**GEORGE**
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**FINAL**

# BASIC ASSESSMENT REPORT

**FOR THE**

## PROPOSED REMOVAL AND REPLACEMENT OF THE EXISTING ROAD AND CULVERT INFRASTRUCTURE LOCATED ALONG DIVISION ROAD (DR) 1791 KM 1.59, STOFPAD ROAD, CROSSING FARM 501AND FARM 306 ON PORTION 22 WITTEDRIFT, BITOU 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).

| | |
|---|---|
| **Applicant:** | Western Cape Government Department of Infrastructure |
| **Environmental Consultant:** | Sharples Environmental Services CC<br>Author: Betsy Ditcham (EAPASA: 2020/1480)<br>Assisted by: Jessica Gossman (Candidate EAPASA: 2022/6154 |
| **SES Reference Number:** | CT6/FBAR/**01/26** |
| **DEADP Reference:** | 16/3/3/6/7/1/D1/14/0099/25 |
| **Date:** | **01/26** |

# Table of Contents



## List of Figures:

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# CHANGES BETWEEN THE DRAFT BASIC ASSESSMENT REPORT AND THE FINAL BASIC ASSESSMENT REPORT

This section indicates the Sections within the Basic Assessment Report which saw changes following the conclusion of the Public Participation Process of the project:

- Executive Summary – Updated the descriptions of the executive summary.
- Section F – Updated to include Public Participation measures taken and to include a summary of the compliance the EIA Regulations of 2014, as amended;
- Section H – Updated to include Water Use Licensing requirements in the, Pre-Construction, Construction and Rehabilitation Phases.
- Section I – Updated to ensure findings, mitigation measures, and conclusions have been included, such as Water Use Licence requirements.

Furthermore, the appendices which were updated have also been provided below:

- Appendix F – Updated to include the Proof of PPP and all correspondence received.
- Appendix H – Environmental Management Programme has been updated to include all recommendations received during the PPP, as stipulated in the CRR.

**Please note that from this point onwards in the report, all changes to the contents of the Basic Assessment Report have been indicated in red text.**

# Executive Summary

Sharples Environmental Services CC (SEScc) was appointed by Hatch Consulting Engineers, on behalf of the Western Cape Government Department of Infrastructure, to undertake the environmental assessment process for the proposed removal and replacement of an existing causeway located on Divisional Road (DR) 1791 (Stofpad Road) at kilometre marker 1.59, crossing Farm 501 and Portion 22 of Farm 306 (Wittedrift) within the Bitou Local Municipality, Garden Route District, Western Cape

The proposed project forms part of the Western Cape Government's flood damage repair and climate-resilience programme following the severe flood events experienced in November 2021, which caused extensive damage to road and drainage infrastructure throughout the Garden Route region. The existing causeway structure, approximately 20 m long and 6.1 m wide, comprises three Ø600 mm precast concrete pipes and an unreinforced concrete deck slab that is permanently submerged. The structure has sustained significant damage, has inadequate hydraulic capacity, and is frequently overtopped during high-rainfall events, resulting in prolonged road closures and unsafe access conditions for surrounding rural communities and agricultural operations.

To address these issues, it is proposed to demolish the existing causeway and construct a new in situ reinforced concrete cellular causeway, consisting of three cells approximately 4 m wide by 1.5 m high, providing a 4 m road width between guide blocks. The road approaches on both sides will be raised by approximately 1.4 m over a length of ±100 m to tie into the new causeway deck height. Associated infrastructure will include new inlet and outlet structures with wing walls, apron slabs, and erosion protection measures. The upgraded design will significantly improve hydraulic performance, reduce flood risk, and ensure safer, more reliable all-weather access.

In order to maintain traffic flow during construction, a temporary deviation road will be established either upstream or downstream of the existing causeway, depending on site conditions at the time of construction. The temporary deviation road will be approximately 4 m wide, with an additional 3 m working corridor, and will require limited clearance of indigenous vegetation within the watercourse. The construction footprint outside the existing road reserve will be approximately 561.71 m² (downstream option) or 514.49 m² (upstream option). Only one deviation option will be implemented during construction.

The project footprint is located within a watercourse and within a mapped Critical Biodiversity Area, triggering listed activities in terms of the Environmental Impact Assessment Regulations, 2014, as amended (GNR 326 of 2017; GNR 517 of 2021). A Basic Assessment process was therefore undertaken. The assessment considered the planning context, need and desirability, alternatives (including upstream and downstream deviation options), and the potential environmental, social, and biophysical impacts associated with the proposed works.

Specialist studies were undertaken in accordance with the findings of the National Web-Based Environmental Screening Tool and included aquatic biodiversity, terrestrial biodiversity (flora and fauna), and heritage and palaeontological compliance assessments. These studies confirmed that, while the receiving environment is environmentally sensitive, the anticipated impacts are localised, temporary, and largely confined to the construction phase. With the implementation of appropriate mitigation measures, including those contained in the Environmental Management Programme (EMPr), the majority of impacts are expected to be of low significance after mitigation.

Public participation was conducted in accordance with the EIA Regulations and DEA&DP guidelines. Relevant organs of state, landowners, and interested and affected parties were notified and provided an opportunity to comment. No fatal flaws were identified during the public participation process, and stakeholder inputs have been considered and incorporated where relevant.

The proposed project is aligned with the Bitou Local Municipality Integrated Development Plan, the Garden Route District Framework, and provincial and national objectives relating to infrastructure resilience, road safety, disaster risk reduction, and socio-economic development. The project will restore essential access, support agricultural and local economic activity, and reduce the vulnerability of critical road infrastructure to future flood events.

In conclusion, the Basic Assessment concludes that the proposed removal and replacement of the DR1791 causeway is necessary and justified, and that, subject to the implementation of the recommended mitigation measures and EMPr, the project will not result in unacceptable environmental impacts. It is therefore recommended that the proposed activity be authorised, subject to appropriate conditions of approval.

Western Cape Government

Department of Environmental Affairs and Development Planning

# BASIC ASSESSMENT REPORT

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

**APRIL 2024**

Western Cape Government

Department of Environmental Affairs and Development Planning

# BASIC ASSESSMENT REPORT

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

## APRIL 2024

| (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)

**PROPOSED REMOVAL AND REPLACEMENT OF THE EXISTING ROAD AND CULVERT INFRASTRUCTURE LOCATED ALONG DIVISION ROAD (DR) 1791 KM 1.59, STOFPAD ROAD, CROSSING FARM 501 AND FARM 306 ON PORTION 22 WITTEDRIFT, BITOU LOCAL MUNICIPALITY, GARDEN ROUTE DISTRICT MUNICIPALITY.**

Sharples Environmental Services cc (SEScc) has been appointed by Hatch Consulting Engineers, on behalf of the Western Cape Department Infrastructure to oversee the environmental processes required for the proposed re-establishment of a causeway along Divisional Road (DR) 1791 (Stofpad Road), partially located on Farm 591, Farm 586, and Portion 22 of the Farm Wittedrift 306 , within the Bitou Local Municipality, Garden Route District Municipality, Western Cape.

Several roads in the Garden Route suffered flood damage during a flood event in November 2021. The proposed project forms part of the strategy toward repairing and upgrading the affected sections of these roads. The proposed development forms part of the overarching project and is aimed toward preventing future damage to the ecological resources and services infrastructure, as well as mitigating the road safety implications of the existing infrastructure.

The existing causeway is located at kilometre marker 1.59 along DR1791, with approximate starting coordinates at 34°00'04.57"S 23°19'27.98"E. The structure is approximately 20 m long × 6.1 m wide and comprises three Ø600 mm precast concrete pipes that are permanently submerged, with significant damage to the unreinforced concrete deck slab from previous flood events.

To effectively re-establish and upgrade the existing causeway, it is proposed to demolish the existing structure and construct a new in situ reinforced concrete causeway with three cells, each measuring approximately 4 m wide × 1.5 m high, providing a 4.0m road width between guide blocks. The road approaches on both sides will be raised by approximately 1.4 m over lengths of about 100 m to tie into the new causeway deck height. The new inlet and outlet works will include wing walls and an apron slab, with erosion protection as required.

In order to maintain traffic flow during construction, a temporary deviation road will be installed on the downstream or upstream side of the existing road, depending on the conditions at the time of construction. This temporary deviation road will be approximately 4m wide, with a working area of approx. 3 meters between the permanent structure and the temporary deviation road. The temporary deviation road alignment will require clearance of indigenous vegetation and work within the watercourse, with the total working area outside of the road reserve downstream being approximately 561.71 $m^2$, and the total construction area upstream approximately 514.5 $m^2$ outside of the road reserve.

Although the re-establishment of the causeway constitutes the continuation of an original activity, the construction of the additional temporary deviation road, specifically the portion located outside of the existing road reserve, will trigger one or more listed activities in terms of the Environmental Impact Assessment (EIA) Regulations of 2014, as amended (GNR 326 of 2017; GNR 517 of 2021).

**Please note: The proposed project is part of a larger scope of work that is not included in this application. The following proposed works are highlighted: flood damage repairs on Main Road 355 at km 2 to 12 (Seven Passes). Additionally, the proposed works extend to Division Roads located along DR1602, DR1633, DR1639, and (this application area) DR1791, in various areas throughout the Garden Route**

**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. *Submission of documentation, reports and other correspondence:*

   The Department has adopted a digital format for corresponding with proponents/applicants or the general public. If there is a conflict between this approach and any provision in the legislation, then the provisions in the legislation prevail. If there is any uncertainty about the requirements or arrangements, the relevant Competent Authority must be consulted.

   The Directorate: Development Management has created generic e-mail addresses for the respective Regions, to centralise their administration. Please make use of the relevant general administration e-mail address below when submitting documents:

   **DEADPEIAAdmin.George@westerncape.gov.za**
   Directorate: Development Management (Region 3):
   Garden Route District Municipal area and Central Karoo District Municipal area

   General queries must be submitted via the general administration e-mail for EIA related queries. Where a case-officer of DEA&DP has been assigned, correspondence may be directed to such official and copied to the relevant general administration e-mail for record purposes.

   All correspondence, comments, requests and decisions in terms of applications, will be issued to either the applicant/requester in a digital format via email, with digital signatures, and copied to the Environmental Assessment Practitioner ("EAP") (where applicable).

4. 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.

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

6. 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.

7. This BAR is current as of **April 2024**. 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 S to check for the latest version of this BAR.

8. 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.

9. 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.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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.

15. 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 | |
|---|---|
| | **GEORGE REGIONAL OFFICE:**<br>**DIRECTORATE: DEVELOPMENT MANAGEMENT (REGION 3)**<br>(Central Karoo District & Garden Route District) |
| | The completed Form must be sent via electronic mail to:<br>DEADPEIAAdmin.George@westerncape.gov.za<br><br>Queries should be directed to the Directorate: Development Management (Region 3) at:<br>E-mail: DEADPEIAAdmin.George@westerncape.gov.za<br>Tel: (044) 814-2006<br><br>Western Cape Government<br>Department of Environmental Affairs and Development Planning<br>Attention: Directorate: Development Management (Region 3)<br>Private Bag X 6509<br>George,<br>6530 |

## 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.<br>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.<br>The map must indicate the following:<br>• an accurate indication of the project site position as well as the positions of the alternative sites, if any;<br>• road names or numbers of all the major roads as well as the roads that provide access to the site(s)<br>• a north arrow;<br>• a legend; and<br>• a linear scale.<br><br>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.<br><br>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:<br>• 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.<br>• The property boundaries and numbers of all the properties within 50m of the site must be indicated on the site plan.<br>• 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.<br>• 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.<br>• 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.<br>• Servitudes and an indication of the purpose of each servitude must be indicated on the site plan.<br>• Sensitive environmental elements within 100m of the site must be included on the site plan, including (but not limited to):<br>o Watercourses / Rivers / Wetlands<br>o Flood lines (*i.e.*, 1:100 year, 1:50 year and 1:10 year where applicable);<br>o Coastal Risk Zones as delineated for the Western Cape by the Department of Environmental Affairs and Development Planning ("DEA&DP"):<br>o Ridges;<br>o Cultural and historical features/landscapes;<br>o Areas with indigenous vegetation (even if degraded or infested with alien species).<br>• Whenever the slope of the site exceeds 1:10, a contour map of the site must be submitted.<br>• North arrow<br><br>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.<br>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.<br>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.

* - To be included in Final BAR

The following checklist of attachments must be completed.

| **APPENDIX** | | | **✓ (Tick) or x (cross)** |
|---|---|---|---|
| **Appendix A:** | **Maps** | | |
| | **Appendix A1:** | **Locality Map** | ✓ |
| | **Appendix A2:** | **Zoning Map** | ✓ |
| | **Appendix A3:** | **Map with the GPS coordinates 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** | ✓ |
| | **Appendix E3:** | **Final Comment from the DWS** | ✓ |
| | **Appendix E4:** | **Comment from the DEA: Oceans and Coast** | **n/a** |
| | **Appendix E5:** | **Comment from the DAFF** | ✓ |
| | **Appendix E6:** | **Comment from WCG: Transport and Public Works** | **x** |

| | | | |
|---|---|---|---|
| | **Appendix E7:** | **Comment from WCG: DoA** | **x** |
| | **Appendix E8:** | **Comment from WCG: DHS** | **x** |
| | **Appendix E9:** | **Comment from WCG: DoH** | x |
| | **Appendix E10:** | **Comment from DEA&DP: Pollution Management** | **x** |
| | **Appendix E11:** | **Comment from DEA&DP: Waste Management** | **x** |
| | **Appendix E12:** | **Comment from DEA&DP: Biodiversity** | ✓ |
| | **Appendix E13:** | **Comment from DEA&DP: Air Quality** | **x** |
| | **Appendix E14:** | **Comment from DEA&DP: Coastal Management** | **n/a** |
| | **Appendix E15:** | **Comment from the local authority** | x |
| | **Appendix E16:** | **Confirmation of all services (water, electricity, sewage, solid waste management)** **(Not applicable as no services are required during construction and operation)** | 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** | n/a |
| | **Appendix E22:** | **Proof of public participation agreement for linear activities** | ✓ |

| | | |
|---|---|---|
| **Appendix F:** | **Public participation information:**<br>• **Register of I&APs,**<br>• **Comments and responses Report,**<br>• **Proof of notices,**<br>• **Advertisements** | ✓ |
| **Appendix F1:** | **I & AP List** | ✓ |
| **Appendix F2:** | **Site Notices, Adverts and Email Notifications** | ✓ |
| **Appendix F3:** | **Comments Received** | ✓ |
| **Appendix F4:** | **Comments and Responses Table** | ✓ |
| **Appendix G:** | **Specialist Report(s)** | ✓ |
| **Appendix H:** | **EMPr** | ✓ |
| **Appendix I:** | **Screening tool report** | ✓ |
| **Appendix J:** | **The impact and risk assessment for each alternative** | X |
| **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** | X |
| **Appendix L:** | **Engineering Report and Drawings** | ✓ |
| **Appendix…..** | **Any other attachments must be included as subsequent appendices** | |

## SECTION A: ADMINISTRATIVE DETAILS

| | | | |
|---|---|---|---|
| Highlight the Departmental Region in which the intended application will fall | | | **GEORGE OFFICE: BEGION 3**<br>**(Central Karoo District & Garden Route District)** |
| **Duplicate this section where there is more than one Proponent**<br>Name of Applicant/Proponent: | Western Cape Government: Department of Infrastructure | | |
| Name of contact person for Applicant/Proponent (if other): | Lousie Buys | | |
| Company/ Trading name/State Department/Organ of State: | Western Cape Government: Department of Infrastructure | | |
| Company Registration Number: | N/A | | |
| Postal address: | 11 Leeuwen Street Cape Town | | |
| | | Postal code: 8000 | |
| Telephone: | +27(0) 483 6465 | Cell: +27(0) 82 730 7792 | |
| E-mail: | Louise.buys@westerncape.gov.za | | |
| Company of EAP: | Sharples Environmental Services cc | | |
| EAP name: | Author: Betsy Ditcham (EAP Reg: 2020/1480)<br>Assisted by Candidate EAP: Jessica Gossman (2022/6154) | | |
| Postal address: | PO Box 443 | | |
| | Cape Town | Postal code:7441 | |
| Telephone: | ( 021 ) 554 5195 | Cell:079 028 1218 | |
| E-mail: | betsy@sescc.net<br>jessica@sescc.net | Fax: ( ) | |
| Qualifications: | Betsy Ditcham<br>• BSc Hons: Wildlife Management<br>Jessica Gossman<br>• BSc Hons: Geography | | |
| EAP registration no: | Author: Betsy Ditcham (EAP Reg: 2020/1480)<br>Assisted by Candidate EAP: Jessica Gossman (2022/6154) | | |
| **Duplicate this section where there is more than one landowner**<br>Name of landowner: | | | |
| Name of contact person for landowner (if other): | | | |
| Postal address: | | | |
| Telephone: | | | |
| E-mail: | | | |
| Name of Person in control of the land: | | | |
| Name of contact person for person in control of the land: | | | |
| Postal address & Postal code: | | | |
| Telephone: | | | |
| E-mail: | | | |

| | |
|---|---|
| **Duplicate this section where there is more than one Municipal Jurisdiction** | Bitou Local Municipality |

| | | |
|---|---|---|
| Municipality in whose area of jurisdiction the proposed activity will fall: | | |
| Contact person: | Phillip Dietzch | |
| Postal address: | Private Bag X1002 | |
| | Plettenberg Bay | Postal code: |
| Telephone | ( 044 ) 501 3266 | Cell: |
| E-mail: | dietzsch@plett.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 existing causeway infrastructure would be considered a brownfield site. However, the construction of the temporary deviation road will be located in an area which has been undeveloped in the past. | | | | | |
| 3. | **For Linear activities or developments** | | | | |
| 3.1. | Provide the Farm(s)/Farm Portion(s)/Erf number(s) for all routes: | | | | |
| Farm 501<br>Farm 306 on Portion 22 Wittedrift | | | | | |
| 3.2. | Development footprint of the proposed development for all alternatives. | Total Development footprint ( Downstream): 4996.57 m² | | | |
| | | Outside the road reserve (Downstream): 561.71 m² | | | |
| | | Total development footprint (Upstream): 3279.15 m² | | | |
| | | Outside the road reserve (Upstream): 514.49 m² | | | |
| The proposed temporary deviation road infrastructure will be situated either upstream or downstream of the existing causeway. Engineers and specialists have assessed both options as part of due diligence in the evaluation and environmental considerations. It has been determined that the construction footprint will be similar for both alternatives. | | | | | |
| 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 forms part of the strategy toward repairing and upgrading the affected sections of these roads. The proposed development forms part of the overarching project and is aimed toward preventing future damage to the ecological resources and services infrastructure, as well as mitigating the road safety implications of the existing infrastructure.<br><br>The existing causeway is located at kilometre marker 1.59 along DR1791 Stofpad Road, with approximate starting coordinates at 34°00'04.57"S 23°19'27.98"E. The structure is approximately 20 m long × 6.1 m wide and comprises three Ø600 mm precast concrete pipes that are permanently submerged, with significant damage to the unreinforced concrete deck slab from previous flood events.<br><br>To effectively re-establish and upgrade the existing causeway, it is proposed to demolish the existing structure and construct a new in situ reinforced concrete causeway with three cells, each measuring approximately 4 m wide × 1.5 m high, providing a 4 m road width between guide blocks. The road approaches on both sides will be raised by approximately 1.4 m over lengths of about 100 m to tie into the new causeway deck height. The new inlet and outlet work will include wing walls and an apron slab, with erosion protection as required.<br><br>In order to maintain traffic during construction, a temporary deviation road will be installed on the downstream or upstream side of the existing road, depending on the time of construction. This temporary deviation road will be approximately. 4 meters, with a working area of approx. 3 meters between the permanent structure and the temporary deviation road. The temporary deviation road alignment will require clearance of indigenous vegetation and work within the watercourse, with the total working area outside of the road reserve downstream will be approximately 561.71 m², and the total construction area upstream will be approximately 514.49 m² outside of the road reserve. | | | | | |

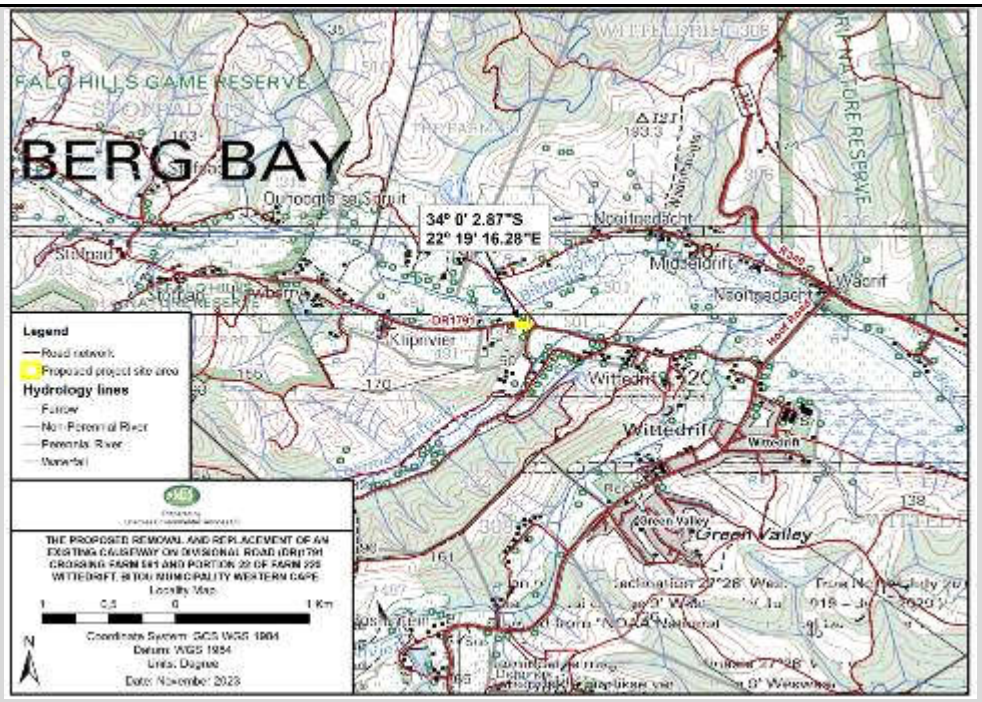


**Figure 1. Locality map of the proposed infrastructure works along DR1791, Wittedrift.**

The total footprint of the proposed temporary deviation road downstream is approximately 4996.57 m², including the area located within the road reserve. The total footprint of the proposed temporary deviation road upstream is approximately 3279.15m², which includes the area located within the road reserve.

The proposed temporary deviation road will be located either upstream or downstream of the existing causeway infrastructure, depending on the site conditions at the time of construction. Please see **Error! Reference source not found.** for the conceptual drawing of the downstream proposed temporary deviation road and **Error! Reference source not found.** for the upstream proposed temporary deviation road .

