salvaged during leaf fall, but before or after flowering. Please note that a CapeNature permit is needed for the removal/relocation of indigenous plant species. A Search & Rescue and Rehabilitation Plan will be needed.		
Residual impacts:	None	Loss of vegetation communities were SCCs thrive	
Cumulative impact post mitigation:	Medium-Low	High	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium-Low (-)**	**Medium-High (-)**	No impact
Potential impact and risk:	General management: Pollution of hydrocarbons due to spills and leaks		No impact – Status quo remains as is
Nature of impact	Negative (-)	Negative (-)	
Extent and duration of impact:	Site specific / Short term	Site specific / Short term	
Consequence of impact or risk:	During construction activities, there is a risk of contamination as a result of spills and leaks occurring on site.		
Probability of occurrence:	Probable	Probable	
Degree to which the impact may cause irreplaceable loss of resources:	Partial loss to natural resources	Partial loss to natural resources	
Degree to which the impact can be reversed:	Cannot be reversed	Cannot be reversed	
Indirect impacts:	Contamination of the shallow groundwater table	Contamination of the shallow groundwater table	
Cumulative impact prior to mitigation:	Medium	Medium	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	Medium	
Degree to which the impact can be avoided:	Medium (Can be largely avoided)	Medium (Can be largely avoided)	
Degree to which the impact can be managed:	Medium (Can be partly managed)	Medium (Can be partly managed)	
Degree to which the impact can be mitigated:	Medium (Can be partly mitigated)	Medium (Can be partly mitigated)	

Proposed mitigation:	*General:* • Spill kits must be available on site at all times. • Where fuelling does occur on site, a drip tray must be used to contain any spilled fuel. • All construction vehicles must be equipped with drip trays at all times. • No maintenance activities may occur on site for the duration of the construction phase. • Where emergency maintenance is required, such maintenance must be communicated with the independent Environmental Control Officer appointed to oversee the alignment of the construction works with the applicable environmental legislation. • All construction buffers, as requested by the aquatic specialist, must be adhered to. Thee construction site camp must also adhere to the construction limits (30m away from the edge of any identified watercourses).		
Residual impacts:	None	None	
Cumulative impact post mitigation:	Low	Low	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Low (-)**	No impact
Potential impact and risk:	General nuisances: Noise, dust, light and general housekeeping		
Nature of impact	Negative	Negative	No impact – Status quo remains as is
Extent and duration of impact:	Site specific / temporary	Site specific / temporary	
Consequence of impact or risk:	Based on the dry nature of the receiving environment, there is an increased risk of dust pollution and rock slides during the blasting and excavation activities.		
Probability of occurrence:	Highly probable	Highly probable	
Degree to which the impact may cause irreplaceable loss of resources:	Unlikely	Unlikely	
Degree to which the impact can be reversed:	Completely reversible	Completely reversible	
Indirect impacts:	• Poor visibility due to the dispersal of dust • Safety risk due to rock fragments in the roads • Site camp lights impairing drivers' vision		
Cumulative impact prior to mitigation:	Medium	Medium	
Significance rating of impact prior to mitigation (e.g. Low, Medium,	Medium	Medium	

Medium-High, High, or Very-High)			
Degree to which the impact can be avoided:	Can be avoided	Can be avoided	
Degree to which the impact can be managed:	Can be completely managed	Can be completely managed	
Degree to which the impact can be mitigated:	Can be partly mitigated	Can be partly mitigated	
Proposed mitigation:	*Dust:* • Dust suppression methods, such as non-potable water spraying must be used during the construction phase of the proposed refurbishment project. • Vehicular speed must be controlled at all times with no indiscriminatory driving permitted by any construction vehicles, or the general public. *Noise:* • All construction vehicles must be equipped with muffled reverse sirens (which are to the standard of the Occupational Health & Safety Act (Act 85 of 1993). • No constructions activities are permitted between 17:00 and 7:00 unless previously agreed upon between the Contacting team and the Municipality. • Construction workers are to remain within the designated site boundary at all time. • Eating areas are to be located away from any residential units/homesteads and tourists attractions within proximity to the current working areas. *Lights:* • Lights must be positioned in such a way so as to not shine directly ahead onto the road during nighttime hours (i.e. must be positioned facing downward). • Where practically possible, low intensity lighting must be used for areas which requires to be illuminated. General housekeeping: • A clean site policy must be adopted at all time during the construction phase. • Where possible, storage and disposal of waste must take place in a sustainable manner, where clearly marked recycle bins must be provided to workers at the site camp. Rockslides: • The maintenance system put in place to contain rockfall along the road must be maintained throughout the construction phase of the project. • The system must be cleared often as needed in order to prevent failure of the netting system. • Prior to removal of the nets for maintenance purposes, signage notifying the public of potential rock falls must be erected on site. • The netting system must be checked at regular intervals in order to determine whether there are any weaknesses in the netting structures.		
Residual impacts:	None	None	
Cumulative impact post mitigation:	Low-Medium	Low-Medium	

Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Low (-)**	**No impact**
Potential impact and risk:	Road safety: Traffic Impacts and Road Safety		No impact – Status quo remains as is
Nature of impact	Negative	Negative	
Extent and duration of impact:	Site Specific / Long term	Site Specific / Long term	
Consequence of impact or risk:	• Slowed movement of traffic and disruptions of traffic flow. • Based on the nature of the site providing access to numerous residents and tourist attractions in the area, there is an increased risk of traffic incidents during the construction phase.		
Probability of occurrence:	Definite	Definite	
Degree to which the impact may cause irreplaceable loss of resources:	No loss of resource	No loss of resource	
Degree to which the impact can be reversed:	Barely reversible	Barely reversible	
Indirect impacts:	Delayed travel time for commuters travel along the N12-Highway during times where auxiliary lanes are constructed.		
Cumulative impact prior to mitigation:	Medium	Medium	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	Medium	
Degree to which the impact can be avoided:	Medium	Medium	
Degree to which the impact can be managed:	Can be completely managed	Can be completely managed	
Degree to which the impact can be mitigated:	Can be partly mitigated	Can be partly mitigated	
Proposed mitigation:	General: • A traffic management plan must be compiled and implemented for the duration of the construction period of the proposed refurbishment project. • Proper signage must be used and signage must align with the National Road Traffic Act (Act No. 93 of 1996). • Adequate signage, that is both informative and cautionary to passing traffic (motorists and pedestrians), warning them of the construction activities must be suitably located in the area where the construction is occurring and must be easily visible by all road users. Signage needs to be clearly visible and needs to include, among others, the following:		

	○ Identifying working area as a construction site; ○ Cautioning against relevant construction activities; ○ Prohibiting access to construction site; ○ Clearly specifying possible detour routes and/or delay periods; ○ Possible indications of time frames attached to the construction activities, and; ○ Details of responsible contractors and engineers are working on the site. • In addition to the abovementioned means of notification, notices must be erected in Oudtshoorn and at the intersection of the N12 with Heimersriver Road and all minor road intersections leading onto the road to be constructed. • Construction activities will not be planned over the December/January high-season (i.e. between 15 December and 6 January) as well as the Easter holidays. • The procedures outlined in the Communication Plan of the Department of Infrastructure (the Applicant) must be implemented for the proposed project.		
Residual impacts:	None	None	
Cumulative impact post mitigation:	Low	Low	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Low (-)**	**No impact**
Potential impact and risk:	Socio-economic impacts: Employment opportunities		
Nature of impact	Positive	Positive	Negative
Extent and duration of impact:	Regional / Long term	Regional / Long term	Regional / Permanent
Consequence of impact or risk:	Income provision to individuals employed during the construction phase.		No income generated as a result of the construction phase activities
Probability of occurrence:	Definite	Definite	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A	N/A	N/A
Degree to which the impact can be reversed:	N/A	N/A	N/A
Indirect impacts:	Quality of life of the labourers would be temporarily uplifted due to the capital influx for households.		N/A
Cumulative impact prior to mitigation:	Low	Low	High
Significance rating of impact prior to mitigation (e.g. Low, Medium,	Low	Low	High

Medium-High, High, or Very-High)			
Degree to which the impact can be avoided:	N/A	N/A	Low (no avoidance of the impact)
Degree to which the impact can be managed:	Can be completely managed - as an organ of state, the applicant is to meet job creation targets. This is also in line with SANRAL's Strategy Plan.		Low
Degree to which the impact can be mitigated:	N/A	N/A	Low
Proposed mitigation:	General As far as possible, individuals from the local community must be employed. Especially for low to semi-skilled activities.		No mitigation measures applicable
Residual impacts:	None	None	None
Cumulative impact post mitigation:	Medium	Medium	High
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium-High (+)**	**Medium-High (+)**	**Medium-High (-)**
POST-CONSTRUCTION REHABILITATION / OPERATIONAL ACTIVITIES			
Potential impact and risk:	Road safety: Provision of safer roadway		
Nature of impact:	Positive	Positive	Negative
Extent and duration of impact:	Regional / permanent	Regional / permanent	Regional / permanent
Consequence of impact or risk:	A safer commute and a more pleasant experience to all users of the road.		
Probability of occurrence:	Definite	Definite	The current road condition remains as is
Degree to which the impact may cause irreplaceable loss of resources:	N/A	N/A	High
Degree to which the impact can be reversed:	N/A	N/A	Can be reversed
Indirect impacts:	N/A	N/A	Increased occurrences of accidents along the route
Cumulative impact prior to mitigation:	Medium	Medium	High
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very High	Very High	Very High
Degree to which the impact can be avoided:	N/A	N/A	Can be avoided

Degree to which the impact can be managed:	N/A	N/A	Can be managed
Degree to which the impact can be mitigated:	N/A	N/A	Can be mitigated
Proposed mitigation:	No mitigation measures applicable (Positive impact).		Environmental Authorisation of the activities proposed is required
Residual impacts:	None	None	None
Cumulative impact post mitigation:	Very High	Very High	High
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very High (+)**	**Very High (+)**	High (-)
Potential impact and risk:	**Aquatic impact:** Impact of culverts on erosion of the bed and banks of watercourses.		
Nature of impact:	Negative	Negative	No impact – Status quo of the site remains as is.
Extent and duration of impact:	Local / permanent	Local / permanent	
Consequence of impact or risk:	Directing flows through watercourses can lead to minor to major modifications in localised flow dynamics which can potentially result in erosion and scour of the bed and banks downstream of the culvert. This impact can be largely avoided by adequate planning during the Planning and Layout Phase (see Section 6.1). Nevertheless, it is still likely that erosion could occur during the operational phase.		
Probability of occurrence:	Highly probable	Highly probable	
Degree to which the impact may cause irreplaceable loss of resources:	Marginal loss of resource	Marginal loss of resource	
Degree to which the impact can be reversed:	Completely reversible	Completely reversible	
Indirect impacts:	None identified	None identified	
Cumulative impact prior to mitigation:	Low	Low	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Minor	Minor	
Degree to which the impact can be avoided:	High (Avoidable)	High (Avoidable)	
Degree to which the impact can be managed:	Medium (Can be partially managed)	Medium (Can be partially managed)	

Degree to which the impact can be mitigated:	High (Can be mitigated)	High (Can be mitigated)	
Proposed mitigation:	Aquatic Specialist recommendation: • Inspect road crossings following rainfall events to ensure there is no erosion or sediment deposition along watercourses associated with the culverts. • Where erosion has occurred determine an appropriate method of rehabilitation such as revegetation with indigenous plants to stabilise soil or silt fences on slopes. Identify areas of channelled flow or high flow velocities. Methods to spread water and reduce flows should be investigated. Ensure pipes and culverts under roads are free of debris following rainfall events.		
Residual impacts:	None	None	
Cumulative impact post mitigation:	Negligible	Negligible	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Negligible (-)**	**Negligible (-)**	No impact
Potential impact and risk:	**Aquatic impact:** Impact of disturbance of the bed and banks on the establishment of alien invasive plant species.		
Nature of impact:	Negative	Negative	No impact – Status quo remains as is
Extent and duration of impact:	Site Specific / permanent	Site Specific / permanent	
Consequence of impact or risk:	All culverts are currently free of alien invasive plant species. Disturbance of bed and banks during construction activities could lead to the establishment of alien invasive plant species during the operational phase.		
Probability of occurrence:	Probable	Probable	
Degree to which the impact may cause irreplaceable loss of resources:	Marginal loss of resource	Marginal loss of resource	
Degree to which the impact can be reversed:	Completely reversible	Completely reversible	
Indirect impacts:	None identified	None identified	
Cumulative impact prior to mitigation:	Low	Low	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Minor	Minor	
Degree to which the impact can be avoided:	High (Avoidable)	High (Avoidable)	

Degree to which the impact can be managed:	Medium (Can be partially managed)	Medium (Can be partially managed)	
Degree to which the impact can be mitigated:	High (Can be mitigated)	High (Can be mitigated)	
Proposed mitigation:	Aquatic Specialist recommendation: • Inspect culverts bi-annually to ensure that road crossings following rainfall events to ensure there is no erosion or sediment deposition along watercourses associated with the culverts. o Bi-annual inspections should be sufficient to allow invasive plants to be removed by hand-pulling. Alternatively, plants must be controlled using the cut-stump method: ▪ The tree must be felled as close to the ground as possible; ▪ The freshly cut stump must be painted with a herbicide registered for the control of the plant species in question; and The herbicide must be mixed with a dye to identify stumps that have already been treated.		
Residual impacts:	None	None	
Cumulative impact post mitigation:	Negligible	Negligible	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Negligible (-)**	**Negligible (-)**	No impact
Potential impact and risk:	Terrestrial Biodiversity: Impact on terrestrial biodiversity		
Nature of impact:	Negative (-)	Negative (-)	No impact status quo remains as is.
Extent and duration of impact:	Site Specific / Permanent	Site Specific / Permanent	
Consequence of impact or risk:	• Vegetation loss mostly modified (secondary) Eastern Little Karoo. Sections have been identified as highly sensitive. • Slight impact on biodiversity network. • Increased alien infestation. Erosion due to poor rehabilitation efforts.		
Probability of occurrence:	High	High	
Degree to which the impact may cause irreplaceable loss of resources:	High	High	
Degree to which the impact can be reversed:	Medium	Medium	
Indirect impacts:	None identified	None identified	
Cumulative impact prior to mitigation:	Medium-Low	Medium-Low	

Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium-Low	Medium-Low	
Degree to which the impact can be avoided:	Partially avoidable	Partially avoidable	
Degree to which the impact can be managed:	Can be managed	Can be managed	
Degree to which the impact can be mitigated:	Partly mitigable	Partly mitigable	
Proposed mitigation:	Specialist input: • Rehabilitate/revegetate all the disturbed surfaces, especially the newly created slopes directly above and below the road. Erosion prevention measures may be needed on the steep slopes, such as silt fences, logs or netting, to slow down runoff and potential erosion. Mulching and seeding with indigenous grass seed may also be needed. • As a long-term maintenance requirement, engage in alien clearing, focussing on invasive species such as castor-oil plant, honey mesquite, prickly pear and wild tobacco. These species are category 1b and 2 invaders that require compulsory control as part of an invasive species control programme. • Allow at least 24 months for the monitoring of rehabilitation success and alien infestation post construction (Please see Section I.3 of the BAR).		
Residual impacts:	None	None	
Cumulative impact post mitigation:	Medium	Medium	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Low (-)**	No impact
Potential impact and risk:	Terrestrial Biodiversity: Impact of the project on indigenous flora and SCC.		
Nature of impact:	Negative (-)	Negative (-)	No impact -Status quo remains as is
Extent and duration of impact:	Site Specific / Long term	Site Specific / Long term	
Consequence of impact or risk:	• Loss of moderately irreplaceable vegetation resources. Loss of plant species of conservation concern.		
Probability of occurrence:	High probability	High probability	
Degree to which the impact may cause irreplaceable loss of resources:	Partial loss of resource	Partial loss of resource	
Degree to which the impact can be reversed:	Can be partially avoided	Can be partially avoided	

Indirect impacts:			
Cumulative impact prior to mitigation:	Medium – High	Medium – High	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium-Low	Medium-Low	
Degree to which the impact can be avoided:	Can be avoided	Can be avoided	
Degree to which the impact can be managed:	Can be managed	Can be managed	
Degree to which the impact can be mitigated:	Can be mitigated	Can be mitigated	
Proposed mitigation:	Specialist: • No mitigation proposed for the construction phase.		
Residual impacts:	None	None	
Cumulative impact post mitigation:	Medium	Medium	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Low (-)**	No impact