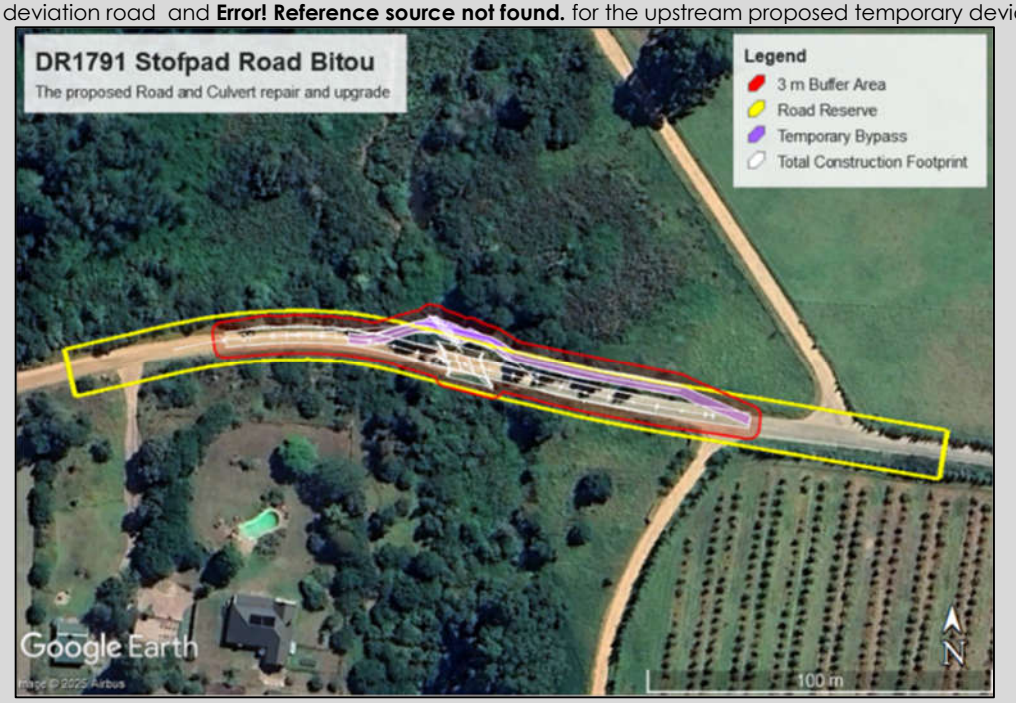


**Figure 2. Proposed construction works of the temporary deviation road along DR1791, Wittedrift (downstream).**


**Figure 3. Proposed construction works of the temporary deviation road along DR1791, Wittedrift) (upstream).**

**Note: Although both options will be assessed as the preferred options, only one option, either downstream or upstream, will be implemented during the construction phase.**

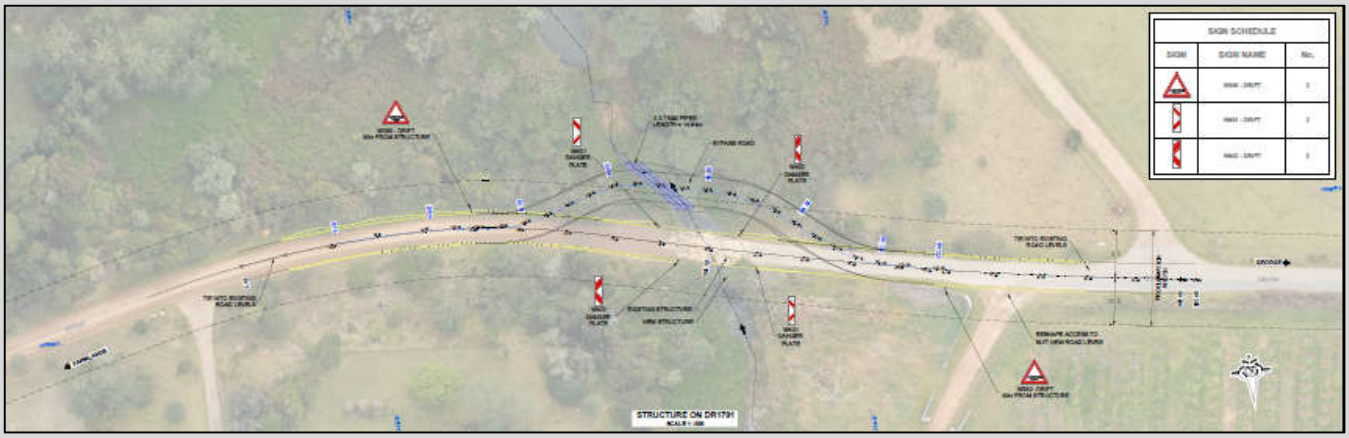

**Figure 4. Downstream engineering design for the proposed causeway construction along DR1791, (Hatch Engineering, 2025).**

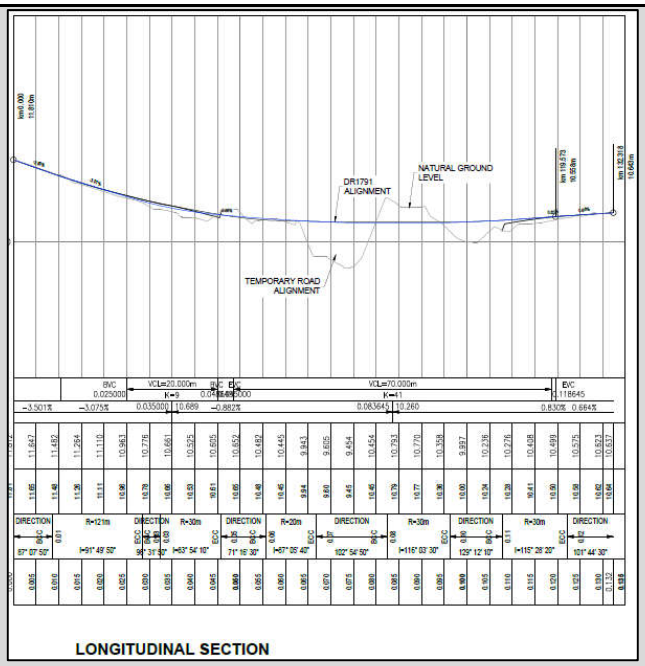


**Figure 5. Engineering drawing for the proposed causeway construction located along the DR1791 (Hatch Engineering, 2025).**

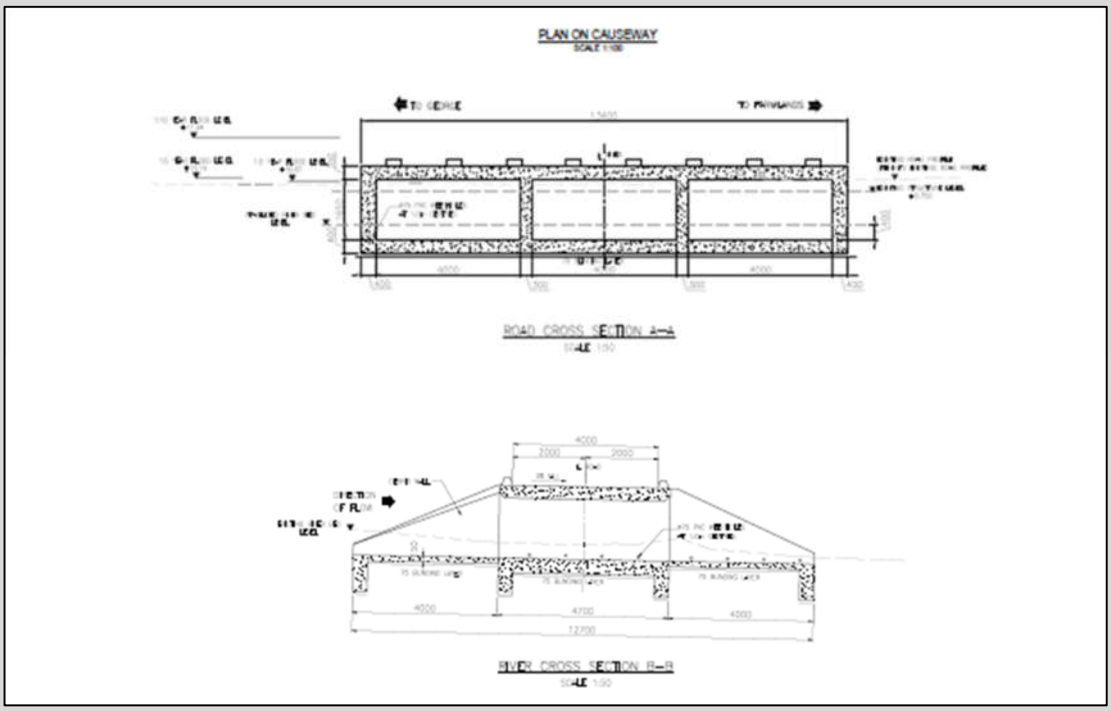


**Figure 6. Cross-section of the proposed causeway construction along DR1791, (Hatch Engineering, 2025).**

**The exact plan footprint can be read off the GA drawing (the "General Arrangement)" -As Provided in Appendix L.**

- **Transverse width (across the river)** = 13.4 m
  (dimension chain in plan: **400 + 4000 + 300 + 4000 + 300 + 4000 + 400 mm** = **13 400 mm**).
- **Longitudinal length (along flow)** = 12.7 m
  (river cross-section B–B shows **4000 + 4700 + 4000 mm** = **12 700 mm**).

- **Plan area of the cellular RC causeway/culvert box itself**
  = **13.4 m × 12.7 m = 170.18 m²** (≈ **170.2 m²**).

170 m² is the plan footprint of the cellular concrete causeway itself.
**Please note that the Engineering drawings are included within Appendix L of this application.**

| | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.4. | Indicate how access to the proposed routes will be obtained for all alternatives. | | | | | | | | | | | | | | | | | | | | | |
| The proposed project is located along the road DR1791 and will be similarly accessible via this route. | | | | | | | | | | | | | | | | | | | | | | |
| 3.5. | SG Digit codes of the Farms/Farm Portions/Erf numbers for all alternatives | Farm 306 on Portion 22 Wittedrift | C | 0 | 3 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 6 | 0 | 0 | 0 | 2 | 2 |
| | | Farm 501 | C | 0 | 3 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

| | | | | |
|---|---|---|---|---|
| 3.6. | **Starting point co-ordinates for all alternatives** | | | |
| | Latitude (S) | **34º** | **0‘** | **2.51“** |
| | Longitude (E) | **23º** | **19‘** | **14.59“** |
| | **Middle point co-ordinates for all alternatives** | | | |
| | Latitude (S) | **34º** | **0‘** | **2.87“** |
| | Longitude (E) | **23º** | **19‘** | **16.28“** |
| | **End point co-ordinates for all alternatives** | | | |
| | Latitude (S) | **34º** | **0‘** | **3.11“** |
| | Longitude (E) | **23º** | **19‘** | **17.78“** |

**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): | Portion 22 of Farm 306 Wittedrift | 56200 m² |
| | | Farm 501 | 861000 m² |
| 4.2. | Developed footprint of the existing facility and associated infrastructure (if applicable): | | Road approximately 548 m² |
| 4.3. | Development footprint of the proposed development and associated infrastructure size(s) for all alternatives: | | Total Development Downstream: 4996.57 m²<br>Total Development Upstream: 3279.15 m² |
| | Total working area outside of the road reserve | | Downstream: 561.71 m²<br>Upstream: 514.49 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. | | |
| The proposed project is located along the road DR1791 and will be similarly accessible via this route. | | | |
| 4.6. | SG Digit code(s) of the proposed site(s) for all alternatives: | Portion 22 of Farm 306 Wittedrift | C03900000000030600022 |
| | | Farm 501 | C03900000000050100000 |

| | | | | |
|---|---|---|---|---|
| 4.7. | Coordinates of the proposed site(s) for all alternatives: | | | |
| | Latitude (S) | 34º | 0‘ | 2.87“ |
| | Longitude (E) | 23º | 19‘ | 16.28“ |

# 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** |

## 2. 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** |

## 3. Other legislation

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

- Other legislation that may be applicable to the current project:
  - **The Constitution of the Republic of South Africa, 1996 (Act 108 of 1996):** 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 thati.*
    *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) – Providingclear 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
- 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 have been indicated in Section D below.
  - **The Conservation of Agricultural Resources Act (Act 43 of 1983) (CARA);**

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.

- **The National Water Act, 1998 (Act 36 of 1998) (NWA):**
  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 of 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 the Section 21 (c) and (i) water uses listed in terms of the NWA.
- **South African National Roads Agency Limited and National Roads Act 7 of 1998:**
  to make provision for a national roads agency for the Republic to manage and control the Republic's national roads system and take charge, amongst others, of the development, maintenance and rehabilitation of national roads within the framework of government policy.
- **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 minimisation of natural resource consumption, avoiding and minimising 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. Furthermore, no waste will be generated during the operational phase of the proposed project.
- **Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) (SPLUMA):**
  Promoting spatial transformation, encourage growth socially and environmentally.
- **National Road Traffic Act 93 of 1996**
  Promote a standard road traffic matters throughout South Africa.
- **Local Government: Municipal Systems Act 32 of 2000**
  To establish a framework for support, monitoring and standard setting by other spheres of government in order to progressively build local government into an efficient, frontline development agency capable of integrating the activities of all spheres of government for the overall social and economic upliftment of communities in harmony with their local natural environment;
- **Western Cape Biodiversity Act, Act 6 of 2021:**
  The act is a significant step in modernising biodiversity governance in the Western Cape Province and aligns with national and international policies. On November 15, 2022, key chapters and sections of the Western Cape Biodiversity Act, including governance, planning, and reporting, came into effect. The next phase involves developing regulations to ensure the conservation and sustainable use of biodiversity.

  Complementing that is the 2023 Western Cape Biodiversity Spatial Plan (WCBSP), which is the first provincial spatial plan under the WCBA. It identifies priority conservation areas, ecological infrastructure, etc. South African Government. In Relevance to the project, the area falls within or close to any of the WCBSP's priority biodiversity areas or ecological corridors; additional constraints or mitigation requirements may apply. Engineering designs

need to avoid sensitive habitats or ensure that works do not negatively impact important biodiversity features. (storm events) in their design and implementation.

- **Climate Change Act, 2024 (Act 22 of 2024)**
  The Act provides a framework for both mitigation (reducing greenhouse gas emissions) and adaptation to climate change. It places duties on all spheres of government to develop climate change adaptation plans. Relevance to the project: Because the project is in a flood-prone area (causeway being damaged by flooding), the adaptation requirement is directly relevant. Any infrastructure works must take into account future climate risks (e.g. increased flooding, more intense).

## 4. Policies

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

The policies that the project complies with are the following:

**Garden Route District Framework (2022- 2027) (GRDF):**
The District Framework is a mechanism to ensure alignment and integration between the Integrated Development Plan (IDP) of the district and its Local Municipalities. The framework ensures that the processes of the district and local Municipalities are mutually linked; the Municipalities' process plan needs to comply with the district framework. IDP & Budget are 2 distinct but integrally linked processes, that must be mutually consistent and credible.

**Based on the GRDF the following strategic objectives comply with this project:**

- Strategic Objective 1 A Skilled Workforce and Communities: The project promotes a construction labour force; this not only encourages skilled labour and training but also incorporates and improves the social dynamics of economic development by providing staff with an income.
- Strategic Objective 2 Bulk Infrastructure Co-ordination: the upgrade and repair project is to existing damaged infrastructure, that promotes infrastructure maintenance and improvements.
- Strategic Objective 7 Sustainable Environmental Management and Public Safety: The project incorporates and considers the environment. Specialist assessments are being conducted to encourage and minimise environmental impact.
  The project will also be beneficial to road safety, as the road is currently damaged and can cause significant harm to humans if the road is not repaired.

**Bitou Municipality: Integrated Development Plan ( 2022-2027) (IDP):**
The purpose of the IDP is to promote principal strategic planning instrument which guides and informs all planning and development, and all decisions regarding planning, management, and development in a Municipality. An IDP provides the strategic direction for all the activities of a Municipality over five years linked to the council term of office.
In terms of section 25 (3) of the MSA, a municipal council may adopt the IDP of its predecessor, with or without amendments. Before taking such a decision, the council must comply with section 29(1)(b)(i),(c) and (d).

The project is aligned with the following sustainable development goals, national development plan and provincial strategic priority area that fall within the integrated development plan.

- Objective 2: Facilitate growth, jobs and empowerment of the people of Bitou: construction employment opportunity for the people in Bitou and facilitate skills development.
- Objective 3: Provide excellent service delivery to the residents of Bitou Municipality: working with government to provide service excellence and priorities infrastructure development for the safety and benefit of the communities affected.
- Objective 4: To ensure the safety of residents and visitors of Bitou Municipality: ensure proper road and supporting infrastructure, such as the repair of the current damaged road and culverts.

Objective 6: Inclusive district economy: Promote and empower employment during the construction project within the communities of the Bitou area.

- **Bitou Municipality: By-law related to Roads and Streets:**
  Chapter 4, section 32. Discharge of water on public roads; (b): by any means whatever, raise the level of water in a river, dam or watercourse so as to cause interference with or endanger a public road. Based on the nature of the cause of the road damage was due to flooding.
  Chapter 7, section 39.

Construction, maintenance, and naming of streets
The municipality may in its area –
a. make, construct, reconstruct, alter, and maintain streets.
Based on these sections of the by-law, the nature of the project is to repair roads and culverts due to a flooding incident within the Bitou area, not. Not compromising on road maintenance safety.

- **Bitou Municipality: By-law related to Solid Waste Disposal**:
  The purpose of the by-law is to promote a safer and healthier environment. This can be achieved by incorporating procedures, methods, and practices in encouraging waste management activities, such as reduce, reuse and recycling methods. Based on the site having to remove and reconstruct damaged roads and culverts, emphases will be placed on adequate waste management on site,. hHaving a skip readily available and having bins on site. As well as a training manual in proper waste disposal methods will be addressed within the Environmental Management Programme (EMPr) and will be briefed to the construction team on site.
- **Bitou Municipality: By-Law related to Stormwater Management:**
  The purpose of this by-law is to regulate stormwater management and activities that may have an adverse impact on the development, operation and maintenance of the stormwater system. Based on the project it will be to upgrade and maintain the natural watercourse and improve the culverts and road structure.

## 5. Guidelines

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

- **Western Cape Department of Environmental Affairs and Development Planning (DEA&DP)**
- **Guideline on Need and Desirability (DEA&DP, 2013)**
- **Used to assess the socio-economic and environmental rationale of the development, ensuring alignment with local and provincial planning frameworks.**
- **EIA Guideline and Information Document Series (DEA&DP, 2013):**
- **Guideline on Public Participation**
- **Guided the stakeholder engagement process to ensure transparency and procedural fairness.**
- **Guideline on Alternatives**
- **Informed the identification** and assessment of feasible and reasonable alternatives.
- Generic Terms of Reference for EAPs and Project Schedules
- Informed the scope of work and reporting standards for environmental assessment practitioners.
- **Guideline for Environmental Management Plans (EMPs) (DEA&DP, 2005)**
- Informed the structure and content of the proposed Environmental Management Programme (EMPr) for implementation and monitoring.
- **Guideline for Determining the Scope of Specialist Involvement in EIA Processes (DEA&DP, 2005)**
- Assisted in determining when and which specialists were required, based on screening and site sensitivities.
- **Guideline for the Review of Specialist Input in EIA Processes (DEA&DP, 2005)**
- Informed the evaluation of specialist studies to ensure accuracy, relevance, and compliance.
- **Guideline for Involving Biodiversity Specialists in EIA Processes (DEA&DP, 2005)**
- Assisted in structuring biodiversity assessments in accordance with best practices.
- **Guideline for Involving Heritage Specialists in EIA Processes (DEA&DP, 2005)**
- Provided a framework for early identification and assessment of potential heritage resources.
- **DEA&DP Circular: EADP:0028/2014 – "One Environmental Management System"**
  - Guided the integration of environmental authorisation processes under the 2014 EIA Regulations (as amended), aligning provincial and national responsibilities.
- **National Department of Environmental Affairs (DEA) – Integrated Environmental Management (IEM) Series**
  - Series 5: Impact Significance (DEA, 2002)
    Informed the criteria for assessing the significance of identified impacts.
  - Series 7: Cumulative Effects Assessment (DEA, 2004)
    Provided guidance on identifying and evaluating cumulative impacts.
  - Series 11: Criteria for Determining Alternatives (DEA, 2004)
    Supported the development of rational and defensible alternatives.
  - Series 15: Environmental Impact Reporting (DEA, 2004)
    Informed the structure and presentation of environmental reporting in the BAR.

- **Other Applicable Guidance**
  Specialist Assessment Protocols (GN R. 320, 2020)

- Where applicable, these protocols were referenced to ensure that specialist studies comply with the latest minimum requirements under the 2014 EIA Regulations (as amended).

## 6. Protocols

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

An Environmental Screening Tool report was produced for the proposed project using the Department of Forestry, Fisheries and the Environment's (DFFE) Web-based National Environmental Screening Tool (2025). The Site Sensitivity Verification Report (SSVR) reports on the ground truthing undertaken to verify the indicated sensitivity ratings of the screening report, 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 National Sector Classification Category selected to produce the Screening Tool Report, dated 15th of September 2025, attached to this report: Infrastructure/ Transport Services/ Roads/Public.

The table below indicates the environmental sensitivity that has been identified in accordance with the DFFE, Screening Tool Report (2025).

**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 | Sensitivity | | | |
|---|---|---|---|---|
| | Very High | High | Medium | Low |
| **Agriculture Theme** | | X | | |
| **Animal Species Theme** | | X | | |
| **Aquatic Biodiversity Theme** | X | | | |
| **Archaeological and Cultural Heritage Theme** | | | | X |
| **Civil Aviation (Solar PV) 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:

- Agriculture 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

•Archaeological/ Paleo: Dr Peter Nillsen of Point of Human Origins - It was confirmed by the appointed Heritage Consultant that the proposed activities do not trigger Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999). Therefore, the Heritage consultant confirmed that it was not required to submit a NID to the Heritage Western Cape. This information is included within the compliance statement, as attached with all the specialist reports within Appendix G.

The following specialist assessments as identified by the Web-based Screening Tool have **not** been undertaken for this proposal:

- **Landscape/Visual Impact Assessment**: The area will not be visually changed, as it is a replacement/ upgrade of the existing infrastructure with minimal visual effects. The visual impacts that will be experienced during the construction phase of the proposed project (specifically regarding the establishment of the temporary deviation road) will be addressed in the Environmental Impact Assessment Phase.
- **Agricultural Impact Assessment:** No agricultural land will be altered during the construction phase of the proposed project, as the upgrades are located in its entirety within the existing road reserve. Where the proposal encroaches outside of the road reserve, the activities are located within a delineated watercourse, on land that is generally deemed unsuitable for agricultural practices (croplands).
- **Noise Impact Assessment:** Based on the fact that the works will be conducted predominantly within an existing road reserve, it is not anticipated that noise will be a significant additional impact of the proposed development. Furthermore, there are no significant sensitive receptors located near the project footprint.
- **Traffic Impact Assessment:** This assessment will not be conducted as part of the proposed project. However, traffic management measures for implementation during the construction phase will be included in the Environmental Management Programme (EMPr). Additionally, to facilitate traffic flow during the project's construction, a temporary deviation road will be constructed to ensure smooth traffic movement.
- **Geotechnical Assessment:** A formal geotechnical investigation will not be undertaken as part of this project. The proposed works are limited to the rehabilitation and upgrading of an existing rural road causeway within the established road reserve. Engineering design parameters are therefore being informed by the existing site conditions, visual inspections, and historical performance of the infrastructure as captured in the engineering report. Should unforeseen geotechnical challenges arise during construction, the contractor and engineer will address them through adaptive design and construction methodologies.
- **Socio-Economic Impact Assessment:** The proposed repair is for existing infrastructure and will not impact the socio-economic aspect of the area in accordance with the Bitou SDF and IDP. The proposed project will improve the area by providing safer roads as well as providing economic movement, for example, transportation of agricultural resources, therefore, improving economic development and quality of life for local communities.
- **Ambient Air Quality Impact Assessment:** This impact assessment will not be necessary for the project since the work will take place along an existing road, which means it will not create additional sources of air pollution. Given the nature of the project, we do not expect any significant impacts. However, we will incorporate dust suppression methods into the Environmental Management Programme (EMPr).