SECTION I: FINDINGS, IMPACT MANAGEMENT AND MITIGATION MEASURES

1.	Provide a summary of the findings and impact management measures identified by all Specialist and an indication of how these findings and recommendations have influenced the proposed development.				
Specialist Company	**Specialist Details**	**Sensitivity of receptors**	**Summary of findings**	**Specific structural components that will directly impact upon the resource**	**Summary of Management measures**
HERITAGE AND PALAEONTOLOGICAL OBSERVATIONS					
ASHA Consulting (Pty) Ltd	Jayson Orton (Heritage Consultant) Elize Butler (Palaeontological Consultant	Low	From a cultural heritage and landscape perspective, based on the nature of the proposed project (with the proposed project entailing the strengthening of an existing road), the proposed project will have very little to no impacts on the heritage resources in the area. A number of features were identified along the road, however many of them were purely for out of interest rather than heritage reasons. They do however assist with understanding the history of the study area. **No heritage resources of significance were identified within the road reserve.**	None of the heritage resources and features of interest identified by the appointed specialist will be impacted upon as a result of the proposed project.	The following management measures have been proposed for the proposed project: • Clearance of natural vegetation must be minimised. • Cuts and fills and landscape scarring in general must be minimised. • All disturbed areas not needed during operation of the road must be rehabilitated.
		Very High	The N12 Road strengthening project near Oudtshoorn in the Western Cape is underlain by the Devonian Ceres and Bidouw Subgroups of the Bokkeveld Group. The Bokkeveld Group is known for its marine invertebrate fossils, while plant fragments and trace fossils are common. Vertebrate fish fossils have also been identified from this Group. Recently, upgrades to roads have **exposed exceptionally well-preserved fossils** in road cuttings. Some of these fossil-finds were of great scientific value and numerous new species have been described. The proposed development site was inspected on the weekend of 1 April 2023 and five (5) occurrences of fossil finds were recorded by the appointed specialist. These included well-preserved bivalve, trace fossils with possible trilobites. The fossils observed	The five (5) instances of the fossil finds are located toward the southern reaches of the proposed project. • Point 9 (Trace fossils) will be likely be impacted by the cut and fills required for the proposed project. • Point 19 (Trace fossils) will be impacted upon by the widening of the road. • Point 38 (Brachiopod) will be impacted upon by the widening of the road. • Point 21 (Bivalve and tube-like fossils) will be impacted upon by the widening of the road. • Point 13 (Trace fossils and possible bivalves) will be	The following mitigation measures have been proposed by the appointed specialist: Specialist recommendation: • Fossils will be required to be extracted; • A realistic monitoring programme for the palaeontologically sensitive areas of the road strengthening must be compiled by a professional palaeontologist. • The beforementioned specialist will require a HWC-approved Workplan for the collection of palaeontological materials and must conform to international best practice for palaeontological fieldwork and the study (e.g., data collecting, collecting of fossil as well as report writing) should meet the minimum standards for Phase 2 palaeontological studies suggested by HWC. • Feedback from Heritage Western Cape must be received regarding this aspect. General:

			within the study area have a scientific grading value of IIIB.	likely be impacted by the widening of the road.	• A Chance of Find protocol must be implemented on site throughout the construction phase of the proposed project. • A search and rescue of fossils is required prior to site establishment. • A suitably qualified palaeontological specialist must be appointed to oversee the search and rescue activities.
AQUATIC BIODIVERSITY ASSESSMENT					

Confluent Consulting (Pty) Ltd	James Dabrowski	Very High	The **proposed project intersects twenty-nine (29) watercourses which can, be described as non-perennial rivers**, with clearly discernible bed and banks that are characterised by a highly intermittent hydriperiod (i.ie. flowing for a short period – hours to a few days – only after heavy reainfall events in the catchment area). The size of these watercourses varies from minor, first order drainage lines to broader second to third order streams. All watercourses cross the TR75/1 road via formalised culverts and ultimately flow into the Klip River. The Klip River is a large fifth order perennial river which eventually becomes a floodplain wetland prior to its confluence with the Olifants River. The section of the TR75/1 that will be rehabilitated also **crosses the Olifants River, which is a large floodplain wetland system**.
			
			The Present Ecological Status (PES) of the non-perennial rivers has been identified as B (Largely Natural) and the Ecological Importance and Sensitivity (EIS) of these watercourses have been identified as Low.
			
			The PES of the Olifants River floodplain wetland was identified as D (Largely Modified) and the EIS of this watercourse is considered to be High.
				As described in Section G2 above, a number of culvert structures will impact upon the aquatic resources identified by the appointed specialist.
				
				The following culverts which will see some degree of modification as a result of the activities proposed will impact upon the resources:
				
				The minor culverts include:
				• C7 (1.2m x 1.2m box culvert)
				• C17 (1.8m x 1.2m box culvert)
				• C18 (1.2m x 1.2m box culvert)
				• C22 (1.2m x 1.2m box culvert)
				• C30 (1.8m x 1.8m box culvert)
				• C33 (1.2m x 1.2m box culvert)
				• C35 (1.2m x 1.2m box culvert)
				• C37 (2 x 0.6m pipe culvert)
				• C38 (1.8m x 1.8m box culvert)
				• C39 (1.2m x 1.2m box culvert)
				• C40 (1.2m x 1.2m box culvert)
				• C41 (2 x 0.6m pipe culvert)
				• C42 (1.2m x 1.2 box culvert)
				• C43 (0.6m pipe culvert)
				• C44 (2 x 0.6 pipe culvert)
				• C48 (1 x 0.6m pipe culvert)
				• C52 (1.8m x 1.8 box culvert)
				• C53 (1.2m x 1.2m box culvert)
				• C54 (2.0m x 1.2m box culvert)
				• C61 (1.2m x 1.2m box culvert)
					Herewith a summary of the impacts identified by the appointed specialist:
					• Planning and design phase:
					  ○ Impact of stormwater management structures (i.e. extended culverts and drains) on flow dynamics.)
					• Construction phase:
					  ○ Impact of storage and management of construction materials on instream habitat.
					  ○ Impact of the operation of heavy machinery and vehicles on water quality and instream habitat
					  ○ Impact of increased numbers of labourers in and around watercourses on water quality and instream habitat
					  ○ Impact of soil disturbance on erosion
					  ○ Loss of instream habitat due to widening of the road
					• Operational and post-construction rehabilitation phase:
					  ○ Impact of culverts on erosion of the bed and banks of watercourses.
					
					The following management measures as presented by the aquatic specialist will have/had had an impact on the design and approach of the implementation of the proposed project:
					• No drop in height should occur between the downstream invert of a culvert and the watercourse bed to avoid erosion caused by high flows.

				The major culverts include: • C29 (2.45mx2.45m box culvert) • C31 (2.4m x 2.4m box culvert) • C36 (2.5m x 2.5m box culvert) • C46 (2.5m x 2.5m box culvert) • C50 (2.4m x 2.4m box culvert) • C55 (2.4m x 2.4m box culvert) • C56 (2.5m x 1.2m box culvert) • C59 (2.4m x 2.4m box culvert) • C63 (2.4m x 1.2m box culvert) Additionally, the following activities will have a high probability of impacting upon the watercourses: • The works associated with A8, A9, A10, A14, A15, A20, A21 andA24 described above; • The installation of the left hand side auxiliary lane – L5 will impact upon watercourses 8 to 11. • The installation of the right-hand side auxiliary lane L4 will impact upon watercourses 9 ti 12. • The installation of the right-hand side auxiliary lane L3 will likely impact upon watercourse 15, with definite impacts being impacted upon watercourses 16-18. • The installation of the left-hand side auxiliary lane L2 will impact upon watercourse 20. • The installation of the right-hand side auxiliary lane L1	• Methods to disperse flows and reduce flow velocities on culvert outflows must be implemented. • Erosion protection (e.g. stone pitching) must be implemented in channels that convey stormwater off the road and into watercourses. • Construction camps, equipment and material lay down areas must be located at least 30 m from any watercourse. • Concrete or cement mixing is not permitted at or in the vicinity of the watercourse. Any cement mixing cannot take place on bare ground. An impermeable or bunded area must be established in a way that cement slurry will not run off into the surrounding environment. • Fuel storage and vehicle refuelling areas must be located at least 50 m from any watercourse • Provide portable chemical toilets on-site (1 toilet per 10 workers). Waste from toilets is to be disposed of regularly, at least weekly, in a responsible manner by a registered waste removal contractor. Toilets must be located more than 30 m away from a watercourse.

				will impact upon watercourses 25 and 26. The general widening of the road will have an impact on all of the watercourses identified within the road reserve with additional impacts seen in the areas highlighted above.	
TERRESTRIAL BIODIVERSITY AND PLANT SPECIES ASSESSMENT					
Mark Berry Environmental Consulting.	Mark Berry	Medium to High	Apart from a few patches of reed (*Phragmites australis*) and a few shrubs/trees, the Olifantsrivier floodplain in the vicinity of the road is highly transformed by agriculture and roadworks. Sections of the road through the hills are still flanked by **good quality vegetation (Eastern Little Karoo**), albeit modified in places. Some of it is regarded as highly sensitive where SCC were recorded. The untoned sections of the road reserve are of low sensitivity due to a high degree of modification and lack of (or very little) biodiversity. This does not mean that these areas should be treated as such during the construction phase. The vegetation inside the road 'reserve' (fenced-off area) is often highly modified due to past roadworks. Disturbances noted include cut-to-fill (along the steeper sections), infilling of watercourse crossings, road cuttings, lay-by's, farm entrances and stormwater trenches. **Good (medium) quality vegetation** is found along the length of the route from where the hills start just south of the Olifantsrivier floodplain. It includes areas slightly modified, as well as areas highly modified, but still covered with fair quality vegetation (secondary growth). Alien infestation is minimal, with only a few scattered invaders encountered, such as *Opuntia ficus-indica* and *Prosopis glandulosa*. Emergent species,	The terrestrial biodiversity sensitivity of the proposed site has been indicated in Figure 17 - Figure 21.	The following management measures have been proposed for which needs to be taken into consideration during the construction phase of the proposal: • During the construction phase, demarcate/fence off the construction footprint. Restrict all construction activities, such as stockpiling and parking, to already disturbed lay-by's away from natural vegetation and watercourses. The contractor(s) must be made aware of the sensitive surroundings. The succulent karoo outside the road footprint must be declared a 'no-go' area and not be disturbed in any way. • Rehabilitate/revegetate all the disturbed surfaces, especially the newly created slopes directly above and below the road. Erosion prevention measures may be needed on the steep slopes, such as silt fences, logs or netting, to slow down runoff and potential erosion. Mulching and seeding with indigenous grass seed may also be needed.

			such as *Euclea undulata, Portulacaria afra* and *Dodonaea viscosa*, are also prominent.		

		High	A fairly high number of indigenous shrub species were recorded during the site visit conducted by the appointed specialist. Of the species recorded, only **three (3) Species of conservation concern (SCC)** were identified. These include *Antimima piscodora* (DDD), *Glottiphyllum linguiforme* (VU) and *Euphorbia colliculina* (EN). In addition to these, *Berkheya cuneata, Hereroa muirii, Cerochlamys pachyphylla*, Pleiospilos compactus ssp. compactus, *Tylecodon cacalioides, Astroloba spiralis* and *Polygala myrtifolia* var. *pinifolia* are regional endemics. As far as the author can detect (from iNaturalist records), *Syringodea derustensis* is the only other listed SCC recorded within 5 km from the road. However, there is a good chance that others, such as sensitive species 54 and 842, may also occur in the area.
			
			No protected tree species were recorded or are expected to occur in the area.
				Seven (7) specimens of the Plant SCCs were identified on site. The approximate locations of the species were as follow:
				• *Euphorbia colliculina*
				  • At the start of a proposed lef-hand side auxiliary lane – L5 - Impacting upon this specimen can potentially be avoided.
				  • Two specimens were observed within proximity to the works proposed at C62 – Impacting upon these specimens can potentially be avoided.
				• *Antimima piscodora*
				  • Two specimens were observed within proximity to the works proposed at C62 – Impacting upon these specimens can potentially be avoided.
				• *Glottiphyllum linguiforme*
				  • Two specimens were observed within proximity to the works proposed at the starting point of the works associated with the additional right-hand auxiliary lane – L3 – Impacting upon these specimens can potentially be avoided.
					The following management measures have been proposed for which needs to be taken into consideration during the pre-construction phase of the proposal:
					• During the staking out of the construction area take cognisance of the highly sensitive and medium sensitive areas next to the road. Try and avoid or minimise disturbance of these areas as far as practically possible.
					• Search and rescue succulents and bulbs from the construction area for replanting in the disturbed or rehabilitation areas after construction. Topsoil, cuttings and seedbearing plant material can also be salvaged for this purpose, especially cuttings from succulents and Pelargonium species. Bulbs should be removed along with some soil, placed in gel, bagged and then taken to a nursery for temporary storage or transplanted directly in the receiving area.
					• Search and rescue should be done at an appropriate time of the year, preferably when the soil is wet during the raining season. Ideally, bulbs should be salvaged during leaf fall, but before or after flowering. Please note that a CapeNature permit is needed for the removal/relocation of indigenous plant species. A Search & Rescue and Rehabilitation Plan will be needed.

AGRICULTURAL COMPLIANCE STATEMENT					

Johann Lanz	Johann Lanz	Low-Negligible	An agricultural impact is a change to the future agricultural production potential of land. The significance of the agricultural impact is directly proportional to the extent of the change in production potential. Due to the status of the land as a road reserve, it has no agricultural production potential and the development will not therefore result in any change to that potential. **There is therefore zero agricultural impact**. Even if road works is required to extend beyond the existing road reserve in places, its proposed footprint would only impinge on the very edge of agricultural land and would therefore have negligible impact.	No areas of impact are anticipated on these resources.	No management measures have been proposed by the specialist.
ANIMAL SPECIES COMPLIANCE STATEMENT					
Cossypha Ecological	Robyn Phillips	Low	Faunal activity on the site was generally low with only common and generalist birds and small / medium mammals recorded, usually around the riparian areas and drainage lines. Some of the bird species recorded in the study area included Cape Turtle-Dove (*Streptopelia capicola*), Cape Bulbul (*Pycnonotus capensis*), Karoo Prinia (*Prinia maculosa*), Southern Double-collared Sunbird (*Cinnyris chalybeus*), Chestnut-vented Tit-Babber (*Curruca subcoerulea*), and Bokmakierie (*Telophorus zeylonus*). A few common mammal species observed during the field surveys including Scrub Hare (*Lepus saxatilis*), Cape Grey Mongoose (*Galerella pulverulenta*), and Chacma Baboon (*Papio ursinus*). **No faunal SCC were recorded during the site surveys.** The habitat along the route is largely disturbed and exists in a narrow strip that is somewhat fragmented due to the proximity to the roadway. It is unlikely that the available habitat would support any individuals or populations of faunal SCC, and such species are more likely to utilise the better-quality	No areas of impact are anticipated on these resources.	Herewith a summary of the mitigation measures that has an impact on the design and planning aspect of the proposed project: • Sensitive areas such as riparian areas, drainage lines, rocky ledges, and pockets of indigenous vegetation that comprise Aloe sp. and succulent plants, must be disturbed as little as possible. • The natural vegetation in the surrounding areas must be designated no-go areas for construction camps and crews. Construction camps must be placed within the footprint or within disturbed areas that are already modified.

			habitat that exists in the adjacent natural areas in far larger and more viable quantities.		

2.	List the impact management measures that were identified by all Specialist that will be included in the EMPr

Agricultural Specialist:

No mitigation required.

Terrestrial Biodiversity and Plant Species Specialist:

- During the construction phase, demarcate/fence off the construction footprint. Restrict all construction activities, such as stockpiling and parking, to already disturbed lay-by's away from natural vegetation and watercourses. The contractor(s) must be made aware of the sensitive surroundings. The succulent karoo outside the road footprint must be declared a 'no-go' area and not be disturbed in any way.
- Remove topsoil and seedbearing plant material from the vegetated areas to be disturbed for use in the rehabilitation of disturbed areas after construction.
- Rehabilitate/revegetate all the disturbed surfaces, especially the newly created slopes directly above and below the road. Erosion prevention measures may be needed on the steep slopes, such as silt fences, logs or netting, to slow down runoff and potential erosion. Mulching and seeding with indigenous grass seed may also be needed.
- As a long-term maintenance requirement, engage in alien clearing, focussing on invasive species such as castor-oil plant, honey mesquite, prickly pear and wild tobacco. These species are category 1b and 2 invaders that require compulsory control as part of an invasive species control programme.
- During the staking out of the construction area take cognisance of the highly sensitive and medium sensitive areas next to the road. Try and avoid or minimise disturbance of these areas as far as practically possible.
- Search and rescue succulents and bulbs from the construction area for replanting in the disturbed or rehabilitation areas after construction. Topsoil, cuttings and seedbearing plant material can also be salvaged for this purpose, especially cuttings from succulents and Pelargonium species. Bulbs should be removed along with some soil, placed in gel, bagged and then taken to a nursery for temporary storage or transplanted directly in the receiving area.
- Search and rescue should be done at an appropriate time of the year, preferably when the soil is wet during the raining season. Ideally, bulbs should be salvaged during leaf fall, but before or after flowering. Please note that a CapeNature permit is needed for the removal/relocation of indigenous plant species. A Search & Rescue and Rehabilitation Plan will be needed.