**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 are as follows:**

•**Terrestrial, Animal and Plant Impact Assessment**: Megan Smith of Enviroworks and (**Avifaunal Compliance Statement**) Mokgatla Molepo, of MORA Ecological Services
•**Aquatic Biodiversity:** Debbie Fordham from Upstream Consulting.
•**Archaeological/ Paleo:** Dr Peter Nillsen of Point of Human Origins.

**The following protocols apply to the proposed project:**

| | |
|---|---|
| Terrestrial Biodiversity Impact Assessment | Terrestrial Biodiversity Assessment Protocol |
| Aquatic Biodiversity Impact Assessment | Aquatic Biodiversity Assessment Protocol |
| Plant Species Assessment | Plant Species Assessment Protocol |
| Animal Species Assessment | Animal Species Assessment Protocol |

## Section D: APPLICABLE LISTED ACTIVITIES

List the applicable activities in terms of the NEMA EIA Regulation.

| 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. |
|---|---|---|
| 12 | The development of (ii) infrastructure or structures with a physical footprint of 100 square metres or more (a) within a watercourse. | The footprint of the proposed temporary deviation road infrastructure, located outside of the road reserve and within the watercourse, will be approximately 561.71 m² downstream and 514.49 m² upstream if the proposed alternative upstream is chosen for construction.<br><br>**The exclusions to this listed activity are not applicable to this aspect of the proposed project. Therefore, this activity will be triggered.** |
| 19 | The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a (i) watercourse. | The removal and replacement of the causeway will not trigger this activity, as it will stay within the existing road reserve.<br><br>The temporary deviation road will extend by approximately 4 m outside of the existing road reserve. Further to this, a 3 m working corridor is required beyond the aforementioned temporary deviation road.<br><br>According to the engineer, approximately 180 - 200 m³ of earth will be moved in and around the watercourse.<br><br>**The exclusions to this listed activity are not applicable to this aspect of the proposed project. Therefore, this activity will be triggered.** |
| 48 | The expansion of infrastructure where the physical footprint is expanded by ≥100 m² within a watercourse (or within 32 m where no setback exists). | The old low-level crossing is being demolished and replaced with a higher-capacity reinforced-concrete causeway at the same river crossing. The upgraded structure (plus inlet/outlet works and apron) increases the in-channel footprint over 170 m², i.e., a physical enlargement of road infrastructure in a watercourse.<br><br>**This activity will be triggered.** |
| 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. |
| 4 | The development of a road wider than 4 metres with a reserve less than 13.5 metres.<br>i. Western Cape:<br>ii. Areas outside urban areas:<br>(aa) Areas containing indigenous vegetation | The proposed temporary deviation road infrastructure will require the construction of a temporary deviation road approximately 4 m wide, with a 3 m working area, located outside of the existing road reserve. This will necessitate the clearance of indigenous vegetation. Although temporary, the temporary deviation road constitutes the development of a new road rather than the expansion of the existing road, as it falls outside of the current road reserve footprint.<br><br>**Therefore, this activity will be triggered.** |
| 12 | The clearance of an area of 300 square metres or more of indigenous vegetation<br>i. Western Cape | The removal and replacement of the causeway will trigger this activity, as the proposed works will |

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| | i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;<br>ii. Within critical biodiversity areas identified in bioregional plans; | be constructed within the existing road reserve, and outside of the road reserve.<br><br>The temporary deviation road road 4 m outside of the existing road reserve will trigger this activity if more than 300 m² of indigenous vegetation will be cleared.<br><br>According to the engineer, 300 m² of vegetation will not be cleared outside of the road reserve.<br><br>**This activity will be triggered.** |
| 14 | The development of (ii) infrastructure or structures with a physical footprint of 10 square metres or more where such development occurs (a) within a watercourse.<br>i. Western Cape:<br>i. Outside urban areas:<br>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans. | The footprint of the proposed deviation road infrastructure outside of the road reserve, within the watercourse will be approximately (either upstream 514.49 m² or downstream 561.71 m²).<br><br>**The exclusions to this listed activity are not applicable to this aspect of the proposed project. Therefore, this activity will be triggered.** |
| Activity No(s): | Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 2** | Describe the portion of the proposed development to which the applicable listed activity relates. |
| None | None | None |
| **Note:**<br>• 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.<br>• 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

| | | |
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| 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. |
| Not applicable. | | |

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

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| Activity No(s): | Provide the relevant **Listed Activity(ies)** | Describe the portion of the proposed development to which the applicable listed activity relates. |
| Not applicable. | | |

## SECTION E: PLANNING CONTEXT AND NEED AND DESIRABILITY

| 1. | Provide a description of the preferred alternative. |
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No alternatives exist; however, the proposed project forms part of the strategy toward repairing and upgrading the affected sections of these roads. The proposed development forms part of the overarching project and is aimed toward preventing future damage to the ecological resources and services infrastructure, as well as mitigating the road safety implications of the existing infrastructure.

The existing causeway is located at kilometre marker 1.59 along DR1791, with approximate starting coordinates at 34°00'04.57" S 23°19'27.98" E. The structure is approximately 20 m long × 6.1 m wide and comprises three Ø600 mm precast concrete pipes that are permanently submerged, with significant damage to the unreinforced concrete deck slab from previous flood events.

To effectively re-establish and upgrade the existing causeway, it is proposed to demolish the existing structure and construct a new in situ reinforced concrete causeway with three cells, each measuring approximately 4 m wide × 1.5 m high, providing a 4 m road width between guide blocks. The road approaches on both sides will be raised by approximately 1.4 m over lengths of about 100 m to tie into the new causeway deck height. The new inlet and outlet work will include wing walls and an apron slab, with erosion protection as required.

In order to maintain traffic during construction, a temporary deviation road will be installed on the downstream or upstream side of the existing road, depending on the time of construction. This temporary deviation road will be approx. 4 meters. with a working area of approx. 3 meters between the permanent structure and the temporary deviation road. The temporary deviation road alignment will require clearance of indigenous vegetation and work within the watercourse, with the total working area outside of the road reserve downstream will be approximately 561.71 m$^2$, and the total construction area upstream will be approximately 514.49 m$^2$ outside of the road reserve. Although the re-establishment of the causeway constitutes the commencement of an original activity, the construction of the additional temporary deviation road, specifically the portion located outside of the existing road reserve, will trigger one or more listed activities in terms of the Environmental Impact Assessment (EIA) Regulations of 2014, as amended (GNR 326 of 2017; GNR 517 of 2021).

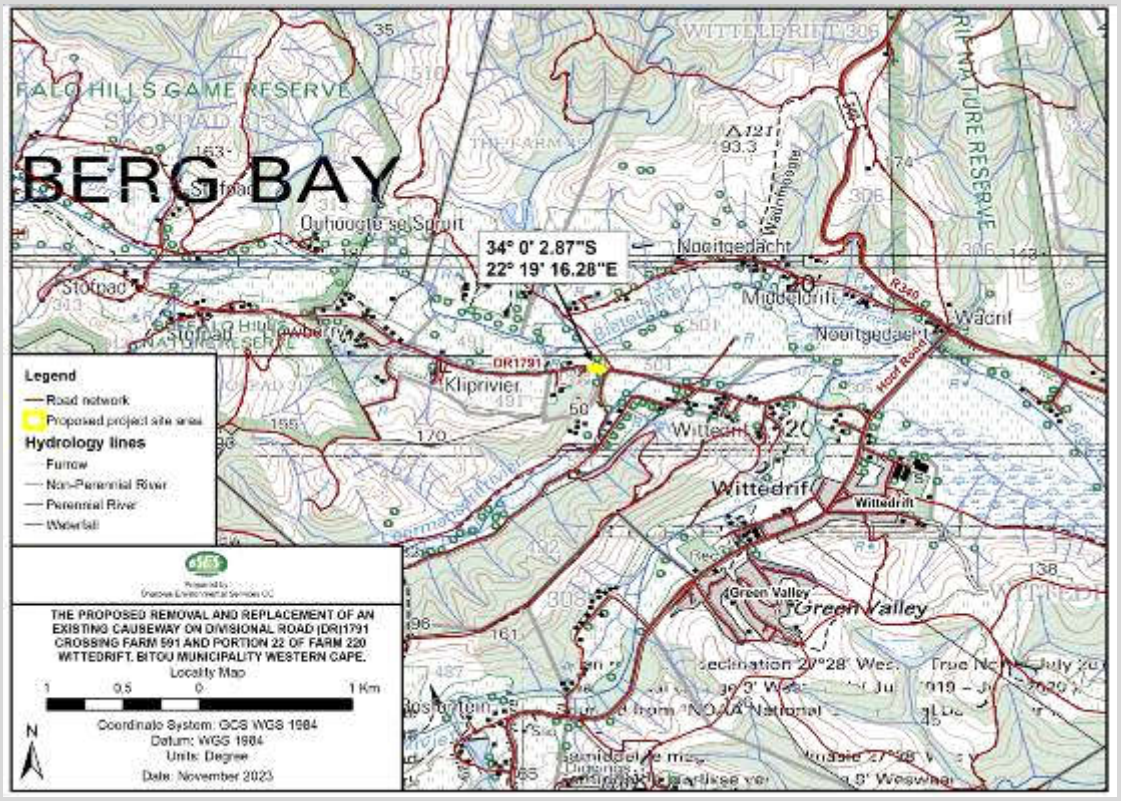


**Figure 7. Locality map of the proposed infrastructure works along DR1791, Wittedrift.**

The total footprint of the proposed temporary deviation road downstream is approximately 4996.57 m$^2$, including the area located within the road reserve. The total footprint of the proposed temporary deviation road upstream is approximately 3279.15m$^2$, which includes the area located within the road reserve.

The proposed temporary deviation road infrastructure will be located either upstream or downstream of the existing causeway infrastructure, depending on the site conditions at the time of construction. Please see Figure 8 for the conceptual drawing of the downstream proposed temporary deviation road infrastructure and Figure 9 for the upstream proposed temporary deviation road infrastructure.

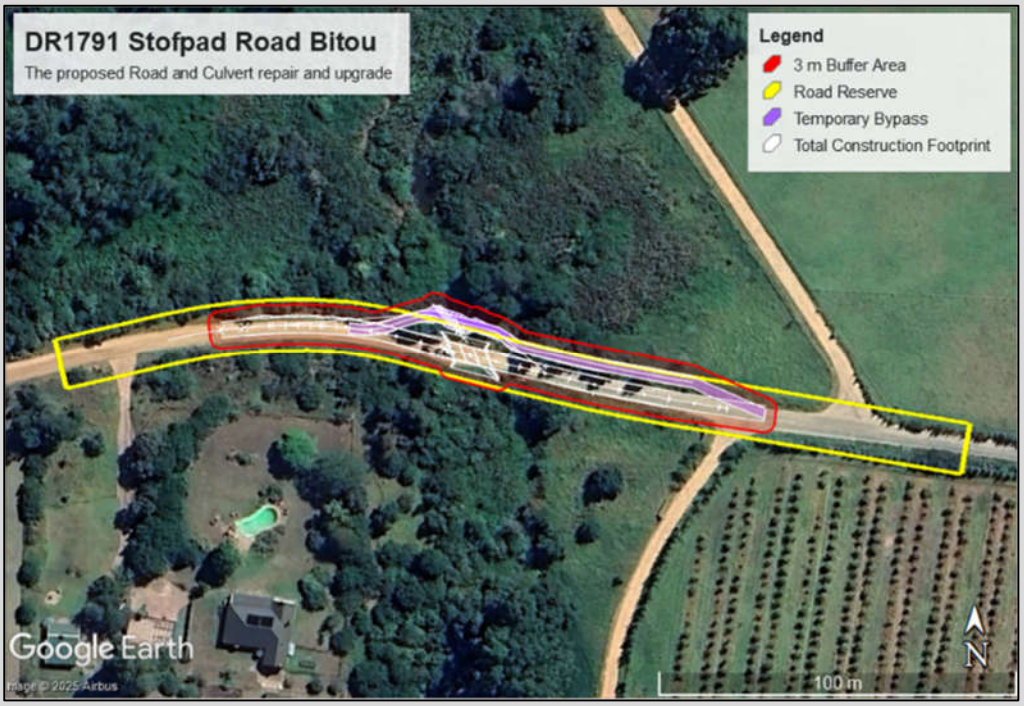


**Figure 8. Proposed construction works of the by-pass infrastructure along DR1791, Wittedrift (downstream).**


**Figure 9. Proposed construction works of the by-pass infrastructure along DR1791, Wittedrift) (upstream).**

**Note: Although both options will be assessed as the preferred options, only one option, either downstream or upstream, will be implemented during the construction phase.**

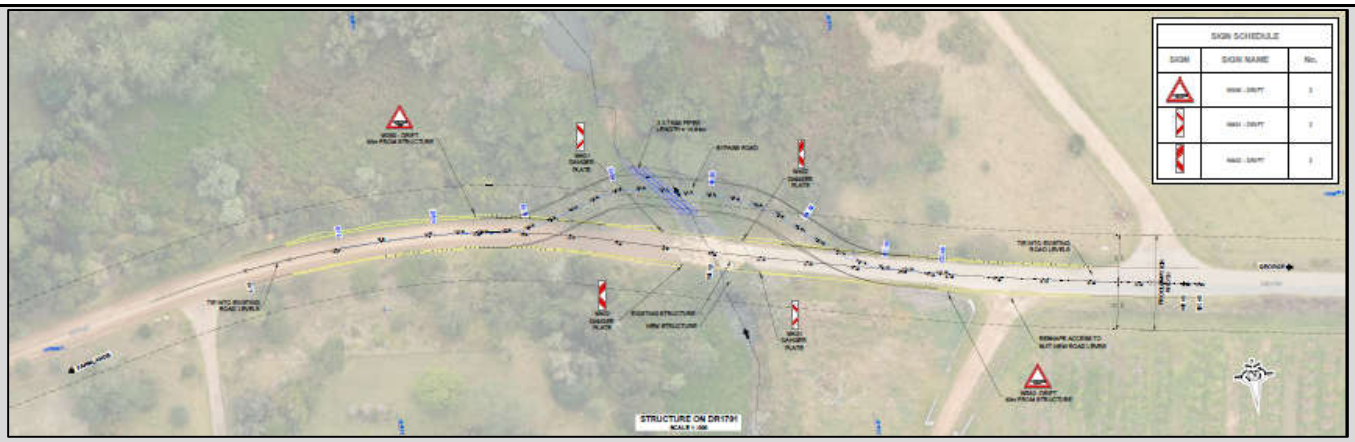


**Figure 10. Downstream engineering design for the proposed causeway construction along DR1791, (Hatch Engineering, 2025).**

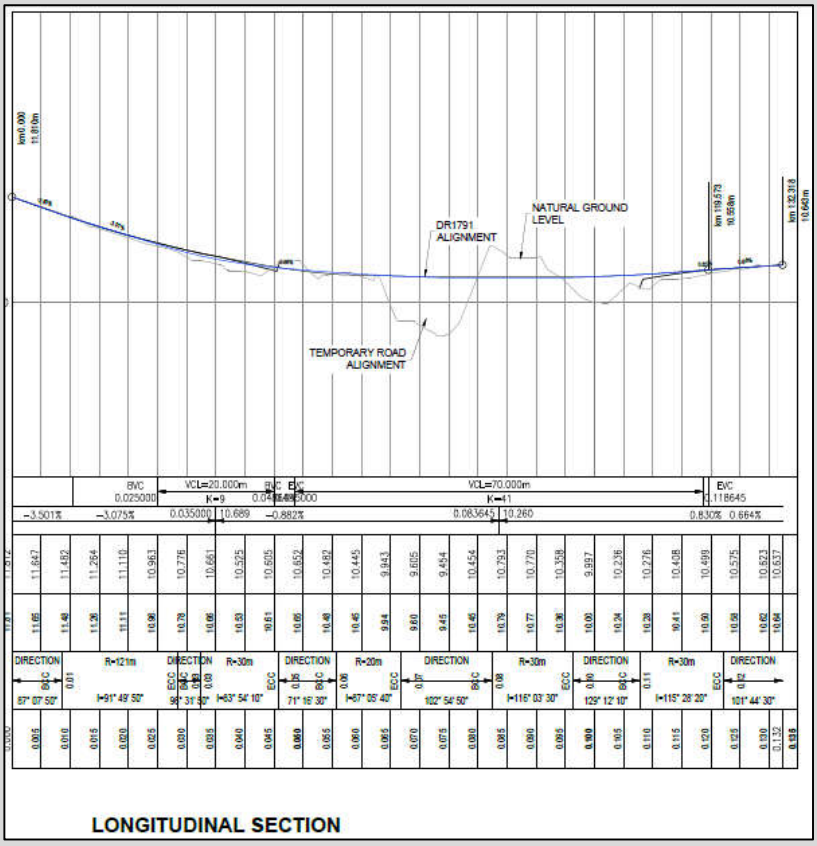


**Figure 11. Engineering drawing for the proposed causeway construction located along the DR1791 (Hatch Engineering, 2025).**

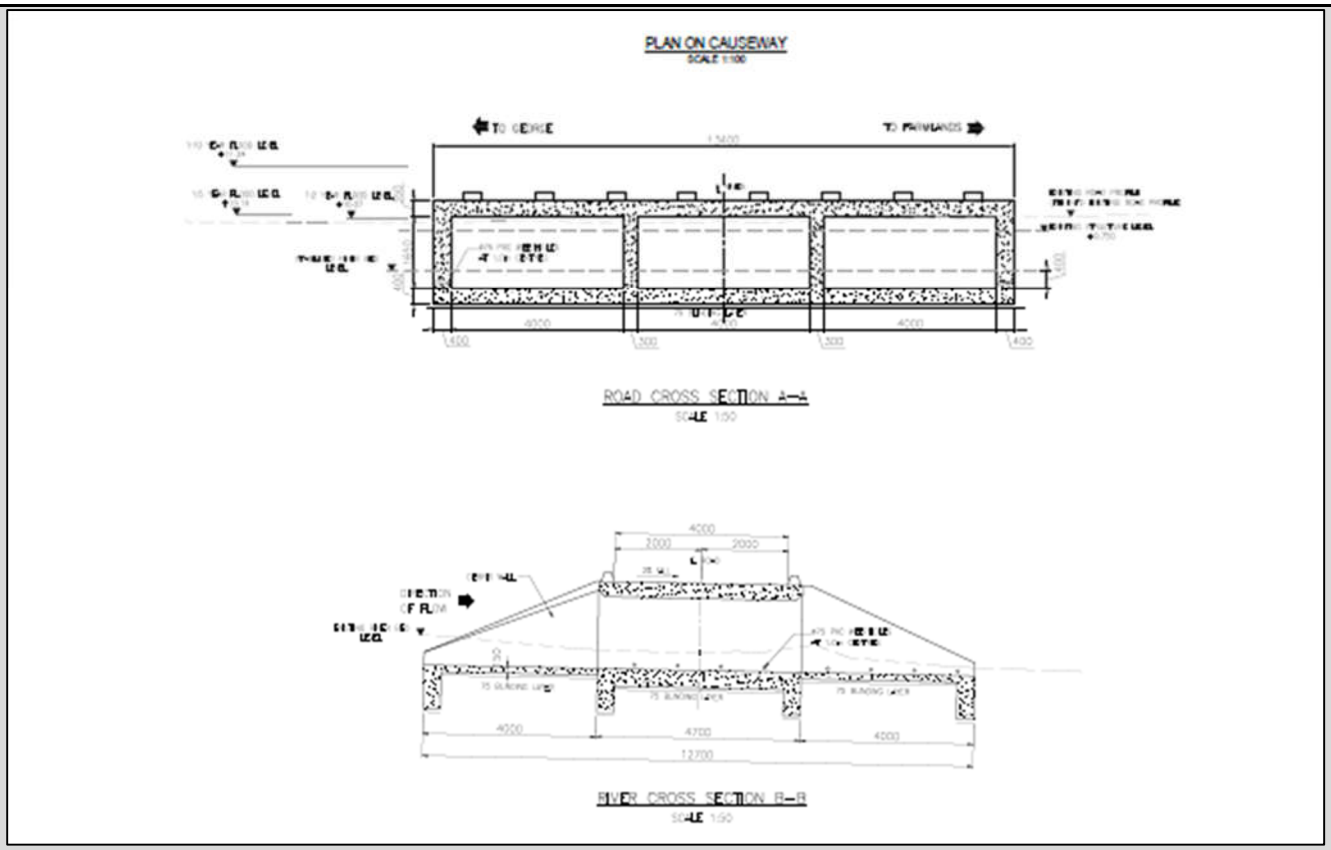


**Figure 12. Cross-section of the proposed causeway construction along DR1791, (Hatch Engineering, 2025).**

**Please note that the Engineering drawings will be included within Appendix L of this BAR.**

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| 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 road and its associated causeway are existing infrastructures, and the proposed project is to repair and replace the existing causeway located within the existing road reserve. The extent outside of the road reserve (due to the construction of the temporary deviation road) is an activity required towards the furtherance and continuation of the existing activities. | |
| 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 conflicts have been identified for this project. However, it is important to note that the proposed project is part of a larger scope of work that is not included in this application. The following proposed works are highlighted: flood damage repairs on Main Road 355 at km 2 to 12 (Seven Passes). Additionally, the proposed works extend to Division Roads located along DR1602, DR1633, DR1639, and (this application area) DR1791, in various areas throughout the Garden Route.<br><br>The areas affected by flood damage that are included in this scope are several locations along MR3559 (DEA&DP Reference:16/6/D2/19/0126/24), DR01639 (DEA&DP Reference:16/6/D2/19/0129/24), and DR16331 (DEA&DP Reference: 6/6/D2/19/0128/24. These areas have been approved for an emergency directive under Section 30A(1) of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998) due to the emergency situation. The relevant approvals and submissions will be included in Appendix M of this application. | |
| 4. | Explain how the proposed development will be in line with the following? |
| 4.1 | The Provincial Spatial Development Framework. |
| According to the SDF (2021, as approved in 2023), the proposed project is not located within the urban edge of the Municipality. The closest small town is the Wittedrift/Green Valley community.<br><br>**Alignment with the Municipal Urban Edge (Bitou SDF 2021, approved 2023)** | |

According to the Bitou Spatial Development Framework (SDF, 2021), the proposed repair and upgrade of the causeway on Road DR1791 is not located within the delineated urban edge of the Municipality. The nearest settlement is the Wittedrift/Green Valley community, which functions as a small rural town node. The project site itself lies outside of any formally planned urban expansion areas and is situated within the rural landscape.

The engineering report confirms that the works at DR1791 (km 1.59) consist of the repair and replacement of an existing low-level causeway that has been subject to repeated flood damage and overtopping events. The proposed activity is therefore not associated with new urban development but rather with the rehabilitation and functional upgrading of existing rural road infrastructure.
In terms of spatial planning, this means that while the project does not align with the Municipality's designated urban edge, it is consistent with the rural service infrastructure role identified in the SDF. The SDF recognises the importance of maintaining access roads and linkages that connect rural communities, agricultural areas, and small settlements to larger service centres.
Accordingly, the project:

- Falls outside the urban edge and will not contribute to urban sprawl;
- Supports rural accessibility and mobility functions that are explicitly recognised as a priority in the SDF;
- Serves local communities such as Wittedrift/Green Valley by ensuring reliable all-weather access across river systems.