Animal Species Specialist:

- An experienced, independent Environmental Control Officer (ECO) must be appointed to oversee the construction activities and compliance with the EMPr.
- Sensitive areas such as riparian areas, drainage lines, rocky ledges, and pockets of indigenous vegetation that comprise Aloe sp. and succulent plants, must be disturbed as little as possible.
- The natural vegetation in the surrounding areas must be designated no-go areas for construction camps and crews. Construction camps must be placed within the footprint or within disturbed areas that are already modified.
- During construction, no wild animal may under any circumstance be handled, removed, or be interfered with by construction workers. No wild animal may under any circumstance be hunted, snared, captured, injured, or killed. This includes animals perceived to be vermin.
- Alien plant eradication and control must be undertaken throughout the construction phase and the operational phase.

Aquatic Biodiversity Specialist

- *Planning and design methods:*
    - No drop in height should occur between the downstream invert of a culvert and the watercourse bed to avoid erosion caused by high flows.
    - Methods to disperse flows and reduce flow velocities on culvert outflows must be implemented.
    - Erosion protection (e.g. stone pitching) must be implemented in channels that convey stormwater off the road and into watercourses.
- *Construction methods:*
    - Construction camps, equipment and material lay down areas must be located at least 30 m from any watercourse.
    - Concrete or cement mixing is not permitted at or in the vicinity of the watercourse. Any cement mixing cannot take place on bare ground. An impermeable or bunded area must be established in a way that cement slurry will not run off into the surrounding environment.
    - Any soil or material stockpiles must be covered with a geotextile or plastic and bunded (e.g. with sand bags) to prevent erosion of the material down slopes into the watercourse.
    - Excess cement or other materials must be left to dry out before being removed and disposed of at an appropriate facility.
    - Construction should be planned to avoid seasonal rainfall peaks.
    - Vehicle access roads to construction areas must not cross watercourses. Vehicles must be diverted back to the existing road at these points (i.e. watercourses must not become traffic thoroughfares).
    - Access to the watercourse can only be for work specifically being conducted to enlarge the crossings and culvert areas. In these areas, access must be limited to essential equipment only.
    - Fuel storage and vehicle refuelling areas must be located at least 50 m from any watercourse.

- Discontinue construction during periods of high rainfall.
- Vehicles and machinery must be inspected for leaking fuel before accessing the site, and leaking vehicles must not be permitted to work at the site.
- Provide bins or rubbish bags for rubbish and place them in an area designated for break-time. Ensure bins are cleaned out on a regular basis.
- Provide portable chemical toilets on-site (1 toilet per 10 workers). Waste from toilets is to be disposed of regularly, at least weekly, in a responsible manner by a registered waste contractor. Toilets must be located more than 30 m away from watercourses.
- All workers must be briefed that no waste is to be disposed of in the environment.
- All workers must be briefed that no access to watercourses is permitted for the duration of construction works unless this is related to maintenance or construction of road infrastructure.
- Following the completion of construction, disturbed areas must be:
  - Cleared of construction debris and any blockages.
  - Cleared of alien invasive vegetation.
  - Reshaped to free-draining and non-erosive contours where possible.
  - Re-vegetated with indigenous vegetation suitable to the area.

- *Operational measures:*
  - Inspect road crossings following rainfall events to ensure there is no erosion or sediment deposition along watercourses associated with the culverts.
  - Where erosion has occurred determine an appropriate method of rehabilitation such as revegetation with indigenous plants to stabilise soil or silt fences on slopes. Identify areas of channelled flow or high flow velocities. Methods to spread water and reduce flows should be investigated.
  - Ensure pipes and culverts under roads are free of debris following rainfall events.
  - Inspect culverts bi-annually to ensure that road crossings following rainfall events to ensure there is no erosion or sediment deposition along watercourses associated with the culverts.
    - Bi-annual inspections should be sufficient to allow invasive plants to be removed by hand-pulling. Alternatively, plants must be controlled using the cut-stump method:
      - The tree must be felled as close to the ground as possible;
      - The freshly cut stump must be painted with a herbicide registered for the control of the plant species in question; and
      - o The herbicide must be mixed with a dye to identify stumps that have already been treated.

Cultural and Landscape Heritage Specialist

- Clearance of natural vegetation must be minimised.
- Cuts and fills and landscape scarring in general must be minimised.
- All disturbed areas not needed during operation of the road must be rehabilitated.

Palaeontological Specialist

- Fossils will be required to be extracted;
- A realistic monitoring programme for the palaeontologically sensitive areas of the road strengthening project must be compiled by a professional palaeontologist.
- The beforementioned specialist will require a HWC-approved Workplan for the collection of palaeontological materials and must conform to international best practice for palaeontological fieldwork and the study (e.g., data collecting, collecting of fossil as well as report writing) should meet the minimum standards for Phase 2 palaeontological studies suggested by HWC.
- Feedback from Heritage Western Cape must be received regarding this aspect.
- A Chance of Find protocol must be implemented on site throughout the construction phase of the proposed project.
- A search and rescue of fossils is required prior to site establishment.
- A suitably qualified palaeontological specialist must be appointed to oversee the search and rescue activities.

3.	List the specialist investigations and the impact management measures that will **not** be implemented and provide an explanation as to why these measures will not be implemented.

Terrestrial Biodiversity and Plant Assessment

The following mitigation measure as proposed by the Terrestrial Biodiversity and Plant Assessment Specialist (Mark Berry), will be implemented, however the approach will be two-stepped:

"Allow at least 24 months for the monitoring of rehabilitation success and alien infestation post construction."

The responsibility of this monitoring will be divided between the following contracts:

- 0-12 months: This requirement will be exercised by the contractor/project team appointed for the construction works;
- 13-24 months: This requirement must be exercised through the maintenance contractor.

This approach to the implementation of the mitigation measure will be followed as the standard deficit liability period following the completion of construction works is 12 months (1 year).

The requirement to fulfil this mitigation measure will be incorporated into an MMP, once compiled.

4.	Explain how the proposed development will impact the surrounding communities.

The impacts on the surrounding communities will be seen in the construction phase of the proposed project. These impacts will include traffic, noise and dust and general safety issues.

- *Noise and dust*
  - During construction phase of the proposed project, noise and dust will be generated, which may cause
- *Traffic*
  - As workers will be required to make use of their own means of transport, unless otherwise arranged with the Contractor team. This will lead to a marginal temporary increase in traffic leading out of and into Oudtshoorn during the construction phase of the proposed development.
  - As it relates to the proposed works this will be limited to regular peak traffic times (ie. Before and after work hours as construction works typically occur between 07:00 and 17:00), unless otherwise arranged between the Municipality and the Construction team.
  - During the construction phase of the project, it is expected that travel time delays will be caused as a result of the proposed works. The project will see to temporary lane closure that will be scheduled and the residents/landowners in the immediately surrounding area will be notified of the activities within a reasonable timeframe.
  - Although traffic impacts during the construction phase of the proposed development would be considered unavoidable, In order to minimise the impacts of the project on the residents and travellers commuting along the TR75 (Trunk Road 75/N12-Highway, a detailed Traffic Management Plan must be compiled and attached as part of the EMPr prepared for the proposed development.

As the project entails the upgrading of exiting infrastructure, no additional operational impacts on the surrounding communities (other than that already observed on site) are expected.

5.	Explain how the risk of climate change may influence the proposed activity or development and how has the potential impacts of climate change been considered and addressed.

The proposed project aims to achieve a number of the sustainability objectives in terms of the Sustainability Development Goals (SDG) as adopted in 2015 as part of the Envision2030 initiative. The goals detailed in the table below are significant to the proposed development and will be addressed to some extent, while others are not relevant.

Figure 27. Sustainable Development Goals applicable to the proposed project.

SDGs	Description	Relevance
SDG1	No poverty	During the construction phase of the proposed project, a number of employment opportunities will be created. As discussed in the sections above, the use of local labourers will be encouraged for labour intensive activities.
SDG3	Good Health and well-being	The operational phase of the proposed project aims to provide a safer roadway for all who use this road during their commutes. Therefore, this project aims to add to the health and well-being of the users of the TR75/1.
SDG4	Quality Education	As part of the construction phase of the proposed project, the contractors will be encouraged to teach the workers skills that is transferable to future employment opportunities. Additionally, through the environmental awareness training to be conducted by the independent experienced ECO, the workers will be educated on the importance of the affected environmental receptors as well.
SDG5	Gender equality	Where reasonably possible, woman and men of varying skill levels will be approached for the purpose of completing the construction phase activities for the proposed project.
SDG8	Decent Work and Economic Growth	The proposed project will strive to provide local labourers with an employment opportunity. This will lead to a temporary growth in the local economic situation.