Thus, while not aligned with the urban edge, the proposed activity is spatially consistent with the broader SDF objectives relating to rural connectivity, infrastructure resilience, and disaster recovery.

| 4.2 | The Integrated Development Plan of the local municipality. |
|---|---|

The road and culvert upgrade and repair project within the DR1791 is in line with the goals of the Integrated Development plan ( DP) of the Bitou Local Municipality (BLM) 5th generation 2022 – 2027. The document states that the project contributes to the improvement of infrastructure within the municipality, which is a key focus area in the integrated development plan. By upgrading and repairing the DR1791 road and culvert, the project aims to enhance the accessibility and connectivity of the area, ultimately improving the quality of life for residents and supporting economic development.

The project further aligns with the BLM goals for sustainable and inclusive development, by ensuring the DR1791 will be maintained and safely accessible, by promoting and ensuring the transportation of people and goods supporting the economic development and supporting environmental sustainability and inclusive development by mitigating the impact of erosion and flooding, which as been the result of deteriorated infrastructure. This aligns with the BLM's commitment towards protecting and preserving the natural environment for future generations.

| 4.3. | The Spatial Development Framework of the local municipality. |
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The proposed Spatial Development Framework (SDF) for Bitou LM seeks to address spatial, environmental and socio-economic issues confronting the municipality. It also assists the municipality to efficiently manage current spatial development processes and pressures, and to strategically prepare for projected future developments in the municipal area.

The surrounding area is regarded as agriculture 1. Due to the nature of the project to repair and upgrade the road and culvert the project is in line with he SDF of the BLM. By addressing and improving the access, as the project will provide an easier way for farmers and the public to transport their goods, and for the visitors who utilise this route and access the nearby areas that will potentially impact economic activity within the area and by upgrading the road by promoting safer infrastructure, and flood prevention, that may impact the ecology of the area.

The SDF also addresses the need of the project to adhered to the environmental impacts of the project and consider environmental sensitivity, such as the critical biodiversity and minimise disruptions to the natural habitat within the area and construction footprint.

| 4.4. | The Environmental Management Framework applicable to the area. |
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Bitou Local Municipality falls within the Garden Route Environmental Management Framework (2010). As such, the proposed project must align with the framework's decision-making process, particularly given its nature as a construction and infrastructure development initiative within a sensitive natural environment.

The purpose of the Environmental Management Framework (EMF) is to provide a structured mechanism for informed environmental decision-making in line with the objectives of the National Environmental Management Act (NEMA). The EMF, once adopted through the gazetting process, serves as a statutory tool that guides authorities and Environmental Assessment Practitioners (EAPs) in ensuring that proposed developments are planned, assessed, and implemented in a manner that promotes sustainable development.

In accordance with the EMF, the project assessment is guided by key considerations, including:

- Environmental impact assessment criteria – ensuring potential impacts are identified, assessed, and mitigated.
- Ecosystem protection – safeguarding biodiversity and natural habitats.
- Water resource management – ensuring construction and operation activities do not adversely affect hydrological systems.
- Community engagement – promoting transparency and incorporating local stakeholder input into decision-making.

| 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 incorporated following the completion of the 30-day Public Participation Process, as prescribed in Sub-Regulation 19 of the NEMA EIA Regulations, 2014, as amended (GNR 326 of 2017).

The following specialist assessments were undertaken to evaluate the potential impacts of the proposed development on the biodiversity of the site:

**Avifaunal Compliance Statement**
The DFFE Screening Tool initially identified three bird species of high sensitivity. However, during the site visit, the specialist recorded thirteen avian species, none of which corresponded to the species flagged by the screening tool. Importantly, no Species of Conservation Concern (SCC) were observed. Common species such as Egyptian Goose, Cape Bulbul, and Pied Crow were noted during the visit conducted on 29 October 2023.

The specialist concluded that, given the site is already disturbed, the likelihood of significant impacts on avifaunal species is very low. No sensitive species or critical habitat were present within the development footprint, and based on this assessment, no adaptive measures were required.

**Plant, Animal, and Terrestrial Biodiversity Compliance Statement**
The initial DFFE Screening Tool sensitivity ratings were:

- Terrestrial Biodiversity: Very High
- Plant Species: Medium
- Animal Species: High

Following ground-truthing, the specialist verified that all sensitivity ratings are, in fact, low.

**Terrestrial and Plant Biodiversity:**

The vegetation within the proposed construction area is predominantly invasive alien species (e.g., *Acacia mearnsii* and *Sparrmannia africana*), with indigenous vegetation largely displaced and unlikely to recover naturally. Although the site is mapped within the Garden Route Shale Fynbos and lies within the Garden Route Biosphere Reserve, the specific portion is degraded, and development is unlikely to compromise broader biosphere functions.

The ecological importance of the site is therefore considered very low due to poor habitat quality, low species richness, and limited ecological function.

**Animal Species:**

While the DFFE Screening Tool identified seven Species of Conservation Concern, none were observed during the site visit, likely due to the low ecological value of the area. The fauna present is limited to common and non-threatened species, including small mammals, amphibians, reptiles, and birds. Species are expected to be able to temporarily seek refuge during construction disturbances.

Overall, the ecological impact is considered low. The development falls within a previously disturbed area with minimal biodiversity value. Proceeding with the project is deemed acceptable provided that all mitigation measures, outlined in the Environmental Management Programme (EMPr), are implemented. These include restricting activities to the construction footprint, avoiding fires, preventing disturbance to surrounding environments, and implementing soil erosion control measures.

**Aquatic Impact Assessment**
The site does not fall within a Strategic Water Source Area. Two watercourses were identified within a 500-meter radius:

- HGM16 – Leermansdrift River, a channelled valley bottom wetland (directly impacted)
- HGM17 – Bietou River, a floodplain wetland system (indirectly impacted)

The site consists of a channelled valley bottom wetland, transitioning into the Bietou floodplain wetland of national importance. The Present Ecological State of the area is regarded as C, moderately modified.

The specialist proposed several mitigation measures to minimise impacts on aquatic resources. Key measures include restricting activities to the smallest possible working corridor, designating all other watercourses as no-go areas, implementing sediment and erosion control, managing stormwater effectively, and ensuring full compliance with the National Water Act (Act 36 of 1998).

The site overall exhibits low biodiversity sensitivity, although aquatic biodiversity is directly affected. With the implementation of the specialist-recommended mitigation measures, impacts on aquatic biodiversity are expected to be low. Furthermore, the proposed road repair and upgrade will improve stream flow, enhance aquatic ecological function, and promote road safety on the currently damaged road.

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

The proposed construction footprint is located within Wetlands Confidence 2, and Sub-Quaternary Catchments Prioritised for Wetland Rehabilitation. The proposed site is further located within a Strategic Water Source Area for Surface Water, within a perennial Leermansdrift Rivier, which is a tributary of the Bietouriver. Some of the proposed working area upstream and downstream is located within CBA 1, and some areas within the upstream working area is located within CBA 2.

The area in which the proposed infrastructure upgrade takes place is within the Garden Route Shale Fynbos region that is classified as Endangered in accordance with the Revised National List of Ecosystems that are threatened and in need of Protection (GN 2747 of 2022 as promulgated in terms of the NEMBA, 2004).

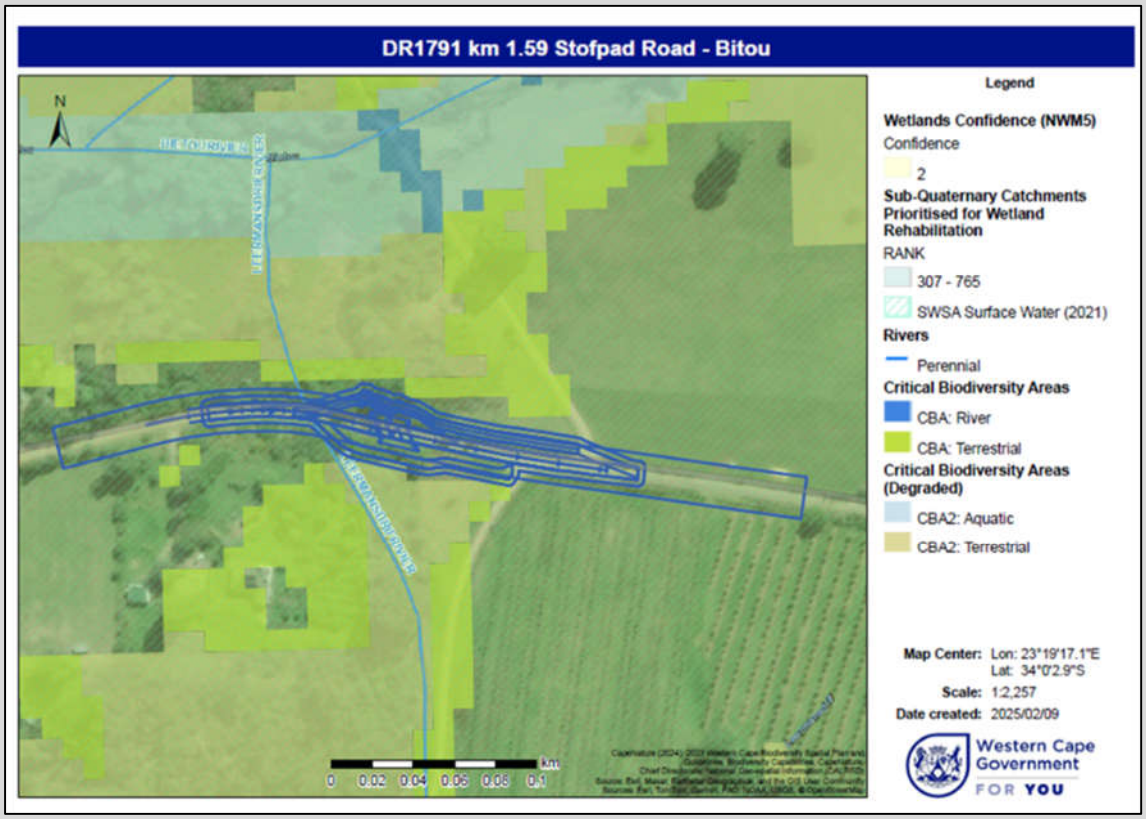


**Figure 13. Western Cape Biodiversity Spatial Plan Mapping (SANBI, 2017; as sourced from CapeFarmMappper, 2025).**

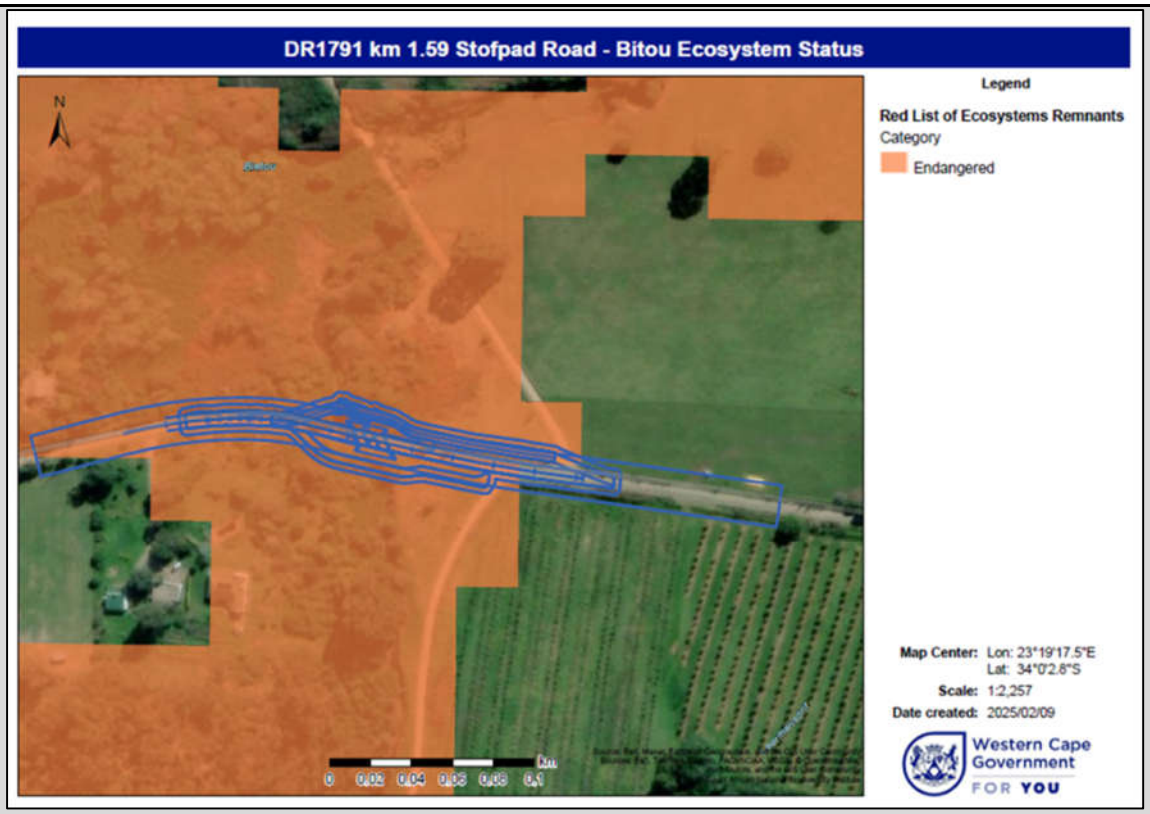


**Figure 14. The Garden Route Shale Fynbos region is classified as Endangered, for both upstream and downstream, (Cape farm mapper, 2025).**

**Based on the Western Cape Biodiversity Spatial Plan Handbook (2025)**
The main purpose of a biodiversity spatial plan is to ensure that the most recent and best quality spatial biodiversity information can be accessed and used to inform land use and development planning, environmental assessments and authorisations, natural resource management and other multi-sectoral planning processes. A biodiversity spatial plan achieves this by providing a map of terrestrial and freshwater areas that are important for conserving biodiversity pattern and ecological processes – these areas are called Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). The map is provided together with contextual information on biodiversity, and land use guidelines.

CBA1 is approximately 2.1 $m^2$ downstream, and upstream is approximately 17.5$m^{2}$. CBA2 is approximately 36$m^2$ upstream alternative only. Due to the management objectives, the purpose of the degraded CBA is to maintain the area in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land-uses are appropriate. The eventual goal of the proposed project is to improve the existing structures on site, and subsequently, improve the stream flow quality. Therefore, this project would be considered appropriate in these areas.

Located within a Strategic water source area - The 2021 spatial layer for SWSAs for surface water is a fine-scale delineation of the SWSAs, intended to support the integration of SWSAs in a range of catchment- and local-level planning, management, and regulatory processes. These areas need to be managed as multifunctional landscapes and the main objective should be minimising the impacts of human activities in these landscapes on water quantity and quality.

The proposed development is located within the Outeniqua Surface Water SWSA, the impact on the watercourse is marginal and the proposed works aim to not only be beneficial to the public but as the structures are improved, the instream processes will also be improved.

The specialist Debbie Fordham of Upstream Consulting concluded from an aquatic impact assessment point of view, that the proposed construction area is not located within aquatic biodiversity property areas. The Bietou River is, however, mapped as CBA1 river.

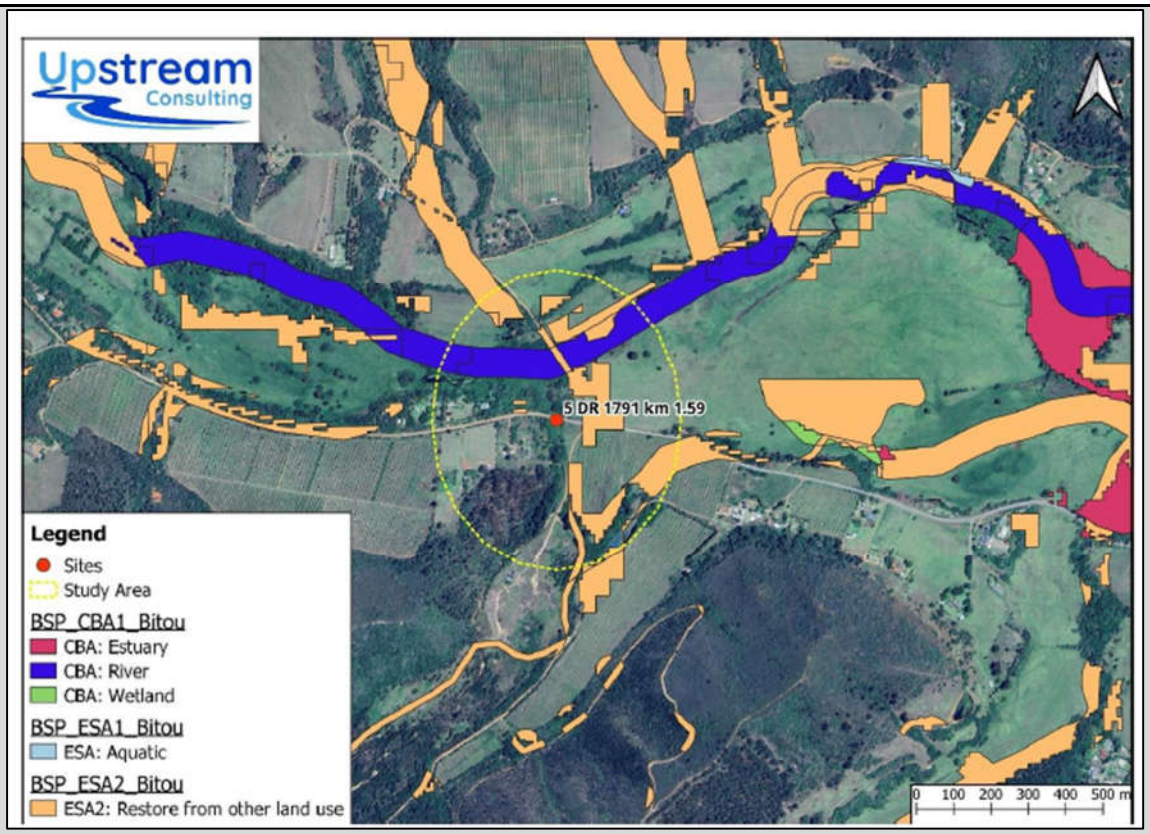


**Figure 15. The proposed construction site in relation to aquatic property areas identified in the WCBSP (Upstream Consulting, 2023).**

Based on the specialist compliance statement by Megan Smith of Enviro Works, the areas of Conservation Concern are the presence of the Garden Route Biosphere Reserve, as delineated by the Western Cape Biodiversity Spatial Plan, which has been confirmed within the study area. The overarching objective for development within the Biosphere Reserve is to minimise habitat and species loss while maintaining ecosystem functionality through strategic landscape planning. While the Western Cape Biodiversity Spatial Plan allows for some flexibility in land-use, certain high-impact activities may still require authorisation.

Given that the Garden Route Biosphere Reserve covers a much larger area beyond the proposed development footprint, and that the area directly affected is largely already developed and dominated by alien species, the proposed development is not expected to significantly influence the overall functioning of the Biosphere Reserve. Consequently, any loss within the reserve resulting from the development is unlikely to impact its overall ecological integrity. Furthermore, ecological connectivity will remain largely intact, ensuring that the Biosphere Reserve's functionality is maintained both during and after construction.

The ecological importance of the proposed construction site has been assessed and determined to be low for each of the evaluated habitat units. These assessments considered factors such as conservation importance, functional integrity, receptor integrity, receptor resilience, and overall site ecological importance. The results of the Site Ecological Importance (SEI) evaluation indicate that the site has a low biodiversity value and limited ecological functionality. However, it has been noted that the proposed site has a high recovery rate.

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| 7. | Explain how the proposed development is in line with the intention/purpose of the relevant zones as defined in the ICMA. |
| The project is not near, or within the coastal area. | |
| 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 Screening Tool has been updated, and no additional changes have been identified to date. | |
| 9. | Explain how the proposed development will optimise vacant land available within an urban area. |
| The proposed development involves the upgrade and repair of existing infrastructure on Farm 501 and Portion 22 of Farm Wittedrift and the construction of a temporary ramp to maintain traffic flow during works. This ramp will be removed upon completion of the project, ensuring no permanent footprint is created outside the existing infrastructure corridor. | |

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| As the project is located outside of an urban area and primarily involves improvements to existing facilities, no vacant urban land will be utilised or impacted. Consequently, optimisation of vacant land does not apply to this development. | |
| 10. | Explain how the proposed development will optimise the use of existing resources and infrastructure. |
| The proposed development focuses on repairing and upgrading the existing road and culvert infrastructure, rather than constructing entirely new road networks. By maintaining and improving the current structures, the project optimises the use of existing resources, minimises the need for new materials, and reduces environmental disturbance. Upgrading the damaged infrastructure also enhances safety, ensures continued functionality, and prolongs the lifespan of the existing road network, maximising the value of prior investments in the area. | |
| 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). |
| A solid waste capacity letter is to be issued for the project and will be included in the Final submission. | |
| 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 Department of Environmental Affairs and Development Planning's *Guideline on Need and Desirability* (2013) and the Department of Environmental Affairs' *Integrated Environmental Management Guideline on Need and Desirability* (2017) provide a framework for evaluating whether development proposals are both necessary and desirable in the context of sustainable development. These guidelines assist decision-makers in ensuring that proposed activities balance environmental protection with socio-economic development, in line with Section 24 of the Constitution of the Republic of South Africa.

This Basic Assessment Report (BAR) has been prepared to respond to the key questions raised in the guidelines, considering both the biophysical and socio-economic environments.

Specialist findings confirm that:

- **Aquatic environment**: The causeway replacement will directly affect the Leermansdrift River, with potential for habitat disturbance, sedimentation, erosion, and hydrological changes. However, the *Aquatic Biodiversity Impact Assessment* concluded that with mitigation, impacts are of **low significance** and there are **no fatal flaws** associated with the project

- **Terrestrial environment**: The *Plant Species, Animal Species and Terrestrial Biodiversity Compliance Statement and Avi-faunal Compliance Statement* confirmed that, although the screening tool flagged sensitivities, site verification downgraded these to **Low sensitivity** for terrestrial, plant, and animal species themes, as well as a very low avifaunal impact. No Species of Conservation Concern (SCCs) are expected to be significantly affected, provided mitigation is applied.

- **Heritage resources**: The *Heritage Statement* found that the site is already disturbed and transformed by transport infrastructure. The project does not trigger the National Heritage Resources Act, and the heritage impact is assessed as **negligible to zero**, with no further studies required.

With mitigation (including alien vegetation control, erosion prevention, and environmental monitoring), ecological impacts are expected to remain low, with no unacceptable cumulative effects.

**Toward Securing Ecologically Sustainable Development and Use of Natural Resources**

The site is located within the **Garden Route Shale Fynbos**, an *Endangered ecosystem* listed in the Revised National List of Ecosystems (GN 2747 of 2022). Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) are also present within the broader landscape, underscoring the ecological sensitivity of the area.

The proposed works will take place largely within the footprint of an existing road and culvert, although a temporary deviation road will be required during construction. Because the works occur in a watercourse and adjacent sensitive areas, some impacts are unavoidable. However:

- The project represents the **rehabilitation and strengthening of existing infrastructure**, not the creation of a new alignment, thereby minimising additional disturbance.
- Potential impacts on watercourses and surrounding biodiversity have been assessed by specialists in aquatic ecology, botany, fauna, and heritage. These specialists have recommended detailed mitigation measures, all of which will be included within the EMPr.
- With proper mitigation, the significance of ecological impacts is expected to remain low to moderate and no unacceptable cumulative impacts are anticipated.