SDG9	Industry, innovation and infrastructure	The proposal will see capital expenditure by the Western Cape Government toward the /improvement of the infrastructure associated with the existing TR (Trunk Road 75/ N12-Highway).
SDG13	Climate Action	The proposed project will be aligned to the existing infrastructure corridor of the TR75/1 (Trunk Road 75/N12-Highway). Therefore, the proposal indirectly benefits the micro-climate of the area as additional natural resources will not be disturbed (as would be seen through the construction of a whole new road creating a link between Oudtshoorn and George). The impacts a new road would have on the micro-climate of the area would be seen through the destruction of additional water resources and vegetation communities, which are essential for regulating the micro-climate in an area. An additional road would also increase the Green House Gasses (GHG) in the newly identified area whereas the proposed project will not see to the attraction of GHG sources. The project would rather aim to alleviate traffic and therefore, indirectly, marginally reduce the amount of GHG emissions released along the route.
SDG15	Life on Land	A number of sensitive themes have been identified within proximity to the development footprint. Therefore, a number of specialists were appointed to investigate the impacts that the proposed project will have on these themes. Through the implementation of the mitigation measures provided by the various specialists, limited impacts on the landscape and all of its constituents will be observed.

6.	Explain whether there are any conflicting recommendations between the specialists. If so, explain how these have been addressed and resolved.

No conflicting findings have been described by the various specialists.

7.	Explain how the findings and recommendations of the different specialist studies have been integrated to inform the most appropriate mitigation measures that should be implemented to manage the potential impacts of the proposed activity or development.

All impacts and recommendation of the various specialist studies have been integrated into the impact tables as described in Section I of this report, and the attached EMPr. These measures propose to guide the management of the various phases of the project.

8.	Explain how the mitigation hierarchy has been applied to arrive at the best practicable environmental option.

For the purpose of the proposed project, the Mitigation Hierarchy was considered while determining the best practicable environmental option for the construction and operational phases of the project. Activities related to the proposed refurbishments have been considered. Where possible activities have been avoided, therefore all activities included in the proposal of this development are essential for the successful implementation and operation of this development.

All impacts that could not be avoided, have been investigated to establish mitigation measures to minimize and rectify, where possible or radically reduce the predicted impacts. As all the proposed impacts can be sufficiently reduced in significance, and no residual negative biodiversity impacts will remain, no biodiversity offset was considered for this development.

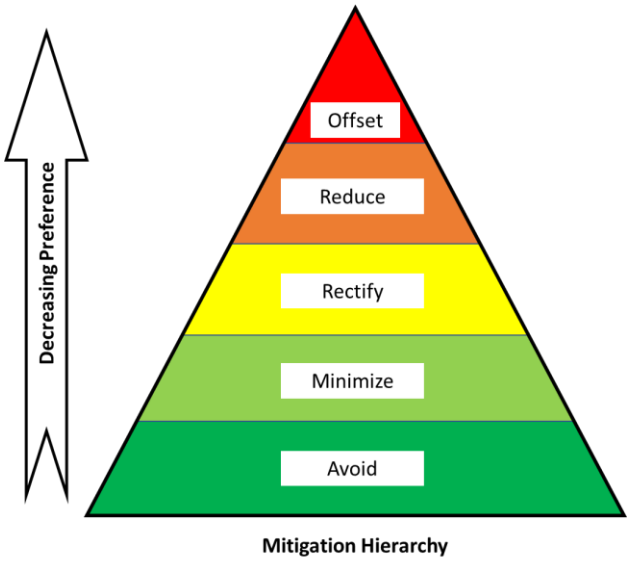


Figure 28. Mitigation hierarchy.

Table 5 describes the mitigation hierarchy approach followed for the purpose of arriving at the best practicable environmental opinion.

Table 5. Mitigation hierarchy descriptions.

Hierarchy level		Description in relation to the proposal
1	Avoid	Through the implementation of the proposed project, the refurbishment of the existing Road TR75/1 (Trunk Road / N12-Hgihway) will provide an effective and safe means of access. Thereby also eliminating/avoiding the need for the construction of a new road leading between Oudtshoorn and George. Through the adoption of the preferred design layout, significant impacts on the environment (most significantly the cultural landscape and palaeosensitivity) will be avoided. This is due to the minimal cut and fill required (in comparison to the alternative) to implement the preferred design alternative.
2	Minimise impacts	The recommended mitigation measures of the various specialists reports in addition to the mitigation measures provided in the EMPr will lead to the minimisation of the impacts of the construction phase (specifically as this is an existing road proposed to be strengthened).
3	Rectify	The rehabilitation measures in the EMPr are provided to return the impacted areas, outside of the development footprint, back to a functional state and the developer will be responsible for rectifying any non-compliances with the conditions of the EA and EMPr.
4	Reduce	In order to manage the impact on the watercourses to be intercepted by the proposed project, a minimum impact zone approach has been adopted in order to reduce the anticipated impact on the natural resources in the area. The size of these zones are activity dependent.
5	Offset	In June 2023, the Department of Forestry, Fisheries and Environment (DFFE) promulgated the National Biodiversity Offset Guidelines in terms of the National Environmental Management Act. 1998, as amended (Act No. 107 of 1992). Based on the National Biodiversity Offset Guidelines, 2023 (GN 3569 of 2023), an offset is required where the residual impacts are Medium or High. Based on the findings of the specialist assessments (specifically those relating to the ecosystems identified, as per the definition of the beforementioned guidelines), the following impact ratings were awarded, after the implementation of mitigation measures: • Terrestrial biodiversity and plant assessment: o Impact during construction phase: Medium-Low o Impact during operational phase: Low • Aquatic biodiversity and plant assessment: o Cumulative impact during construction phase: Negligible-Minor (low) o Cumulative impact during operational phase: Negligible • Animal Species assessment: o Impact during construction phase: Low Therefore, based on the above, all impacts on the biodiversity component of the proposed infrastructure project can be mitigated to be lower than the threshold necessitating a biodiversity offset. Hence, no offset will be required for the proposed project.

SECTION J: GENERAL

1. ENVIRONMENTAL IMPACT STATEMENT

1.1.	Provide a summary of the key findings of the EIA.

The key findings of the EIA indicates that the proposed project will have significant positive impacts, that can be further enhanced through the implementation of appropriate enhancement measures. Whereas all negative impacts can be significantly mitigated with reasonable and practical mitigation measures, these can be summarised below:

Socio-economic impacts:

- *Positive impacts:*
  - The proposed project strives to promote a safer commute along the TR (Trunk Road/N12-Highway).
  - The implementation of the proposed activities will relieve the traffic burden of the road during peak traffic times.
  - Local labour will be sourced from the local communities, particularly those of a historically disadvantaged background, various genders, educational and socio-economic levels. The proposed development will provide:
    - Jobs for people with a low education level.
    - Provide an opportunity for uplifting and education through the adoption of new skills and also economical upliftment through earning a salary.
    - Boosting of the local economy by creating jobs, paying salaries, and using locally sourced goods, services, and labour.
    - Creating social stability by providing jobs which not only give a person a sense of self-worth but also an opportunity to provide for their family

- *Negative impacts:*
  - Temporary impacts such as noise, dust, traffic and visual impacts as a result of construction activities.

Impacts:

- *Positive impacts:*
  - The proposed project was deemed as acceptable from an aquatic, agricultural and animal species perspective.
  - With the implementation of the appropriate mitigation measures, the proposed project can be deemed as acceptable from a botanical perspective.
  - With a fossil find implementation plan in place, it is anticipated that the proposed project will be acceptable from a heritage and palaeontological perspective.
  - Due to the requirement of an active effort toward managing the alien and invasive plant community on site, the destructive impact of their presence will be mitigated.
  - The opportunity to rehabilitate the road reserve to such an extent that the vegetation can be reinstated in all areas where practically feasible.
  - The opportunity to observe and monitor vegetation regrowth during the operational phase of the proposal.

- *Negative impacts:*
  - Loss of vegetation along the banks of the road, however the extent of the loss can be managed and mitigated.
  - Temporary nuisances caused as a result of construction activities.

As per the findings from environmental specialist input it has been established that the proposed development is acceptable, along with the recommended mitigation measures, and the EAP is in agreement.

1.2.	Provide a map that that superimposes the preferred activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. (Attach map to this BAR as Appendix B2)

A map has been included as Appendix B2.

1.3.	Provide a summary of the positive and negative impacts and risks that the proposed activity or development and alternatives will have on the environment and community.