- The works will also help **stabilise hydrological functioning** by improving the culvert, which will reduce erosion, sedimentation, and downstream impacts.

Thus, while the project is situated in a sensitive landscape, it is designed and managed in a way that aligns with the principle of ecological sustainability.

**Toward Promoting Justifiable Economic and Social Development**
The DR1791 (Stofpad) road provides a vital link for local communities, farmers, and service providers in the Bitou area. Its current instability due to culvert and road damage poses a risk to both human safety and economic activities. The proposed rehabilitation is therefore necessary to restore safe and efficient transport.

Key socio-economic benefits include:

- **Improved road safety and accessibility**: The project will reduce risks of accidents and ensure uninterrupted access for residents, service vehicles, and emergency responders.
- **Support for local livelihoods**: The road is important for transporting agricultural products and enabling rural tourism, both of which are essential to the local economy.
- **Alignment with planning policy**: The project supports the Bitou Local Municipality's SDF and IDP, the Eden District SDF and EMF, and the Provincial SDF, all of which emphasise reliable, safe, and sustainable infrastructure.
- **Local employment creation**: Temporary jobs will be created during construction, with preference given to local labour. Workers will also gain transferable skills, contributing to longer-term socio-economic upliftment.
- **Reduced municipal maintenance burden**: Strengthening the culvert and road now will reduce the frequency and cost of emergency repairs in the future, optimising the use of municipal resources.

Public participation (PPP) in line with Regulation 41 of the EIA Regulations, 2014 (as amended) will ensure that community needs and concerns are incorporated into the final decision-making process.

**Legislative Context**
The project has been assessed within the framework of relevant national environmental legislation, including:

- **Constitution of the Republic of South Africa (1996, Section 24)** – ensuring the right to an environment not harmful to health or well-being, while balancing conservation with socio-economic development.
- **National Environmental Management Act (107 of 1998)** – requiring consideration of listed activities and environmental authorisation under the EIA Regulations (2014, as amended).
- **National Environmental Management: Biodiversity Act (10 of 2004)** – protecting ecosystems, species, and biodiversity, including the management of alien invasive species.
- **National Water Act (36 of 1998)** – requiring a Water Use Licence for activities in watercourses (Section 21(c) and (i)).
- **National Environmental Management: Waste Act (59 of 2008)** – requiring responsible management of construction waste.
- **National Heritage Resources Act (25 of 1999)** – ensuring that any heritage resources are identified and managed appropriately.
- **National Forests Act (1 of 2022)** and **Conservation of Agricultural Resources Act (43 of 1983)** – addressing sustainable use of forests, agricultural land, and invasive species management.

All relevant permits, licences, and approvals will be secured prior to the commencement of construction.

The proposed rehabilitation of the DR1791 Stofpad Road and culvert is both **necessary** and **desirable**. It addresses urgent safety and infrastructure concerns, supports socio-economic development, and aligns with municipal and provincial planning frameworks. At the same time, it incorporates specialist input and mitigation measures to limit ecological impacts, ensuring compliance with NEMA and related environmental legislation.

The specialists' mitigation measures will be included in the Environmental Management Program (EMPr), along with informative knowledge and comprehensive strategies to ensure environmental compliance from the Environmental Assessment Practitioner (EAP). In terms of need and desirability, the EMPr will incorporate the following:

**Bridging development and environmental protection**: While the road rehabilitation is essential for socio-economic reasons, the EMPr ensures that ecological sustainability principles are upheld, limiting potential damage to sensitive aquatic and terrestrial ecosystems.
**Specialist-driven mitigation**: The EMPr integrates measures from the aquatic, biodiversity, and heritage assessments. These include sediment control, invasive species management, erosion prevention, and heritage chance-find procedures, ensuring impacts remain within acceptable thresholds.

**Legal compliance**: The EMPr is the mechanism by which compliance with NEMA, the National Water Act, and other environmental legislation is operationalised, thereby reducing legal and environmental risks.
**Monitoring and accountability**: By requiring monitoring, reporting, and corrective action, the EMPr ensures that commitments made during the assessment process are implemented, giving regulators, stakeholders, and communities confidence in the project's environmental responsibility.
**Promoting sustainable development**: Through adaptive management, the EMPr supports long-term resilience of infrastructure and ecosystems, aligning the project with the principles of sustainable development as required by Section 24 of the Constitution and the DEA&DP/DEA Need and Desirability guidelines.

Balancing ecological sustainability with social and economic needs, the project upholds the principles of sustainable development and directly responds to the requirements of the Need and Desirability guidelines (DEA&DP 2013; DEA 2017).

## 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. 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 2. Public Participation Planning for the proposed project.

| **Public participation requirement based on the EIA Regulations of 2014, as amended (GNR 326 of 2017)** | | **Implemented** |
|---|---|---|
| 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 were implemented for this proposed project proposal:<br>• A 30-day PPP timeframe from the 4th of November 2025 to the 4th of December 2025 be conducted to allow all parties time to provide comments/show interest in the Application Draft BAR. This phase of the proposal was the fulfilment of the requirements of Sub-regulation 41.<br>• A 30-day PPP timeframe in November/December 2025 allowed all registered Interested and Affected Parties (I&APs) and Stakeholders/Organs of State the opportunity to provide comment on the Post-Application Draft BAR.<br>• Throughout the PPP, Regulations 42 and 43 were adhered to, and the necessary documents (proof of Public Participation) are included in both the Application Draft BAR and the submission of this 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 was 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—<br>(i) the site where the activity to which the application or proposed application relates is or is to be undertaken; and<br>(ii) any alternative site; | Two Notice boards (one in Afrikaans and another in English) in line with Sub-regulation 41(3) and 41(4) was erected on site (at the most northern point of the proposal and the most southern point of the proposal).<br><br>This portion of the Road DR1791 is located on farm 591 and portion 22 farm Wittedrift and does not intersect any major intersections.<br><br>As no alternative sites are being proposed, 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—<br>the occupiers of the site and, if the proponent or applicant is not the owner or | As part of the proposed public participation plan provided to DEA&DP prior to the distribution of the 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 |

| | | |
|---|---|---|
| | 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;<br>(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;<br>(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;<br>(iv) the municipality which has jurisdiction in the area;<br>(v) any organ of state having jurisdiction in respect of any aspect of the activity; and<br>(vi) any other party as required by the competent authority; | physical addresses and letter drops (where no other contact details have been made available to the EAP).<br><br>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 maintained for the duration of the process. |
| 41(2)I | Placing an advertisement ii) one local newspaper; or<br>(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 placed only in the local newspaper, *The Knysna-Plett Herald Newspaper, on the 30th of October 2025*, 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 —<br>(i) illiteracy;<br>(ii) disability; or<br>(iii) any other disadvantage. | All notifications and external communications (as stipulated above) were available in English in order to reach the greatest audience possible. In addition to these measures, notifications was placed on Facebook and/or LinkedIn to notify the broader public of the availability of the Draft BAR. A hard copy of the Draft BAR was made available for review at a Green Valley Library, 257 Pine Street, Wittedrift for the duration of the 30-day 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. Similarly, these measures speak directly to the contents of the EIA Regulations of 2014, as amended, as well as the Application form submitted for the proposed development. However, in addition to the procedures as stipulated in Section F1 above, this Application BAR has been circulated to the following Organs of State:

- Western Cape Government: Department of Environmental Affairs and Development Planning
- Western Cape Government: Department of Environmental Affairs and Development Planning - Pollution and Chemicals Management

- BOCMA
- Western Cape Government: Department of Infrastructure
- Western Cape Government: Department of Agriculture
- Western Cape Government: Department of Agriculture, Forestry and Fisheries (DAFF)
- Heritage Western Cape

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

| | | |
|---|---|---|
| Environmental Impact Assessment Admin | Department of Environmental Affairs & Development Planning | DEADPEIAAdmin.George@westerncape.gov.za |
| Phillip Dietzsch | Bitou Municipality | dietzsch@plett.gov.za |
| Executive Mayor: Cllr. Jessica N Kamkam | Bitou Municipality Ward 1 | jkamkam@plett.gov.za |
| Dr Nina Viljoen | Garden Route District Municipality | nina@gardenroute.gov.za |
| Marissa Moore | WCG: Mobility Department | HOD.Mobility@westerncape.gov.za |
| Arabel McClelland | DEA&DP: Pollution and Chemical Management | Arabel.McClelland@westerncape.gov.za |
| Tertuis Simmers | WCG: Head of Infrastructure | Melchior.Botes@westerncape.gov.za<br>Jandre.Bakker@westerncape.gov.za |
| Brandon Layman | WCG: Department of Agriculture | brandonl@elsenburg.com |
| Carlo Abrahams | Breede-Gouritz Catchment Management Agency | cabrahams@bgcma.co.za |
| Megan Simons & Ismat Adams | Cape Nature | msimons@capenature.co.za<br>iadams@capenature.co.za |
| Lizelle Stroh | South African Civil Aviation Authority | strohl@caa.co.za<br>environment@caa.co.za |
| Stephanie-Ann Barnardt-Delport | Heritage Western Cape | stephanie.barnardt@westerncape.gov.za |
| Melanie Koen | Forestry Western Cape | Mkoen@dffe.gov.za |
| Marlin Henry | Environmental Officer: Development Management (Region 3) | Marlin.Henry@westerncape.gov.za |
| Francois Naude | Control Environmental Officer: Environmental Impact Management Services (Region 3) | Francois.Naude@westerncape.gov.za |
| Brandon Laymen & Cor Van Der Walt | WCG: Department of Agriculture | brandonl@elsenburg.com<br>corvdw@elsenburg.com |
| Gunther Frantz | DEA&DP Directorate: Pollution and Chemicals Management | Gunther.Frantz@westerncape.gov.za |
| Adri La meyer | Western Cape Government: Facilitation | Adri.LaMeyer@westerncape.gov.za |

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

- All departments were consulted on the list.

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

- Western Cape Department of Human Settlements
- Western Cape Department of Infrastructure
- Western Cape Department of Education
- Western Cape Department of Health
- DEADP: Pollution & Waste Management
- DEADP: Air Quality Directorate
- DEADP: Coastal Management
- Western Cape Department of Agriculture

- Bradon Layman confirmed that the Department of Agriculture will not provide comments within the legislative timeframes. The email is included in Appendix E7.

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.

Issues raised by I&APs and authorities focused on environmental sensitivity, construction impacts, regulatory compliance, and maintaining road access. Local users raised concerns about continued access during construction, which was addressed through the inclusion of a temporary bypass road to ensure uninterrupted traffic flow.

Authorities highlighted risks to the aquatic environment, riparian habitat and biodiversity due to the site's location within a watercourse and Critical Biodiversity Area. In response.

Concerns regarding rehabilitation, alien invasive species, and no-net-loss of riparian habitat were addressed through a detailed rehabilitation programme, alien invasive species management measures, and ECO oversight. Regulatory issues raised under NEMA, the National Water Act and forestry legislation were incorporated by explicitly confirming legal compliance, integrating General Authorisation conditions into the EMPr, and requiring method statements and monitoring.

**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 THE 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. | | |
| No specialist studies have been conducted for the groundwater. However, the specialist Debbie Fordham of Upstream Consulting did include in her impact assessment that the proposed project area is not located within any Strategic Water Source Areas for surface water or groundwater. | | | |
| 1.3. | Indicate above which aquifer your proposed development will be located and explain how this has influenced your proposed development. | | |

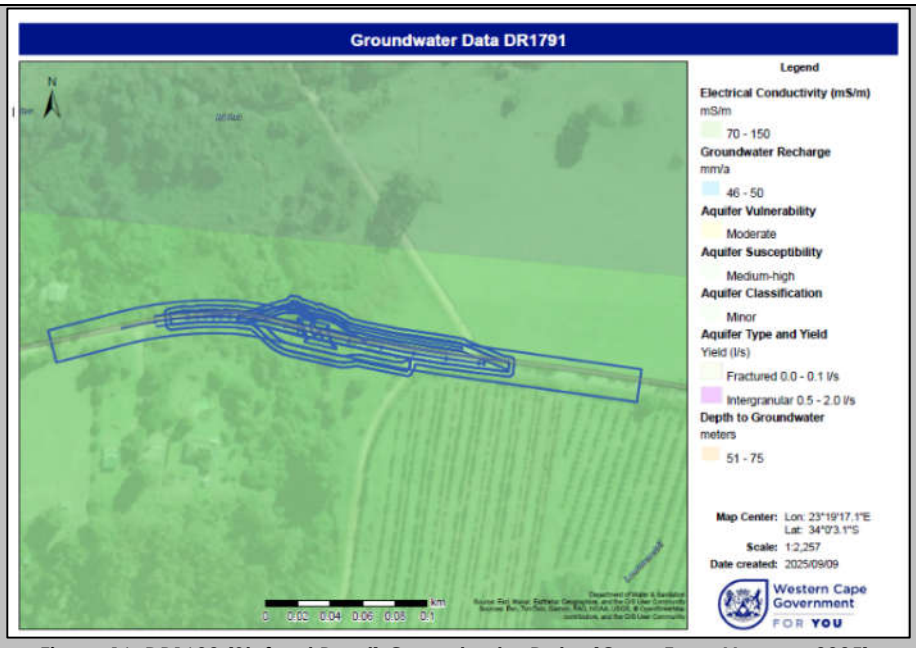


**Figure 16. DR1602 (Stofpad Road) Groundwater Data, (Cape Farm Mapper, 2025).**

The groundwater recharge rate is 43.71 mm per year, with an electrical conductivity (EC) ranging from 70 to 150 mS/m, indicating moderate groundwater quality. The depth to groundwater is measured at 53.09 meters below ground level (mbgl). The aquifer is classified as fractured with a yield of 0.0 - 0.1 liters per second (l/s). The aquifer's susceptibility is considered medium-high, while its vulnerability is moderate. Overall, the aquifer is classified as minor in terms of its potential for development and use.

The proposed site is located on a soil type that is classified as strong texture contrast, which is characterised as soils with a marked clay accumulation, strongly structured and a non-reddish colour. In addition, one or more of vertic, melanic and plinthic soils may be present, with a depth of 450mm and 750mm. The Broad Soils Classification type is Miscellaneous land classes, undifferentiated deep deposits. With a Geology of Alluvial Valley deposit. The Erodility is Moderate with a factor of 0.49.


**Figure 17. Soil and Geological Stability Data for DR1791, (Stofpad Road, Cape Farm Mapper, 2025).**

| | |
|---|---|
| 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. |

The groundwater is located at a depth of 53.09 meters below ground level (mbgl), which is relatively deep and unlikely to directly impact the proposed project of repairing and replacing damaged roads and culverts. However, the fractured aquifer with a low yield of 0.0 - 0.1 litres per second (l/s) suggests that water extraction from this source would be limited. While groundwater itself may not be a primary concern for the road repair, the medium-high susceptibility and moderate vulnerability of the aquifer should be considered during construction to avoid potential contamination or disruption to the water table. Proper management of runoff and drainage, especially around the culverts, will be important to ensure that the project does not negatively affect groundwater quality or flow.

## 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. | | |

Debbie Fordham from Upstream Consulting has undertaken an Aquatic Impact Assessment for the project.

| | |
|---|---|
| 2.3. | Explain how the presence of watercourse(s) and/or wetlands on the property(ies) has influenced your proposed development. |

The total footprint of the proposed by-pass is approximately 4996.57 $m^2$ if construction is downstream and 3279.15$m^2$ total development footprint upstream, including the area located within the road reserve. The proposed temporary by-pass infrastructure will be located either upstream or downstream of the existing causeway infrastructure, depending on the site conditions at the time of construction. It was determined that the channelled valley bottom wetland on the Leermansdrift River will be directly impacted, as the causeway is within the watercourse. There is potential for indirect downstream impacts upon the Bietou River. The watercourses where therefore assessed in detail to determine the impact of the project. Based on having the specialist assess the watercourse, after mitigation measures are in place, there should be a low impact on the watercourses within the project area. Furthermore, the project will benefit the watercourse in the future by the new causeway design will allow for diffuse flow and may result in positive impacts in the long-term.

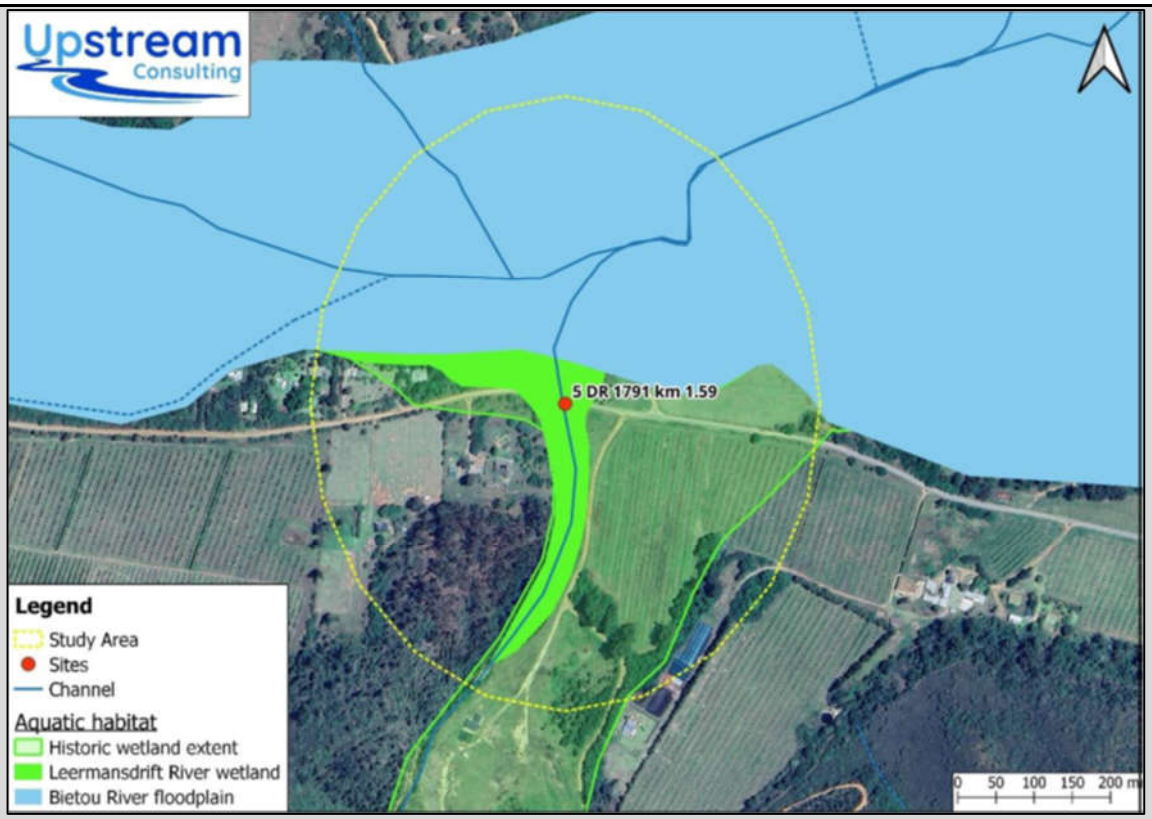


Figure 18. Watercourses within the study area of the project site, (Upstream Consulting, 2023).

The site features a Channelled Valley Bottom wetland, transitioning into the nationally significant Bietou floodplain wetland. Fordham identified that the Present Ecological State (PES) of the area is classified as C: Moderately Modified. Although historical farming activities and alien plant invasions have affected the wetland, it still retains moderate ecological function and biodiversity value.

The assessment identified and analysed four primary grouped impacts:
1. Distribution of Aquatic Habitat and Biota
2. Sedimentation and Erosion
3. Hydrological Changes
4. Surface Water Quality Changes

Lastly, cumulative impacts are expected to be low due to the replacement of existing infrastructure.

The significance of the project's impacts, before mitigation, is considered medium, while after mitigation, it is regarded as low for all four assessed primary grouped impacts. The specialist indicated that no fatal flaws were identified and that the impacts are manageable if the mitigation measures outlined in the Basic Assessment Report (BAR) and Environmental Management Program (EMPr) are implemented.

The Aquatic Impact Assessment concluded that, with proper mitigation and design, the construction of the new causeway is unlikely to significantly harm the aquatic ecosystem.

## 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. | | |
| Not applicable to the proposed project. | | | |
| 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. | | |
| Not applicable to the proposed project. | | | |

| | |
|---|---|
| 3.4. | Explain how estuary management plans (if applicable) has influenced the proposed development. |
| Not applicable to 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. |
| | Not applicable to 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. | | |

- **Terrestrial biodiversity & Plant Biodiversity** compliance statements was conducted by Megan Smith and Nicolene Cloete from Enviro Works.
- **Avi-faunal and Animal biodiversity** compliance statements was conducted by Mokgatla Molepo from MORA Ecological Services and reviewed by Megan Smith from Enviro Works.
- **Aquatic Biodiversity** impact assessment was conducted by Debbie Fordham from Upstream Consulting.

| | |
|---|---|
| 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. |

Based on the information acquired from the specialist compliance report for the terrestrial and plant biodiversity, conducted by Megan Smith and Nicolene Cloete, and information from the DFFE Screening Tool Report (2023), the following information was obtained and utilised in accordance with systematic conservation planning and other biodiversity information that was used to influence the proposed development.

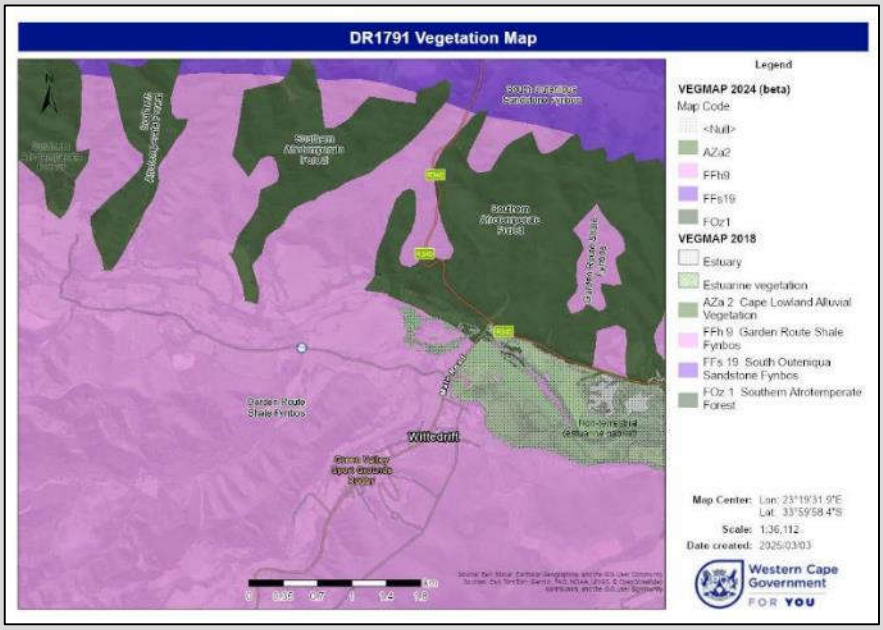


**Figure 19. Extract of the DR1791 Vegetation Map, 2018, (Cape Farm Mapper, 2025).**

The proposed development, repair and upgrade project is located within the Garden Route Shale Fynbos area (Figure 19). The site location is regarded as endangered (DFFE, 2022). Garden Route shale fynbos is a vegetation type found in the southern coastal region of South Africa known as the Garden Route. It is characterised by a unique combination of fynbos (a type of shrubland vegetation) and shale rock formations.

Garden Route Shale fynbos is adapted to the relatively nutrient-poor and acidic soils created by the weathering of shale rock. The fynbos component of this vegetation type consists of a diverse array of plants including proteas, ericas, restios, and other evergreen shrubs. These plants have adapted to the Mediterranean climate of the region, with hot, dry summers and mild, wet winters.

The Garden Route Shale Fynbos is known for its rich biodiversity and high levels of endemism, meaning many plant species found here are unique to this specific area. It provides habitat for a variety of animal species, including small mammals, reptiles, and a wide range of bird species.

**Based on Figure 20. Extract of the Jan Vlok's Vegetation map**
The site is further refined and located within the mapped Groot Brak River, and the project footprint borders the Piesang River Fynbos Forest.

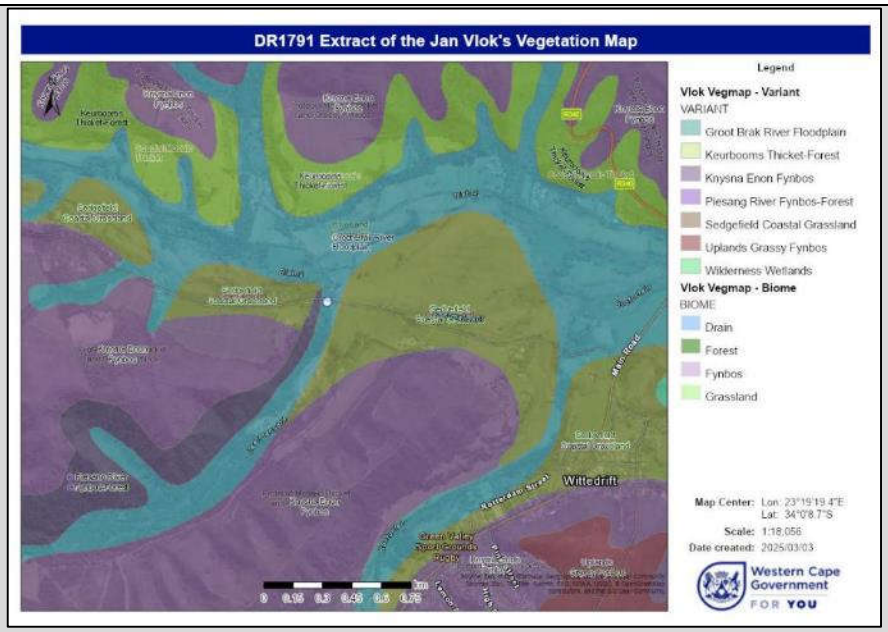


**Figure 20. Extract of the Jan Vlok's Vegetation map, (Cape Farm Mapper, 2025).**

**National Freshwater Ecosystem Priority Areas**

Based on the site being within the watercourse, this section has been included due to the DFFE Screening Tool identifying the site as being within a FEPA Sub catchment and thus mapped as having high aquatic biodiversity sensitivity. It must be noted that the data gathered by the NFEPA project has since been updated and included into the 2018 national wetland and river dataset and has been further refined (refer to Section above). The NFEPA project identifies the Bietou River as a FEPA river and the catchment as a FEPA river sub-quaternary catchment.

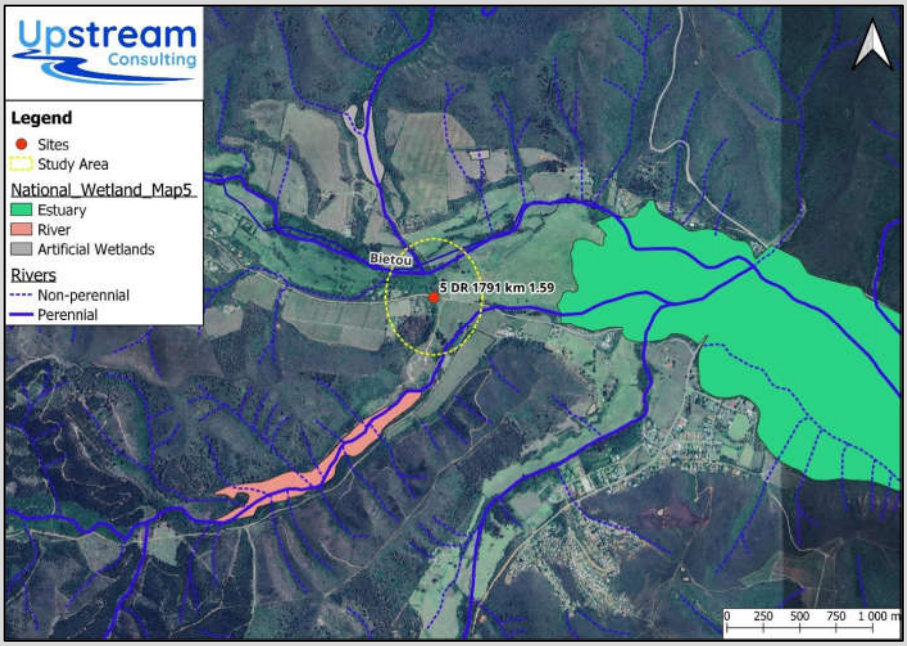


**Figure 21. The site relativity to the national river and wetland inventory, (Upstream Consulting, 2023).**

The National Freshwater Ecosystem Priority Areas (NFEPA 2011) data provides strategic spatial priorities for conserving South Africa's aquatic ecosystems and supporting sustainable use of water resources. FEPAs were identified based on a range of criteria dealing with the maintenance of key ecological processes and the conservation of ecosystem types and species associated with rivers, wetlands and estuaries (Driver et al. 2011). FEPA maps are suitable to use at a desktop level for planning and decision-making processes at the national or water management area level.

FEPA maps show various different categories, each with different management implications. The categories include river FEPAs and associated sub-quaternary catchments, wetland FEPAs, wetland clusters, Fish Support Areas and associated sub-quaternary catchments, fish sanctuaries, phase 2 FEPAs and associated sub-quaternary catchments, and Upstream Management Areas. River FEPAs achieve biodiversity targets for river ecosystems and threatened/near-threatened fish species, and were identified in rivers that are currently in a

good condition (A or B ecological category). Their FEPA status indicates that they should remain in a good condition in order to contribute to national biodiversity goals and support sustainable use of water resources (Driver et al. 2011).

Sub-quaternary catchments were delineated as the drainage basin around each river reach. If a river ecosystem was identified as a FEPA, then its associated sub-quaternary catchment was shaded on the FEPA map, to indicate that it is not just the 1:500 000 river reach within the sub-quaternary catchment that needs to be managed, but also the surrounding land and finer stream network that flows into that river reach.

The NFEPA project identifies the Bietou River as a FEPA river and the catchment as a FEPA river sub-quaternary catchment, this being part of the 'Very High' sensitivity features identified by the DFFE Screening Tool and thus requiring aquatic assessment. Therefore the site is within a FEPA sub catchment and the activity must not result in any deterioration of the FEPA classified Bietou River downstream.


**Figure 22. Map showing the FEPA rivers and associated sub-quaternary catchments, identified by the NFEPA project, in relation to the site, (Upstream Consulting, 2023).**

The project was assessed against key biodiversity informants, including the National List of Threatened Ecosystems (DEA, 2022 – GN 2747), which maps the area as Garden Route Shale Fynbos (Endangered), and the Western Cape Biodiversity Spatial Plan (DEA&DP & CapeNature, 2017), which identifies the broader landscape as a Critical Biodiversity Area (CBA). Although these tools highlight ecological sensitivity, site verification by botanical, faunal, and avifaunal specialists confirmed that the DR1791 footprint is already transformed by road infrastructure, with no intact habitat or Species of Conservation Concern present.

The National Freshwater Ecosystem Priority Areas (NFEPA, Nel et al., 2011) and NSBA (SANBI, 2018) also informed the assessment, particularly in relation to the Leermansdrift River crossing. The aquatic specialist noted potential risks of erosion and sedimentation, which will be mitigated through erosion control, sediment barriers, and timing works during low-flow periods. Vegetation maps (Mucina & Rutherford, 2006; SANBI VegMap 2018) confirmed the mapped ecosystem type but found no intact Fynbos within the footprint. The DFFE screening tool identified sensitivity for three Red Data bird species; however, the avifaunal study found no suitable habitat or observations of these species on site.

This site's vegetation type is Garden Route Shale Fynbos and has an Ecosystem Threat Status of Endangered.
The proposed project site is located within an area with an Ecological Threat Status of Endangered (DFFE, 2022) The proposed project is not mapped within any ESA 1 and 2 or CBA 1 and 2, in accordance with CapeNature (2024).

According to the specialist Compliance Statement prepared by Megan Smith of Enviroworks in November 2023, the proposed project is situated within the Garden Route Biosphere Reserve and a Critically Endangered vegetation type, as indicated by the initial desktop study. However, after conducting fieldwork in the area, specialists Megan Smith and Nicolene Cloete from Enviro Works found that the site is dominated by invasive alien species such as *Acacia mearnsii and Sparrmannia africana*. As a result, indigenous vegetation has largely been displaced and is unlikely to recover.

Furthermore, no Species of Conservation Concern were observed in the study area. In conclusion, the proposed development is unlikely to impact the overall functioning of the biosphere. The findings indicate that the Site Ecological Importance is very low, attributed to its poor habitat quality, low species richness, and limited ecological function.


**Figure 23. Alien trees dominate the vegetation in the proposed study area, such as *Acacia mearnsii* (Black Wattle), (Enviro Works, 2023).**


**Figure 24. *Sparrmannia africana* (African Hemp), found within the study area, (Enviro Works, 2023).**

| | |
|---|---|
| 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. |

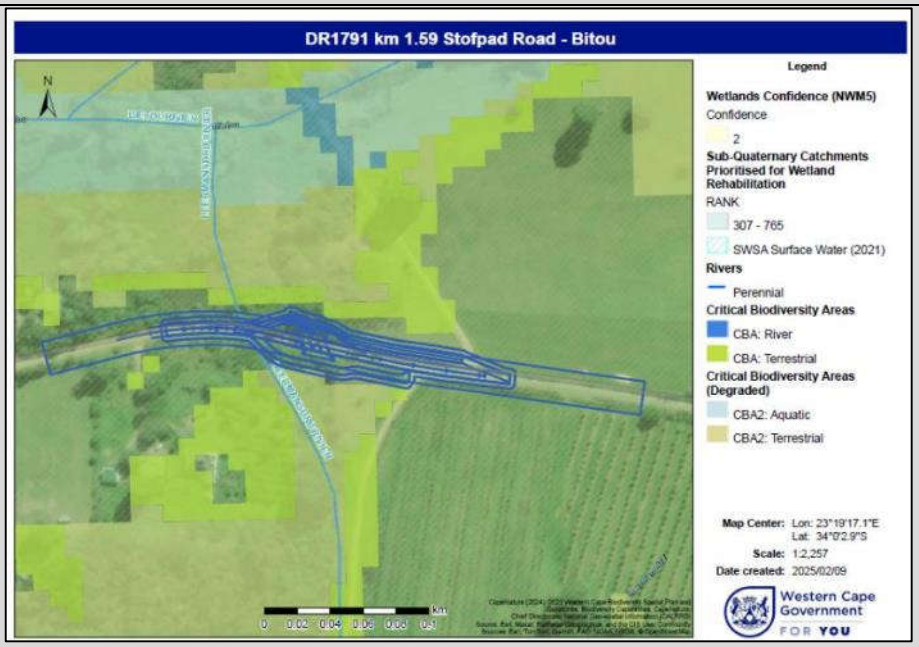


**Figure 25. Sensitivity of the proposed development footprint (demarcated in blue), (Cape Farm Mapper, 2025).**

Since the proposed development footprint is situated in sensitive areas identified by the Western Cape Spatial Biodiversity Plan, the development footprint is considered to hold conservation importance within these sensitive areas. To determine whether the proposed development footprint is verified to carry out the functions of the Garden Rote Biosphere Reserve as mapped, it must first be determined the reason for the Biosphere Reserve delineation.

The development footprint is situated completely in the Garden Route Biosphere Reserve as identified by the Western Cape Biodiversity Spatial Plan (Figure 25.The section of Garden Route Biosphere Reserve included in the footprint is currently in a degraded condition and thus, is unlikely to contribute to the overall functioning of the Biosphere. The proposed development is unlikely to negatively affect the Garden Route Biosphere Reserve as it has a small development footprint and most of the development/upgrade will take place on already disturbed areas which consists of existing infrastructure.

**Vegetation description:**

The vegetation within the proposed development area exhibits a high invasion by several alien plant species, namely *Eucalyptus cladocalyx* (Sugar Gum), *Acacia mearnsii* (Black Wattle), *Acacia longifolia* (Long-leaved wattle), *Acacia saligna* (Port Jackson), and *Sparrmannia africana* (African Hemp). These invasive species dominate the site and have significantly impacted the native vegetation.

Based on this vegetation assessment, it is evident that the proposed development site is currently heavily invaded by invasive plant species, leading to the degradation and fragmentation of the native vegetation. Based on the aforementioned, the proposed development footprint does not constitute the indigenous vegetation type in composition or function.

As a general recommendation, comprehensive management and restoration strategies will be necessary to control the invasion, remove the alien species, and restore the site's indigenous vegetation and ecological integrity. However, removing the alien trees will disturb watercourse banks significantly, likely causing erosion. The overall GRDM Alien Invasive Species Management Plan should be followed by the Municipality to ensure that the area surrounding the footprint is cleared of indigenous vegetation.

Although the legal definition of "indigenous vegetation" is still applicable to the footprint given that most of the footprint has not been developed within 10 years, there is very limited evidence for the indigenous vegetation on the property. The alien invasive infestation has been ongoing for more than five years and thus soil properties and seed bank have likely significantly changed and been depleted. Therefore, elements of the indigenous vegetation type are highly unlikely to occur and unlikely to ever occur again on the property.

**Areas of Conservation Concern:**
The presence of the Garden Route Biosphere Reserve has been confirmed as delineated by the Western Cape Biodiversity Spatial Plan. The target for Garden Route Biosphere Reserve with regards to development is to minimize habitat and species loss and ensure ecosystem functionality through strategic landscape planning. The Western Cape Biodiversity Spatial Plan does offer flexibility in permissible land-uses, but some authorisation may still be required for high-impact land-uses.

Because the Garden Route Biosphere Reserve extends to a very large area outside of the development footprint and the area impacted is mostly already developed and has a high abundance of alien species, the proposed development footprint does not significantly contribute to the overall functioning of the Biosphere Reserve. Therefore, the loss in Garden Route Biosphere Reserve for the proposed development will not impact the functioning of the overall Garden Route Biosphere Reserve or the wider area. It is also noted that ecological connectivity will be not disturbed further providing that the functioning of the Biosphere Reserve will remain intact during and after construction works.

**Ecological Sensitivity Assessment:**
The Site Ecological Importance (SEI) of the footprint was evaluated as Low (Table 3) for each of the habitat units, and It was determined based on the low biodiversity value and ecological functioning and high recovery rate.

**Table 3. Site Ecological Importance of the different habitat units delineated within the footprint.**

| Project Area | Conservation Importance | Functionality Integrity | Receptor Resilience | Site Ecological Importance |
|---|---|---|---|---|
| DR1791 Km 1.59 Road and causeway repair and upgrade within the Bitou Local Municipality. | Low: No confirmed or highly likely populations of Species of Conservation Concern; No confirmed or highly likely populations of range-restricted species; < 50 % of receptor contains natural habitat with limited potential to support SCC. | Low: Small (> 1 ha but < 5 ha) area. Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat. and a very busy used road network surrounds the area. Low rehabilitation potential. Several minor and major current negative ecological impacts. | Low: Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed. | Very Low. Minimization mitigation - Development activities of medium to high impact acceptable and restoration activities may not be required. |

**Biodiversity Aquatic Assessment on CBAs and ESAs:**
The Western Cape Biodiversity Spatial Plan (WCBSP) identifies biodiversity priority areas, CBAs and Ecological Support Areas (ESAs), which, together with Protected Areas, are important for the persistence of a viable representative sample of all ecosystem types and species, as well as the long-term ecological functioning of the landscape as a whole. The primary purpose of a map of Critical Biodiversity Areas and Ecological Support Areas is to guide decision-making about where best to locate development. Critical Biodiversity Areas (CBA's) are required to meet biodiversity targets. According to the WCBSP, these areas have high biodiversity and ecological value and therefore must be kept in a natural state without further loss of habitat or species.

Figure 25 shows that the causeway is not located within any mapped aquatic biodiversity priority areas. The Bietou River is however mapped as a CBA1 river. The project must not result in the deterioration of any CBA habitat.

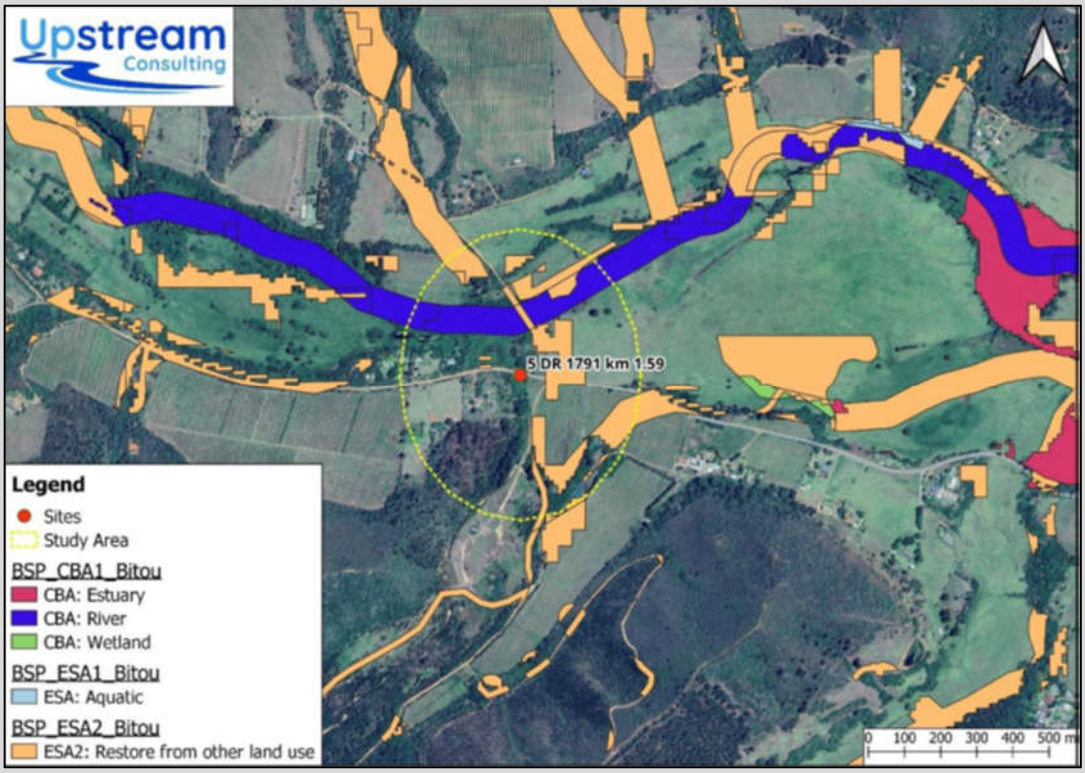


**Figure 26. Map of the site in relation to aquatic priority areas identified in the WCBSP (2017), (Cape Farm Mapper, 2023).**

| | |
|---|---|
| 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. |

**Table 4. Ecological Support Areas and Critical Biodiversity Areas**

| Biodiversity Priorities | Hectares Lost/ Square Meters Lost | Is the proposed development aligned with the land management objectives (LMO) | Proximity to Biodiversity Priority Area |
|---|---|---|---|
| CBA1 | Downstream Approx. 2.1m$^2$ and upstream approx. 17.5 m$^2$. | YES, according to the land management objectives, the purpose of the degraded CBA is to maintain the area in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.<br><br>**The construction phase of the proposed project will require a construction footprint within CBA1, which would mean that the LMO isn't aligned. However, the eventual goal of the proposed project is to improve the existing structures on site, and subsequently, improve the stream flow quality. Therefore, this project would be considered appropriate in these areas.** | - |
| CBA2 | Upstream 4 meters, and downstream does not intercept a CBA2 and is approx.. 4 meters away. m | According to the land management objectives, the purpose of the degraded CBA is to maintain the area in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.<br><br>**The construction phase of the proposed project will require a construction footprint within CBA2, which would mean that the LMO isn't aligned. However, the eventual goal of the proposed project is to improve the existing structures on site, and subsequently, improve the stream flow quality.** | - |

| | | | |
|---|---|---|---|
| | | **Therefore, this project would be considered appropriate in these areas.** | |
| ESA1 | - | - | Approx. 2700m |
| ESA2 | **-** | **-** | Approx. 4300 m |
| Protected Area (PA) | - | - | Approx. 1607m (Babbejaanskloof Private Nature Reserve) |
| Forest | - | - | Approx. 262 m |
| River NFEPA including 32m buffer | **-** | - | Approx. 153 m (the Bietou River) |
| Wetland NFEPA including 32m buffer | **-** | - | Approx. 470 m |
| Strategic water source area | Approximately 0.026 ha (on either side of the causeway – outside of the road reserve) | The 2021 spatial layer for SWSAs for surface water is a fine-scale delineation of the SWSAs, intended to support the integration of SWSAs in a range of catchment- and local-level planning, management, and regulatory processes. These areas need to be managed as multifunctional landscapes, and the main objective should be minimising the impacts of human activities in these landscapes on water quantity and quality.<br><br>**The proposed development is located within the Outeniqua SWSA, the impact on the watercourse is marginal and the proposed works aim to not only be beneficial to the public but as the structures are improved, the instream processes will also be improved.** | - |
| Threatened species and Red Data listed species | **None identified on site by the appointed specialist** | **N/A – None identified on-site by the appointed specialist** | - |