Below is a table of the potential impacts and their significance ratings identified:

Impact	Preferred Design		Alternative Design	
	Significance without mitigation	Significance with mitigation	Significance without mitigation	Significance with mitigation
PLANNING AND DESIGN IMPACTS				
Compliance with legislative requirements	Medium (-)	Low (-)	Medium-High (-)	Medium (-)
Site establishment and pre-construction activities	Medium (-)	Low (-)	Medium (-)	Low (-)
Aquatic impact: Impact of stormwater management structures	Medium (-)	Negligible (-)	High (-)	High (-)
CONSTRUCTION PHASE				
Agricultural: Impact on Agricultural Resources	Negligible (-)	Negligible (-)	Low (-)	Low (-)
Cultural Landscape Impact	Low (-)	Low (-)	Medium (-)	Medium (-)
Palaeontological Impact	High (-)	Medium (-)	Very High (-)	High (-)
Aquatic impact: Impact of storage and management of construction activities	Low (-)	Negligible (-)	Low (-)	Negligible (-)
Aquatic impact: Impact of the operation of heavy machinery and vehicles on water quality and instream habitat	Low (-)	Negligible (-)	Low (-)	Negligible (-)

Aquatic impact: Impact of increased numbers of labourers in and around watercourses on quality and instream habitat	Low (-)	Negligible (-)	Low (-)	Negligible (-)
Aquatic impact: Impact of soil disturbance	Low (-)	Negligible (-)	Medium (-)	Low (-)
Aquatic impact: Loss of instream habitat due to widening of the road	Low (-)	Low (-)	Medium (-)	Medium (-)
Animal Species theme: Impact on faunal SCCs	Low (-)	Negligible (-)	Medium (-)	Medium (-)
Terrestrial Biodiversity: Impact on Terrestrial Biodiversity	Medium-High(-)	Medium-Low (-)	High (-)	Medium-High (-)
Terrestrial Biodiversity: Impact of project on indigenous flora and SCC	Medium-High(-)	Medium-Low (-)	High (-)	Medium-High (-)
General impact: Alien and invasive plant species colonisation	Medium-High(-)	Medium (-)	Medium-High (-)	Medium (-)
Pollution management: Pollution of hydrocarbons due to spills and leaks	Medium (-)	Low (-)	Medium (-)	Low
Visual: Noise, dust, light and general housekeeping	Medium (-)	Low (-)	Medium (-)	Low
Road safety: Road traffic impacts as a result of the construction works	Medium (-)	Low (-)	Medium (-)	Low
Socio-economic impact: Employment opportunities created	Low (+)	Medium-High (+)	Low (+)	Medium-High (+)
POST-CONSTRUCTION REHABILITATION PHASE / OPERATIONAL PHASE				
Road safety: Provision of safer road way	Very-High (+)	Very High (+)	Very-High (+)	Very High (+)
Terrestrial Biodiversity: Impact on Terrestrial Biodiversity	Medium-Low (-)	Low (-)	Medium-Low (-)	Low (-)
Terrestrial Biodiversity: Impact of project on indigenous flora and SCC	Medium-Low (-)	Low (-)	Medium-Low (-)	Low (-)
Aquatic impacts: Impact of culverts on erosion of the bed and banks of watercourses	Low (-)	Negligible (-)	Low (-)	Negligible (-)
Aquatic impacts: Impact of disturbance of bed and banks on the establishment of alien invasive plant species	Low (-)	Negligible (-)	Low (-)	Negligible (-)

Based on the findings of the impact evaluation of the various alternatives, it was found that the loss of resources that would potentially be seen as a result of the implementation of the design alternative would be higher than the designs proposed for the project. This is due to the requirement of a significant road realignment which would be required as a result of alternative approach, leading to a much larger cut and fills, a larger footprint and an increase in the alterations required within the watercourses in order to achieve a similar operational outcome (as is evident through the operational impacts identified for both alternatives of the proposed project).

Based on the findings of the impact evaluation done, the proposed design as detailed in this BAR is considered the preferred alternative.

2. RECOMMENDATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

2.1.	Provide Impact management outcomes (based on the assessment and where applicable, specialist assessments) for the proposed activity or development for inclusion in the EMPr

Construction phase:

- Ensuring that the biophysical components (including the soil, surface water and groundwater resources) of the environment is not contaminated as a result of the proposed works.
- To promote employment opportunities for local residents.
- To limit the amount of visual impact which the proposed project will have on all users of the road and the residents using the road TR75/1 as access into their properties (due to dust, lighting etc.)
- To allow for the smooth movement of traffic (limited traffic flow disruption) along the road.
- Limited loss of natural resources (SCC, watercourse areas and botanically sensitive areas).
- The management of alien invasive vegetation species that has previously, and has the potential of establishing in the reserve.

Post-Construction/Rehabilitation phase:

- Ensuring that the biophysical components (including the soil, surface water and groundwater resources) of the environment is not contaminated as a result of the proposed works.
- The management of alien invasive vegetation species within the road reserve.
- Ensure that there are limited visual impacts on the surrounding land owners and road users.
- A safer and easier to use roadway.

These environmental management outcomes have also been assessed and mitigation measures toward minimising the negative impacts were explored in depth in Section G of this BAR.

As per the EMPr (and Section G above), the environmental Impact Management aspects have been divided into four (4) sections: Planning and design phase, pre-construction phase, construction phase and post-construction rehabilitation phase.

2.2.	Provide a description of any aspects that were conditional to the findings of the assessment either by the EAP or specialist that must be included as conditions of the authorisation.

The compiled EMPr must be complied with during the construction and rehabilitation phase and as such the implementation of the EMPr is conditional of the impact significance rating post implementation of the mitigation measures.

Other recommended conditions of Authorisation:

- A combined search and rescue plan and Rehabilitation plan for the disturbed areas must be compiled by an appropriately experienced specialist, attached to the Amended EMPr and approved by the CA before commencement.
- Laydown areas, storage areas and the site camp area must be approved by the ECO and Site Engineer.
- The Areas outside the Road reserve must be regarded as No-Go areas.
- All mitigation measures presented by the appointed specialists must be duly implemented on site during all phases of the proposed project.
- The following permits and authorisations must be obtained prior to the commencement of the construction activities:
    - The appropriate SCC relocation permit from CapeNature;
    - The General Authorisation for Section 21 (c) and (i) water uses under the National Water Act (Act No. 36 of 1998).

2.3.	Provide a reasoned opinion as to whether the proposed activity or development should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be included in the authorisation.

It is the opinion of the EAP that, based on the outcomes of the specialist studies conducted and further potential impacts as identified in this report, the proposed road refurbishment project should be approved with the condition that all mitigation measures presented by the independent specialist must be implemented on site.

Considering that all potential negative impacts can be mitigated it must be a condition of Environmental authorisation that the EMPr be implemented, and compliance therewith must be monitored by an experienced ECO.

2.4.	Provide a description of any assumptions, uncertainties and gaps in knowledge that relate to the assessment and mitigation measures proposed.

General assumptions made throughout the report:

- It is assumed that all the information provided in this report and on which the report is based is correct and valid at the time receipt thereof.
- It is assumed that the proposed mitigation measures, will be implemented and adhered to by all the construction and rehabilitation teams.
- The EIA process (in the form of a BAR) will include every effort to enable an adequate and fair public participation process.

From a specialists' perspective, the following assumptions, limitations and gaps in the knowledge exists:

- Animal Species Specialist Survey:
    - During the staking out of the construction area take cognisance of the highly sensitive and medium sensitive areas next to the road. Try and avoid or minimise disturbance of these areas as far as practically possible.
    - Search and rescue succulents and bulbs from the construction area for replanting in the disturbed or rehabilitation areas after construction. Topsoil, cuttings and seedbearing plant material can also be salvaged for this purpose, especially cuttings from succulents and Pelargonium species. Bulbs should be removed along with some soil, placed in gel, bagged and then taken to a nursery for temporary storage or transplanted directly in the receiving area.
    - Search and rescue should be done at an appropriate time of the year, preferably when the soil is wet during the raining season. Ideally, bulbs should be salvaged during leaf fall, but before or after flowering. Please note that a CapeNature permit is needed for the removal/relocation of indigenous plant species. A Search & Rescue and Rehabilitation Plan will be needed.
- Terrestrial Plant Specialist Survey
    - Fieldwork was carried out in the autumn season, considered to be an unsuitable time for many flowering species in the Southern Cape/Little Karoo. Plants that only flower at other times of the year (e.g. winter to spring), such as certain bulbs (Iridaceae and Orchidaceae), may have been missed. The overall confidence in the completeness and accuracy of the botanical findings is however considered to be fair to good.
    - The following assumption is made:
        - Because the vegetation alongside a roadside is often degraded or modified, the specialist was of the opinion that the survey and the findings thereof was adequate to aid decision making.
- Aquatic Biodiversity Specialist Survey:

	Risks were assessed assuming full implementation of all mitigation measures described for the operational and construction phases.