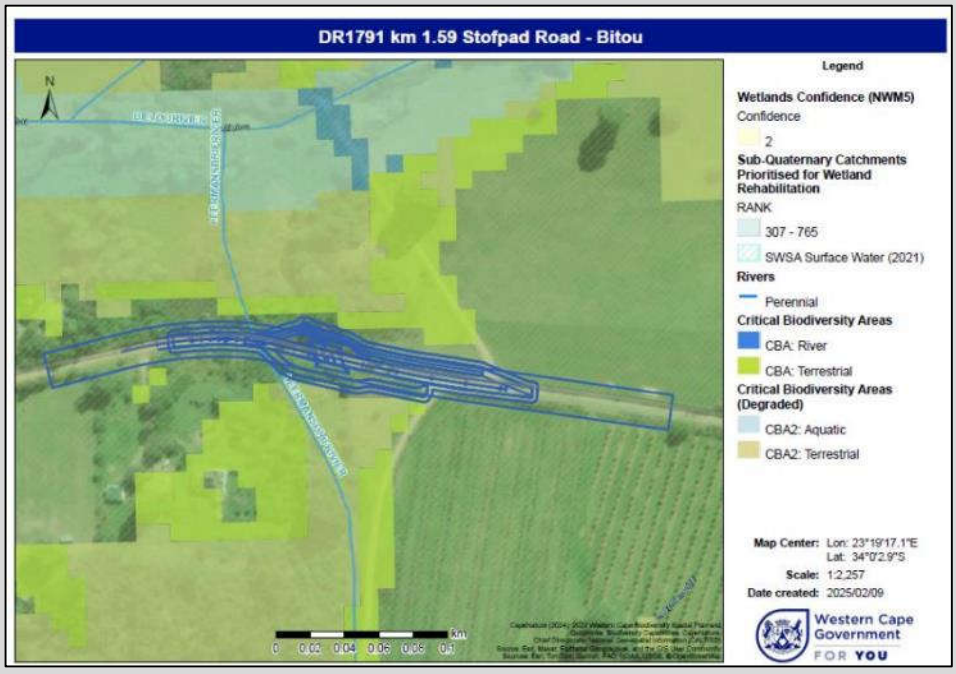


**Figure 27. Western Cape Biodiversity Spatial Plan Mapping (SANBI, 2017; as sourced from Cape Farm Mappper, 2025).**

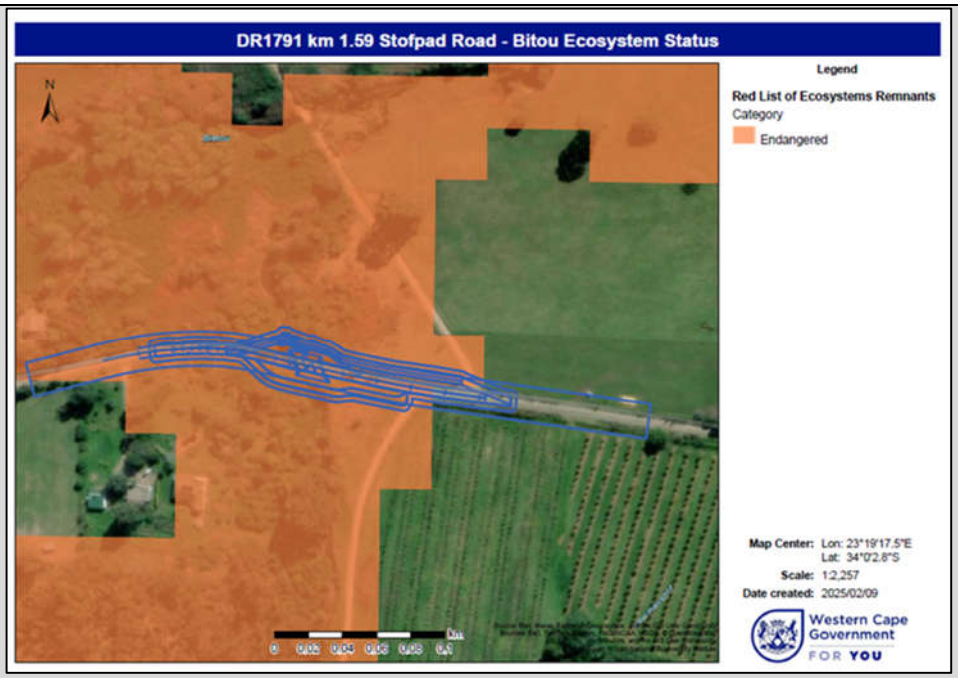


**Figure 28. The Garden Route Shale Fynbos region is classified as Endangered, for both upstream and downstream. (Cape Farm Mapper, 2025).**

| | |
|---|---|
| 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. |

**Flora Biodiversity**

Garden Route Shale Fynbos is primarily found in the Western and Eastern Cape Provinces, it consists of patches along the foothills of the Langeberg near Heidelberg, in the Outeniqua Mountains from Cloete's Pass via Groot Brak River valley to Plettenberg Bay. Patches also occur from the Bloukrans Pass to the shale bands south of the Tsitsikamma Mountains and the Clarkson and Kareedouw Mountains This vegetation type occurs on undulating hills and moderately undulating plains of the coastal forelands.

Based on the site inspection, the vegetation within the proposed development area exhibits a high invasion by several alien plant species, namely *Eucalyptus cladocalyx* (Sugar Gum), *Acacia mearnsii* (Black Wattle)., *Acacia longifolia* (Long-leaved wattle), *Acacia saligna* (Port Jackson), and *Sparrmannia africana* (African Hemp). These invasive species dominate the site and have significantly impacted the native vegetation. Based on this vegetation assessment, it is evident that the proposed development site is currently heavily invaded by invasive plant species, leading to the degradation and fragmentation of the native vegetation. Based on the aforementioned, the proposed development footprint does not constitute the indigenous vegetation type in composition or function. As a general recommendation, comprehensive management and restoration strategies will be necessary to control the invasion, remove the alien species, and restore the site's indigenous vegetation and ecological integrity. However, removing the alien trees will disturb watercourse banks significantly, likely causing erosion. The overall GRDM Alien Invasive Species Management Plan should be followed by the Municipality to ensure that the area surrounding the footprint is cleared of indigenous vegetation. Although the legal definition of "indigenous vegetation" is still applicable to the footprint given that most of the footprint has not been developed within 10 years, there is very limited evidence for the indigenous vegetation on the property. The alien invasive infestation has been ongoing for more than five years and thus soil properties and seed bank have likely significantly changed and been depleted. Therefore, elements of the indigenous vegetation type are highly unlikely to occur and unlikely to ever occur again on the property.

**Faunal Biodiversity**

during the site inspection, no species of conservation concern were found within the proposed development footprint. This is likely a result of the degraded nature of the site creating unsuitable habitat for these species. It is expected that the faunal species in these areas are limited to avifauna, as well as smaller reptiles, amphibians, and mammals all of which are common and non-threatened. Given that the project only entails upgrades, the species would have the ability to seek refuge in case of any disturbances in the area.

**Avi-faunal Biodiversity**

The proposed upgrade and repair project is located in a already disturbed area, an anticipated avifaunal impacts are of low prediction. The specialist verified that none of the identified sensitive bird species from DFFE screening tool report were observed on site, and followed that, no habitats within the proposed culverts and pipes upgrade footprint are considered sensitive.

**Aquatic Biodiversity**

The reach of the Bietou River is located in the Lowland geozone and has perennial flow. In 1999 the PES of the Bietou River was classified as Class B (Largely Natural) however, the data from the latest National Biodiversity Assessment (NBA 2018) classifies the river as having a 'C' PES score, indicating a 'Moderately Modified' ecosystem. The broad floodplain wetland of the Bietou River is more than 600ha in size and is a valuable ecological resource. The Bietou wetland is essentially part of the greater Keurbooms Estuary and therefore impacts on the Bietou will in turn impact the Keurbooms system. The Keurbooms Estuary downstream is a Warm Temperate permanently open

estuarine system classed as Vulnerable and Poorly Protected. Land transformation for agriculture and development, as well as alien tree infestation in this area, have modified the natural dynamic of the systems.

The study area does not fall within any Strategic Water Source Areas for surface water or groundwater (Le Maitre et al. 2018). A Strategic Water Source Area (SWSA) is where the water that is supplied is of national importance for water security. Regardless of its location outside of any SWSAs, the causeway replacement will not impact any SWSAs, as there will be no reduction in water volume and no permanent changes to water quality.

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

Specialist site visits were conducted by an avifaunal specialist (29 October 2023) and a faunal/terrestrial biodiversity specialist (November 2023). Both assessments confirmed that the project area is already disturbed, dominated by secondary vegetation and alien plant species.

No Species of Conservation Concern (SCCs) were recorded on or adjacent to the road footprint. The specialists concluded that the available habitat within the project area is of low ecological sensitivity and is unlikely to support viable populations of faunal SCCs. Instead, such species are more likely to occur in the higher-quality natural habitats within the broader landscape, where viable populations and functional ecological processes are more likely to persist.

As a result, the presence of fauna has influenced the proposed development by:

- Reinforcing the decision to confine works to the existing disturbed road footprint, thereby avoiding intact habitats.
- Ensuring that mitigation measures in the EMPr (e.g. limiting construction disturbance, prohibiting off-site clearing, preventing fires, and reinstating disturbed areas) are sufficient to safeguard general fauna in the area.
- Confirming that no additional design changes were required to accommodate faunal SCCs, given the absence of suitable habitat within the footprint.

In conclusion, while the broader area supports rich biodiversity, the road reserve itself is of low faunal sensitivity, and the proposed development will not result in significant impacts to faunal SCCs, provided that standard mitigation measures are implemented.

## 5. Geographical Aspects

| Explain whether any geographical aspects will be affected and how this has influenced the proposed activity or development. |
|---|
| The landscape of the area is characterised as undulating hills that are intercepted by watercourses. The proposed construction site is located over a perennial river that will be affected by the project; however, after the specialist recommended mitigation measures, limited activity will occur within the watercourse. |

## 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. | | |
| Dr Peter Nilsen of Point of Human Origins. | | | |
| 6.3. | Explain how areas that contain sensitive heritage resources have influenced the proposed development. | | |
| Dr Peter Nillsen of Point of Human Origins - It was confirmed by the appointed Heritage Consultant that the proposed activities do not trigger Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999). Therefore, the Heritage consultant confirmed that it was not required to submit a Notice of Intent to Develop (NID) to the HWC. The specialist included this information within the heritage statement, that is included within Appendix G of this application. | | | |

## 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. |
|---|

The heritage assessment confirmed that the project site is already disturbed and transformed by transport infrastructure. While the existing culvert structures are older than 60 years, they do not possess cultural or historical significance as defined in Section 2 of the National Heritage Resources Act (NHRA). In terms of Section 34 of the NHRA, structures older than 60 years may require a demolition permit if they have heritage value. However, the specialist concluded that the culverts and associated road structures do not constitute heritage resources of significance, and therefore, a demolition permit will not be required.

This finding has influenced the proposed development by confirming that:

- The rehabilitation and replacement of the culvert can proceed without triggering additional heritage approvals.
- Heritage considerations have been incorporated into the EMPr through a chance-find procedure, ensuring that any previously unidentified heritage resources discovered during construction will be appropriately managed and reported to Heritage Western Cape.

## 8. Socio/Economic Aspects

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

Following the 2024/2025 IDP Bitou Local Municipality 5th generation document, the development area is within the following socio-economic structures:

- The population in the area was recorded as 65240 in 2022 and is expected to increase to 80,260 by 2027 (IDP Bitou Local Municipality).
- The unemployment rate in the area is 30.8%, with the major socio-economic risk being job losses, then low learner retention and lastly low skilled labour force.
- Access to basic service delivery is averaged at 85.4%.
- A major contributing sector to the GDP is finance with a 31.2% contribution to the overall GDP that Bitou Local Municipality amounts to R 4.2 billion. In 2022, Bitou Municipality had a real GDPR per capita of R63 969, which is lower than both the Garden Route District's figure of R69165 and the Western Cape's R113 327 for the same year. The gradual increase in Bitou's GDPR per capita, from R57 872 in 2016 to R60 925 in 2019, and further to R63 969 in 2022, can be attributed to rapid population growth and the economic challenges resulting from the COVID-19 pandemic-induced recession.
- The largest population growth projection was recorded in the working-age population (15 -64 years) aged cohort which grew at an annual average rate of 3.0 per cent between 2011 and 2022. This is an indication that the Bitou area is experiencing rapid population growth which will increase the demand for service delivery. These groupings are expressed as a dependency ratio which indicates those who are part of the workforce (Age 15 – 64) and those who are dependent on them (children or senior citizens). A higher dependency ratio implies greater pressure on social systems and the delivery of basic services. Growth in this age group is reflective of high fertility rates. A further 1 per cent growth per annum in the aged category will result in an overall increase in the dependency ratio towards 2026. The Bitou municipal area's dependency ratio declined from 48 per cent in 2022 and is expected to decline 47.9 per cent in 2024 and increase to 48.6 in 2026.
- Amidst rapid urbanisation across the Western Cape population density figures will aid public sector decision-makers to mitigate environmental. individual health and service delivery risks. In 2022. the population density of the Bitou municipal area was 72 persons per square kilometre.
- The Upper Bound Poverty Line (UBPL) head count ratio is the proportion of the population living below the UBPL i.e.. that cannot afford to purchase adequate levels of food and non-food items. The UBPL in South Africa is R1 227 (in April 2019 prices) per person per month. Poverty affects the social development of communities through lower life expectancy. malnutrition and food insecurity. higher exposure to crime and substance abuse. lower educational attainment and poor living conditions. The NDP aims to eliminate poverty by 2030. In 2022. 62.5 per cent of Bitou's population fell below the UBPL. This figure improved marginally from 63.1 per cent in 2019. Bitou ranks as the third highest in terms of the proportion of people living in poverty.
- Road user fatalities Road users that died in or during a crash i.e. drivers. cyclists. passengers. pedestrians. The number of road user fatalities in the Bitou area declined slightly from 8 in 2020/21 to 7 in 2021/22. While the number of fatal crashes is the same at 8 and 7 for the reference period.

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

The road and culvert upgrade project will help influence the socio-economic aspects positively, by contributing towards job creation and skills development that is needed within the area, and to provide a safe road for people to use. The area is also within agriculture, where the agriculture sector may benefit from using the road effectively and efficiently when transporting goods and services that contribute to the GDP of the Bitou area. furthermore, prevents flooding in the area, that can also cause ecological damage and further infrastructure damage.

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

The Applicant is committed to supporting and uplifting the local community through the proposed road and culvert project. To achieve this, the project will actively prioritise the use of local labour, providing temporary employment opportunities for residents during the

| | |
|---|---|
| construction phase. In addition, Small and Medium Enterprises (SMMEs) from the surrounding area will be engaged for services, supplies, and subcontracting, promoting local economic growth and business development.<br><br>Where feasible, the project will include skills development and on-the-job training for local workers, including training in road construction, culvert installation, safety procedures, and basic equipment handling. This approach ensures that the benefits of the project extend beyond immediate employment, helping participants acquire skills that can be applied in future infrastructure projects.<br>All employment and procurement activities will be conducted in accordance with the Western Cape Governments policies, ensuring fairness, transparency, and equitable access. These initiatives are designed to strengthen the local economy, empower community members, and provide sustainable social benefits aligned with the road and culvert activities. | |
| 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. |
| As the nature of the proposed work is to replace and repair existing infrastructure, the work will predominantly be within the construction footprint, and the construction works will be temporary. The temporary deviation road will positively impact the community by not disturbing road users as well as construction work, and will influence the well-being of road users by not utilising the currently damaged and potentially dangerous road till completion.<br><br>Following the completion of the construction phase of the proposed project, there will be a significant improvement in the safety of the road, providing road users with peace of mind whilst travelling 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.

**Table 5: Property Details of Proposed Development Location (The property details in green are within the project construction footprint).**

| No | Farm Name | Farm/ Erf No | Portion | Latitude | Longitude | Property Type |
|---|---|---|---|---|---|---|
| 1 | Helderwater | 586 | 0 | 34°0'30.82S | 23°18'44.13E | Farm |
| 2 | | 591 | 0 | 33°59'50.1S | 23°19'37.99E | Farm |
| 3 | Wittedrift | 306 | 0 | 34°0'10.33S | 23°20'45.02E | Farm |
| 4 | | 501 | 0 | 34°0'1.5S | 23°19'34.86E | Farm Portion |
| 5 | | 591 | 0 | 33°59'58.41S | 23°19'38.13E | Farm Portion |
| 6 | | 501 | 0 | 34°0'6.21S | 3°19'29.19E | Farm Portion |
| 7 | Wittedrift | 306 | 22 | 34°0'5.63S | 23°19'13.26E | Farm Portion |
| 8 | | 501 | 1 | 34°0'18.69S | 23°19'9.13E | Farm Portion |
| 9 | | 501 | 2 | 33°59'56.61S | 23°19'40.74E | Farm Portion |
| 10 | Helderwater | 586 | 0 | 34°0'29.72S | 23°18'50.75E | Farm Portion |

The area is located within an area that is demarcated as Agriculture Zone 1. The area where the construction will take place is located along the Divisional Road (DR) 1791 km 1.59 and crosses the Leermansdrift River. (A tributary of the Bitou River), northwest of Wittedrift located in the Bitou Local Municipality. The site suffered flood damage, and the causeway needs to be replaced completely as a result.

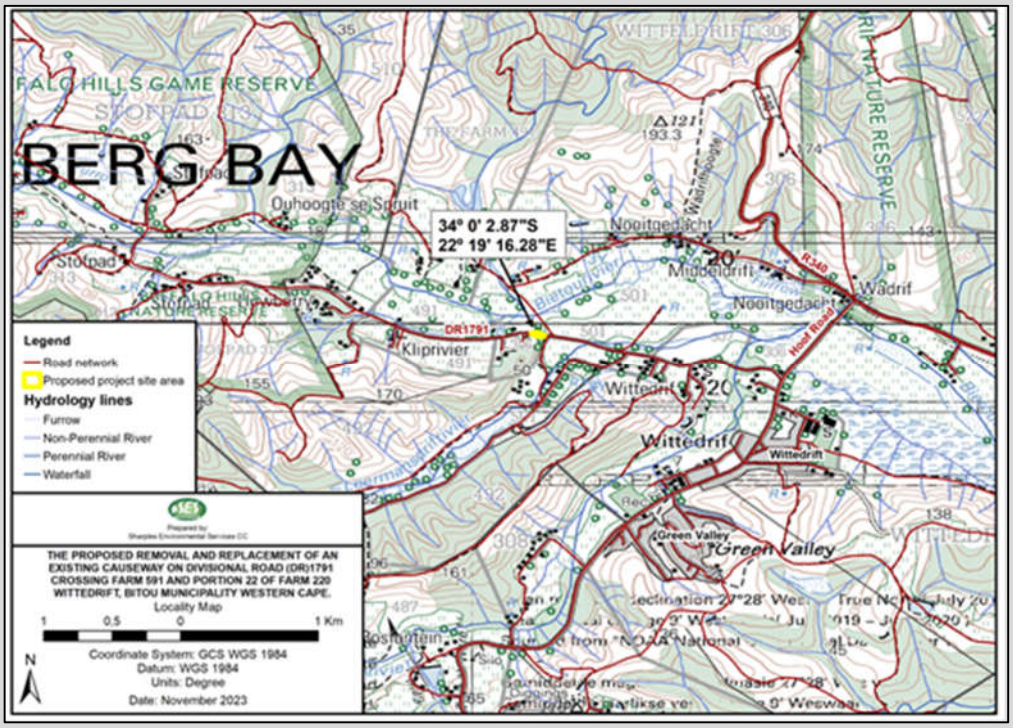


**Figure 29. Locality map of the proposed infrastructure works along DR1791, Wittedrift.**

A temporary by-pass is proposed to be constructed either upstream or downstream while the construction commences to avoid temporary road closure during construction. Both temporary deviation road designs need approval as conditions at the time of construction will determine which side the temporary deviation road will be constructed. Please note, that only one by-pass will be constructed during the construction phase.

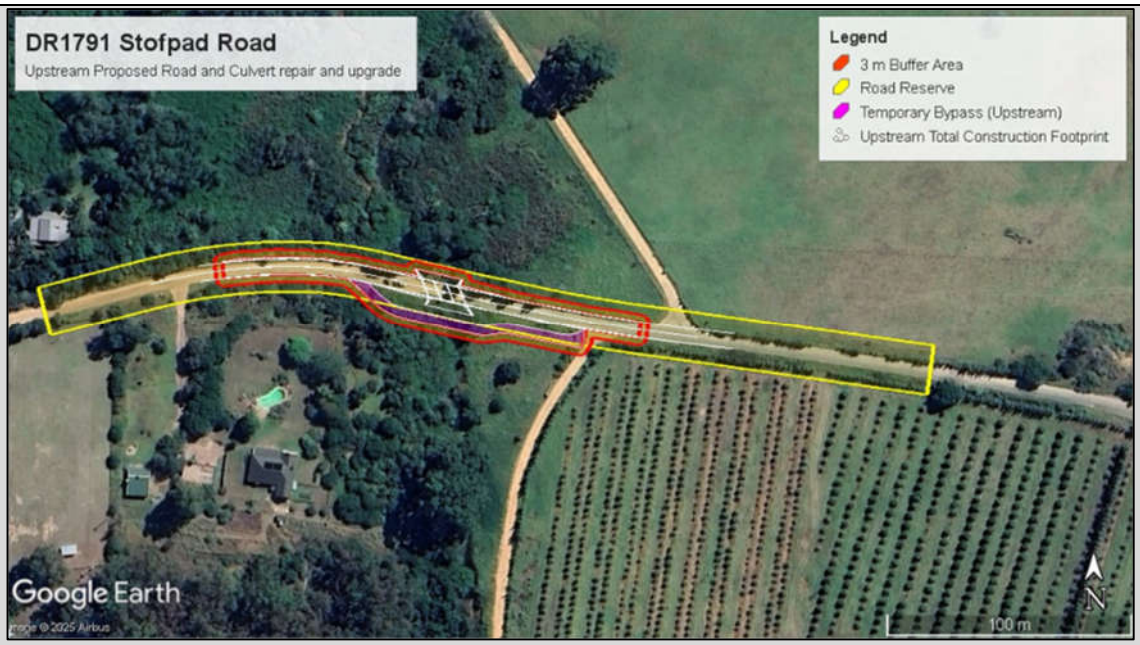


**Figure 30. Proposed by-pass infrastructure (upstream)**

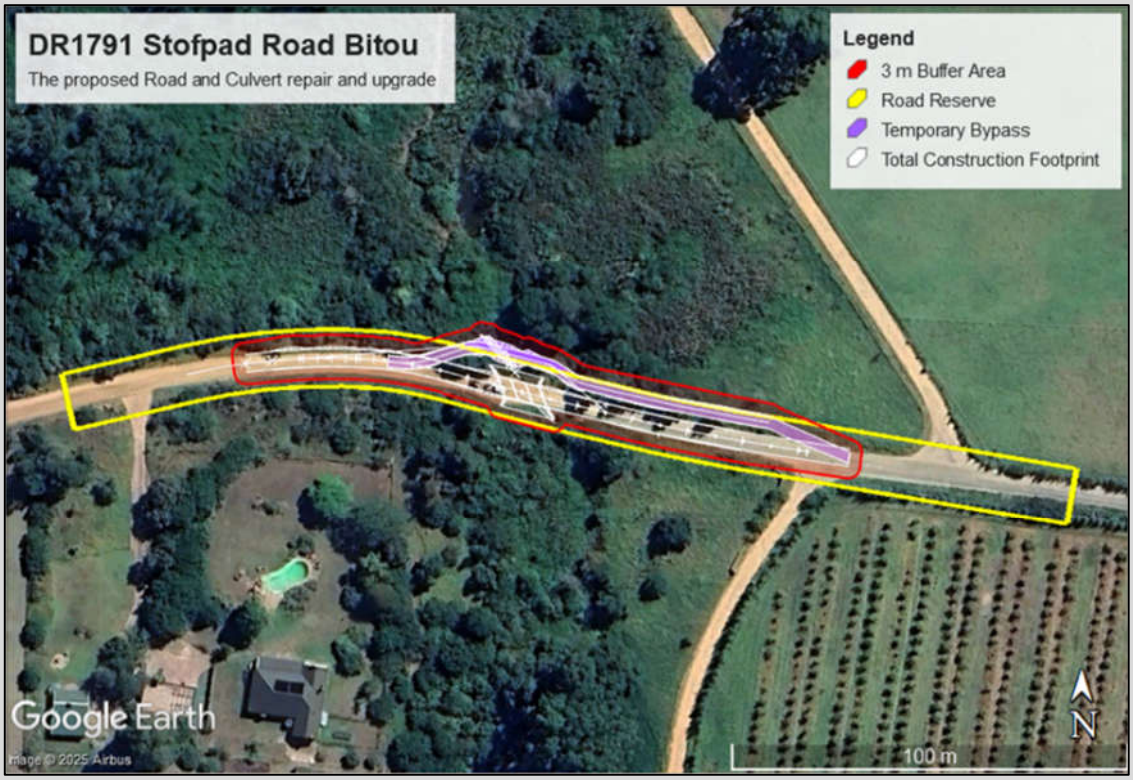


**Figure 31. Proposed by-pass infrastructure (downstream).**

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|---|
| Provide a description of any other property and site alternatives investigated. |
| The alternatives are to either construct a by-pass upstream or downstream, both have been assessed and have the same impacts. As the nature of the project is to repair and replace an existing damaged road and culvert. The other alternative would be to not go ahead with the project, which will result in further damage and potential negative human and ecological impact within the surrounding environment, as the road may collapse and cause an accumulative negative environmental impact. |
| Provide a motivation for the preferred property and site alternative including the outcome of the site selection matrix. |
| In accordance with Hatch Engineering, the need for the proposed road repair is necessary for the proposed DR1791, as the site suffered flood damage and has caused plants to be uprooted, and the causeway has resulted in damage. The road will have a constructed deviation road that will be temporary either upstream or downstream of the proposed construction site. Due to the temporary road being constructed, there will be disruptions to the clearing of riparian habitat within the site to allow the temporary deviation road, however, the proposed construction will take place within the proposed site construction footprint to avoid further impact. |

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

The preferred alternative was consolidated with the consulting engineers Hatch and have identified the need to upgrade and replace the damaged causeway and culvert infrastructure. The need for the project is to positively impact the road safety of the DR1791, and to strengthen and prevent flooding occurring in the area again, due to the causeway being low and damaged along with the culvert.