2.5.	The period for which the EA is required, the date the activity will be concluded and when the post construction monitoring requirements should be finalised.

An Environmental Authorisation with a validity period of 7 years is requested.

- Approximately 1 year would be required for further negotiations between the land owners and the relevant departments for the closure and construction of access roads as indicated in Section E above.
- Approximately 2-3 years would be required toward pre-commencement activities, such as acquiring funds, the tendering process and the appointment of the construction team.
- Approximately 2 years (16 months) would be required for the construction works.
- 1 Year toward rehabilitation and clearance of alien vegetation.

3. WATER

Since the Western Cape is a water scarce area explain what measures will be implemented to avoid the use of potable water during the development and operational phase and what measures will be implemented to reduce your water demand, save water and measures to reuse or recycle water.

During the construction phase of the proposed road refurbishment project, water will only be used for the purpose of select construction activities, such as cement mixing, layer compaction where necessary, and where required to fulfil the mitigation measures (dust suppression methods) where necessary. Potable water within the construction site will also be used drinking water.

No water use will be required during the operational phase of the proposed road refurbishment project.

4. WASTE

Explain what measures have been taken to reduce, reuse or recycle waste.

Mitigation towards waste management during the construction, operational and maintenance activities pertaining to the proposal have been included in the Environmental Management Programme and the Maintenance Management Plan.

5. ENERGY EFFICIENCY

5.1.	Explain what design measures have been taken to ensure that the development proposal will be energy efficient.

This proposal will not require energy in the operational phase.

SECTION K: DECLARATIONS

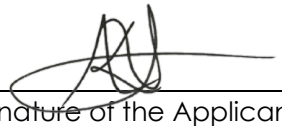
1. DECLARATION OF THE APPLICANT

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

I, **Azni November**, ID number **890116 5085 086** in my personal capacity or duly authorised thereto hereby declare/affirm that all the information submitted or to be submitted as part of this application form is true and correct, and that Western Cape Government, Department of Infrastructure:

- are fully aware of my responsibilities in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), the Environmental Impact Assessment ("EIA") Regulations, and any relevant Specific Environmental Management Act and that failure to comply with these requirements may constitute an offence in terms of relevant environmental legislation;
- are aware of my general duty of care in terms of Section 28 of the NEMA;
- are aware that it is an offence in terms of Section 24F of the NEMA should I commence with a listed activity prior to obtaining an Environmental Authorisation;
- appointed the Environmental Assessment Practitioner ("EAP") (if not exempted from this requirement) which:
  - meets all the requirements in terms of Regulation 13 of the NEMA EIA Regulations; or
  - meets all the requirements other than the requirement to be independent in terms of Regulation 13 of the NEMA EIA Regulations, but a review EAP has been appointed who does meet all the requirements of Regulation 13 of the NEMA EIA Regulations;
- will provide the EAP and any specialist, where applicable, and the Competent Authority with access to all information at my disposal that is relevant to the application;
- will be responsible for the costs incurred in complying with the NEMA EIA Regulations and other environmental legislation including but not limited to –
  - costs incurred for the appointment of the EAP or any legitimately person contracted by the EAP;
  - costs in respect of any fee prescribed by the Minister or MEC in respect of the NEMA EIA Regulations;
  - Legitimate costs in respect of specialist(s) reviews; and
  - the provision of security to ensure compliance with applicable management and mitigation measures;
- are responsible for complying with conditions that may be attached to any decision(s) issued by the Competent Authority, hereby indemnify, the government of the Republic, the Competent Authority and all its officers, agents and employees, from any liability arising out of the content of any report, any procedure or any action for which I or the EAP is responsible in terms of the NEMA EIA Regulations and any Specific Environmental Management Act.

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



2023/10/05

Signature of the Applicant: Date:

Western Cape Government - Department of Infrastructure

Name of company (if applicable):

2. DECLARATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

I ……Madeleine Knoetze……, EAPASA Registration number ……3230…….. as the appointed EAP hereby declare/affirm the correctness of the:

- Information provided in this BAR and any other documents/reports submitted in support of this BAR;
- The inclusion of comments and inputs from stakeholders and I&APs;
- The inclusion of inputs and recommendations from the specialist reports where relevant; and
- Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties, and that:
- In terms of the general requirement to be independent:
  - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or
  - ~~am not independent, but another EAP that meets the general requirements set out in Regulation 13 of NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review EAP must be submitted);~~
- In terms of the remainder of the general requirements for an EAP, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- I have disclosed, to the Applicant, the specialist (if any), the Competent Authority and registered interested and affected parties, all 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 prepared or to be prepared as part of this application;
- I have ensured that information containing all relevant facts in respect of the application was distributed or was made available to registered interested and affected parties and that participation will be facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments;
- I have ensured that the comments of all interested and affected parties were considered, recorded, responded to and submitted to the Competent Authority in respect of this application;
- I have ensured the inclusion of inputs and recommendations from the specialist reports in respect of the application, where relevant;
- I have kept a register of all interested and affected parties that participated in the public participation process; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations;

01 November 2023

Signature of the EAP: Date:

Sharples Environmental Services CC

Name of company (if applicable):

3. DECLARATION OF THE REVIEW EAP

NOT APPLICABLE

I ……, EAPASA Registration number …….. as the appointed Review EAP hereby declare/affirm that:

- I have reviewed all the work produced by the EAP;
- I have reviewed the correctness of the information provided as part of this Report;
- I meet all of the general requirements of EAPs as set out in Regulation 13 of the NEMA EIA Regulations;
- I have disclosed to the applicant, the EAP, the specialist (if any), the review specialist (if any), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations.

Signature of the EAP: Date:

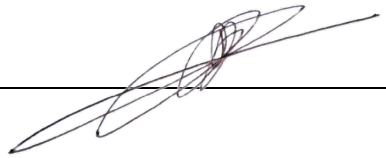
Name of company (if applicable):

4. DECLARATION OF THE SPECIALIST

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

I Jayson Orton, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
  - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
  - ~~am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);~~
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.



03 July 2023

Signature of the EAP: Date:

ASHA Consulting (Pty) Ltd

Name of company (if applicable):

4. DECLARATION OF THE SPECIALIST

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

I ……Elize Butler……, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
  - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or

  - ~~am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted~~);

- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;

- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and

- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.

03-07-2023

Signature of the EAP: Date:

Banzai Environmental (Pty) Ltd

Name of company (if applicable):

4. DECLARATION OF THE SPECIALIST

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

I ……., as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
  - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or

  - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);

- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;

- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and

- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.

Signature of the EAP: Date:

Name of company (if applicable):

4. DECLARATION OF THE SPECIALIST

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

I Robyn Phillips, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

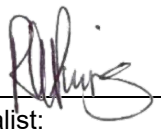
- In terms of the general requirement to be independent:
  - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or

  - ~~am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);~~

- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;

- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and

- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.



2023/07/05

Signature of the ~~EAP:~~ Specialist: Date:

Cossypha Ecological

Name of company (if applicable):

Declaration of Independence

I Mark Gerald Berry, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
  - **other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity**; or
  - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist:	
Name of Company:	Mark Berry Botanical Surveys
Date:	24 March 2023

Appendix 2: Declaration of the specialist

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

I, **Johann Lanz**, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
  - other than fair remuneration for work performed/to be performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or
  - ~~am not independent, but another specialist that meets the general requirements set out in Regulation 13 have been appointed to review my work (Note: a declaration by the review specialist must be submitted);~~
- in terms of the remainder of the general requirements for a specialist, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- have disclosed/will disclose, to the applicant, the Department and interested and affected parties, all material information that have or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of regulation 48 of the 2014 NEMA EIA Regulations.

Signature of the specialist: 

Date: **5 April 2023**

Name of company: **Johann Lanz – soil scientist (sole proprietor)**

5. DECLARATION OF THE REVIEW SPECIALIST

NOT APPLICABLE

I ……, as the appointed Review Specialist hereby declare/affirm that:

- I have reviewed all the work produced by the Specialist(s):
- I have reviewed the correctness of the specialist information provided as part of this Report;
- I meet all of the general requirements of specialists as set out in Regulation 13 of the NEMA EIA Regulations;
- I have disclosed to the applicant, the EAP, the review EAP (if applicable), the Specialist(s), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations.

Signature of the EAP: Date:

Name of company (if applicable):