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

No alternative properties were considered as the nature of the project is to repair and replace existing road and culvert that are currently damaged and need to be replaced. The project does require for both upstream and downstream approval with regards to site alternatives. Based on the conditions of construction, there will be only one by-pass that will either by constructed upstream or downstream. If the project doesn't not commence the road can further become damaged infrastructure and harm human life and harm the ecology within the area due to road and culvert damage that can break away and/ or uproot ecology in the area.

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

**Both by-pass alternatives have the same impacts as follows:**

**Positive impacts on the environment:**

- Risk to aquatic features is low after mitigation.
- Risk to Faunal features is regarded as low.
- Risk to terrestrial features is regarded low as well as having a low value of Ecological Importance.
- Risk to plant species features is regarded as low.
- Opportunity for construction employment and upskill labour force.
- Prevent the likelihood of flooding that will preserve and maintain ecology in the area
- Upgrade infrastructure, prevent human life risks and ecological displacement and uprooting.
- Opportunity to encourage alien invasive clearance and rehabilitation.
- Temporary disturbance.

**Negative impacts on the environment:**

- Temporary road deviation would require clearing additional land and increase the project footprint.
- Potentially cause disgruntled landowners
- If there is any indigenous vegetation within the project area, it will be lost.
- Temporary nuisance.
- Temporary noise nuisance.

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

Provide a description of the preferred activity alternative.

No alternative properties and site alternatives were considered as the nature of the project is to repair and replace existing road and culverts that are currently damaged and need to be replaced. The project does require for both upstream and downstream approval with regard to site alternatives. Based on the conditions of construction, there will be only one by-pass that will either by constructed upstream or downstream. The project does not include alternative site locations. The only alternative is to not go ahead with the repair and upgrade project, as the road can further become damaged infrastructure harm human life and harm the ecology within the area due to road and culvert damage that can break away and/ or uproot ecology in the area.

Provide a description of any other activity alternatives investigated.

Due to the nature of the project being a repair and upgrade of existing infrastructure within the development footprint. There is however an alternative towards the temporary ramp being constructed either downward or upwards to redirect traffic constructively without interfering with the construction project.

Provide a motivation for the preferred activity alternative.

The nature of the project is to repair and replace existing culverts and roads that are damaged. Due to the nature of the project there is no alternative to the current project.

Provide a detailed motivation if no activity alternatives exist.

The nature of the project is to repair and replace existing culverts and roads that are damaged. Due to the nature of the project there is no alternative to the current project.

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

Both by-pass alternatives have the same impacts as follows:
Positive impacts on the environment:

- Risk to aquatic features is low after mitigation.
- Risk to Faunal features is regarded as low.
- Risk to terrestrial features is regarded low as well as having a low value of Ecological Importance.
- Risk to plant species features is regarded as low.
- Opportunity for construction employment and upskill labour force.
- Prevent the likelihood of flooding that will preserve and maintain ecology in the area
- Upgrade infrastructure, prevent human life risks and ecological displacement and uprooting.
- Opportunity to encourage alien invasive clearance and rehabilitation.
- Temporary disturbance.

Negative impacts on the environment:

- Temporary road deviation would require clearing additional land and increase the project footprint.
- Potentially cause disgruntled landowners
- If there is any indigenous vegetation within the project area, it will be lost.
- Temporary nuisance.
- Temporary noise nuisance.

| 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.

The proposed project forms part of the strategy toward repairing and upgrading the affected sections of these roads. The proposed development forms part of the overarching project and is aimed toward preventing future damage to the ecological resources and services infrastructure, as well as mitigating the road safety implications of the existing infrastructure.

To effectively re-establish and upgrade the existing causeway, it is proposed to demolish the existing structure and construct a new in situ reinforced concrete causeway with three cells, each measuring approximately 4 m wide × 1.5 m high, providing a 4 m road width between guide blocks. The road approaches on both sides will be raised by approximately 1.4 m over lengths of about 100 m to tie into the new causeway deck height. The new inlet and outlet work will include wing walls and an apron slab, with erosion protection as required.

In order to maintain traffic during construction, a temporary deviation road will be installed on the downstream or upstream side of the existing road, depending on the time of construction. This temporary deviation road will be approx. 4 m wide. with a working area of approx. 3 meters between the permanent structure and the temporary deviation road. The temporary deviation road alignment will require clearance of indigenous vegetation and work within the watercourse, with the total working area outside of the road reserve downstream will be approximately 561.71 $m^2$, and the total construction area upstream will be approximately 514.49 $m^2$ outside of the road reserve.

The total footprint of the proposed the temporary deviation road downstream is approximately 4996.57$m^2$, including the area located within the road reserve. The total footprint of the proposed temporary deviation road upstream is approximately 3279.15$m^2$, which includes the area located within the road reserve.

**Note: Although both options will be assessed as the preferred options, only one option, either downstream or upstream, will be implemented during the construction phase.**

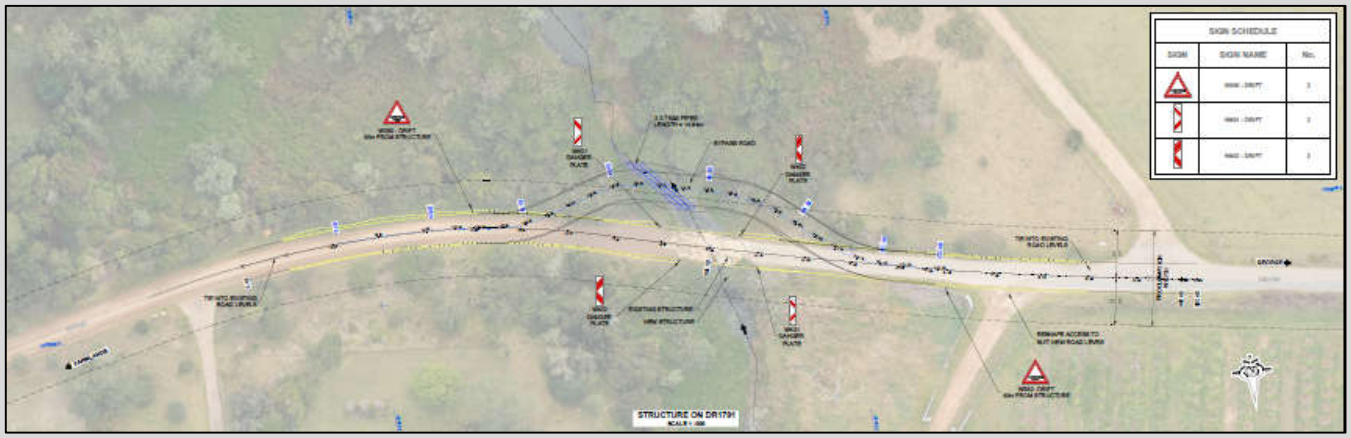

**Figure 32. Downstream engineering design for the proposed causeway construction along DR1791, (Hatch Engineering, 2025).**

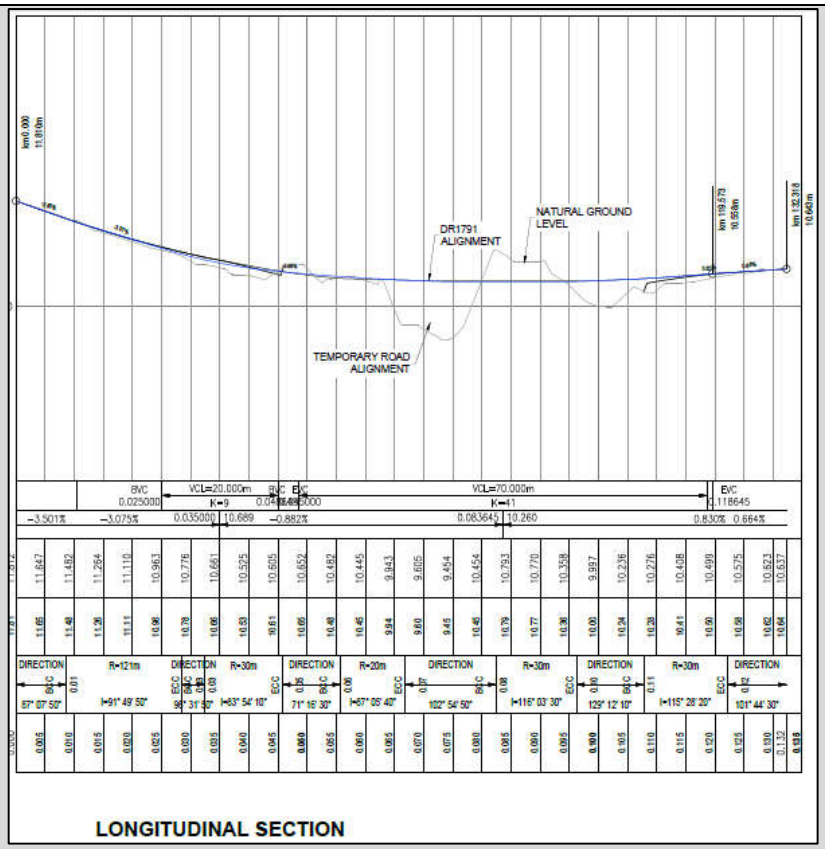


**Figure 33. Engineering drawing for the proposed causeway construction located along the DR1791 (Hatch Engineering, 2025).**

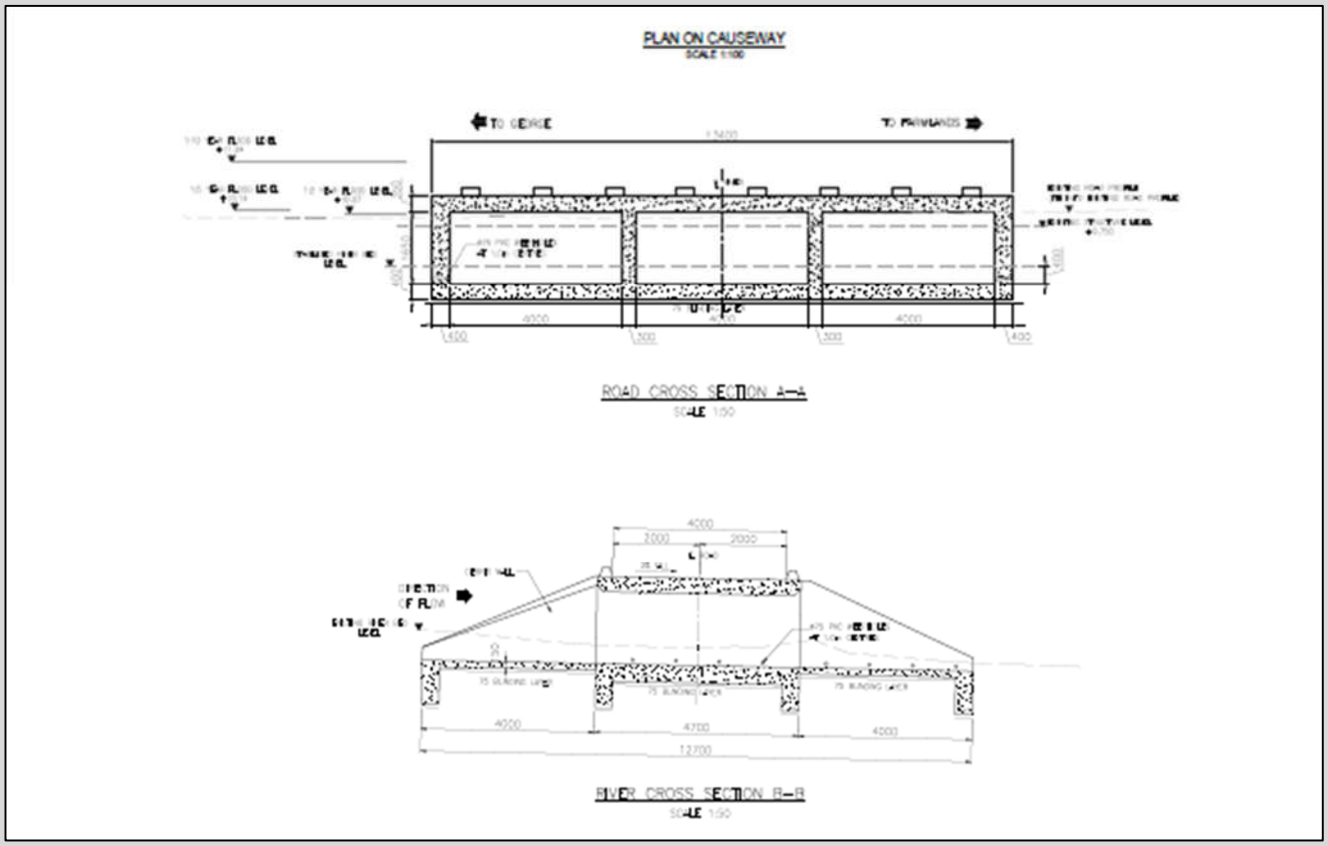


**Figure 34. Cross-section of the proposed causeway construction along DR1791, (Hatch Engineering, 2025).**

**Please note that the Engineering drawings will be included within Appendix L of this application.**

| |
|---|
| Provide a description of any other design or layout alternatives investigated. |
| There are no other site alternatives or design alternatives. The only other alternative is not to go ahead with the project and that can potentially further damage the causeway if left unconstructed. |
| Provide a motivation for the preferred design or layout alternative. |
| No design alternative is available, due to the nature of the project being a repair and upgrade project to existing infrastructure. The project does require for both upstream and downstream approval with regard to site alternatives. Based on the conditions of construction, there will be only one by-pass that will either by constructed upstream or downstream. If the project doesn't not commence the project does not include alternative site locations. The only alternative is to not go ahead with the repair and upgrade project, as the road can further become damaged infrastructure harm human life and harm the ecology within the area due to road and culvert damage that can break away and/ or uproot ecology in the area. No site alternative was brought forth for the purpose of the proposed road and culvert upgrade and repair project. |
| Provide a detailed motivation if no design or layout alternatives exist. |
| The upgrade will improve and strengthen the road and culvert infrastructure. The project will also benefit the watercourse as it will be to raise the road and improve and repair the culvert. This will additionally strengthen the road and prevent the likelihood of flooding again and causing further ecological disturbance. |
| List the positive and negative impacts that the design alternatives will have on the environment. |
| Both by-pass alternatives have the same impacts as follows:<br><br>Positive impacts on the environment:<br><br>• Risk to aquatic features is low after mitigation.<br>• Risk to Faunal features is regarded as low.<br>• Risk to terrestrial features is regarded low as well as having a low value of Ecological Importance.<br>• Risk to plant species features is regarded as low.<br>• Opportunity for construction employment and upskill labour force.<br>• Prevent the likelihood of flooding that will preserve and maintain ecology in the area<br>• Upgrade infrastructure, prevent human life risks and ecological displacement and uprooting.<br>• Opportunity to encourage alien invasive clearance and rehabilitation.<br>• Temporary disturbance.<br><br>Negative impacts on the environment:<br><br>• Temporary road deviation would require clearing additional land and increase the project footprint.<br>• Potentially cause disgruntled landowners<br>• If there is any indigenous vegetation within the project area, it will be lost.<br>• Temporary nuisance.<br>• Temporary noise nuisance. |
| 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. |
| No technology alternatives are applicable to the proposed project. |
| Provide a motivation for the preferred technology alternative. |
| No technology alternatives are applicable to the proposed project. |
| Provide a detailed motivation if no alternatives exist. |
| The proposed repair is located along the District Road (DR) 1791 km 1.59 and crosses the Leermansdrift River (a tributary of the Bitou River), northwest of Wittedrift located in the Bitou Local Municipality. The site suffered flood damage, and the causeway needs to be replaced completely as a result. In addition, the causeway is currently too low, which can lead to more frequent flooding. The road reserve is 20 m in total.<br><br>It is therefore proposed to replace the existing causeway with new and larger openings; that will provide an inlet and outlet apron slab and wing walls; raise the road an estimated 600mm and construct a temporary deviation road downstream or upstream. The temporary deviation road will be 4m wide and 218m long. The information suggests that the temporary deviation road extends approximately 4m beyond the road reserve and will include a 3-meter working corridor. The total development footprint of the temporary deviation road road will be approximately 514.49 m² upstream and 561m² downstream. Once the construction has been completed the temporary deviation road will be decommissioned and the repaired road will be in working order. |
| List the positive and negative impacts that the technology alternatives will have on the environment. |
| Positive impacts on the environment:<br><br>• Risk to aquatic features is low after mitigation.<br>• Risk to Faunal features is regarded as low.<br>• Risk to terrestrial features is regarded low as well as having a low value of Ecological Importance.<br>• Risk to plant species features is regarded as low.<br>• Opportunity for construction employment and upskill labour force.<br>• Prevent the likelihood of flooding that will preserve and maintain ecology in the area<br>• Upgrade infrastructure, prevent human life risks and ecological displacement and uprooting. |

| |
|---|
| • Opportunity to encourage alien invasive clearance and rehabilitation.<br>• Temporary disturbance.<br><br>Negative impacts on the environment:<br><br>• Temporary road deviation would require clearing additional land and increase the project footprint.<br>• Potentially cause disgruntled landowners<br>• If there is any indigenous vegetation within the project area, it will be lost.<br>• Temporary nuisance.<br>• Temporary noise nuisance. |
| 1.5. Operational alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts. |
| Provide a description of the preferred operational alternative. |
| Based on the nature of the project, there have been no other alternative investigations. |
| Provide a description of any other operational alternatives investigated. |
| Based on the nature of the project, there have been no other alternative investigations. |
| Provide a motivation for the preferred operational alternative. |
| The project will benefit the environment as the project is to replace an existing damaged road and culverts. The project will impact road users positively as the road will be sustainable and suitable for use. Furthermore, addressing the flow of water will be addressed to minimise the likelihood of flooding by means of installing the appropriate culverts to suit the environment and flow of water. |
| Provide a detailed motivation if no alternatives exist. |
| Additionally from the above comment, the project will further improve Bitou Local Municipality infrastructure and address objectives to be met within the Environmental Management Framework and including the municipality's IDP and SDP. |
| List the positive and negative impacts that the operational alternatives will have on the environment. |
| Positive impacts on the environment:<br><br>• Risk to aquatic features is low after mitigation.<br>• Risk to Faunal features is regarded as low.<br>• Risk to terrestrial features is regarded low as well as having a low value of Ecological Importance.<br>• Risk to plant species features is regarded as low.<br>• Opportunity for construction employment and upskill labour force.<br>• Prevent the likelihood of flooding that will preserve and maintain ecology in the area<br>• Upgrade infrastructure, prevent human life risks and ecological displacement and uprooting.<br>• Opportunity to encourage alien invasive clearance and rehabilitation.<br>• Temporary disturbance.<br><br>Negative impacts on the environment:<br><br>• Temporary road deviation would require clearing additional land and increase the project footprint.<br>• Potentially cause disgruntled landowners<br>• If there is any indigenous vegetation within the project area, it will be lost.<br>• Temporary nuisance.<br>• Temporary noise nuisance. |
| 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 road and culvert will remain as is, with no upgrade, repair and improvements done to the road and culvert. Therefore, the safety risks associated with the status quo remains as is adding to the heightened potential for accidents to occur along this route, and negatively disturbed ecology in the area and flooding to occur again. 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 for 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 using the road as well as the ecology within the area. |
| 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 and benefit the ecology in the area. |

## 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). |

After consulting with the specialists, there is no evidence of SCCs on the site. The area lies within the Garden Route Shale Fynbos region, which is classified as Endangered. However, due to the terrestrial compliance statement, the area is heavily infested with alien vegetation. Most of the study area has already experienced disturbance, and, in line with recommendations from the terrestrial and faunal specialists, all areas outside the project footprint must be designated as no-go zones.

The aquatic impact assessment has highlighted additional concerns. While these impacts are significant, mitigation measures will reduce the impact to a low level and may even result in ecological benefits for the Leermansdrift River.

The areas beyond the limits defined in this report will be considered no-go zones. The aquatic specialist has also outlined specific areas to avoid from an aquatic perspective. However, due to the nature of the project, which involves road repair and upgrades, the construction team will need to access areas within the designated footprint. To facilitate this, a working buffer zone will be required.
Ultimately, the completion of the project is expected to improve the ecological health of the Leermansdrift River and its surrounding environment. Overall, it is acknowledged that some impacts on these areas are unavoidable, see the figure below of the aquatic sensitivities mapped in relation to the project footprint.


**Figure 35. Map of the aquatic sensitivities outlined by the aquatic specialist, (Google Maps, 2025).**

## 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. |

## 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.

<table>
<tr><th>Alternative:</th><th>Alternative A (Temporary deviation road upstream)</th><th>Alternative B (Temporary deviation road downstream)</th><th>No-Go Alternative</th></tr>
<tr><td colspan="4">PLANNING, DESIGN AND DEVELOPMENT PHASE</td></tr>
<tr><td>Potential impact and risk:</td><td colspan="2">Compliance with legislative requirements<br><br>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, WULA 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.<br><br>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.</td><td>No change in the status quo</td></tr>
<tr><td>Nature of impact:</td><td>Negative</td><td>Negative</td><td rowspan="14">No impact</td></tr>
<tr><td>Extent and duration of impact:</td><td>Local / Short to medium term</td><td>Local / Short to medium term</td></tr>
<tr><td>Consequence of impact or risk:</td><td colspan="2">• Non-compliance with the relevant approvals<br>• Penalties or fines to be issued</td></tr>
<tr><td>Probability of occurrence:</td><td>Low</td><td>Low</td></tr>
<tr><td>Degree to which the impact may cause irreplaceable loss of resources:</td><td>Low</td><td>Low</td></tr>
<tr><td>Degree to which the impact can be reversed:</td><td>Reversible</td><td>Reversible</td></tr>
<tr><td>Indirect impacts:</td><td colspan="2">Increased traffic impacts as a result of the status quo of the existing infrastructure.</td></tr>
<tr><td>Cumulative impact prior to mitigation:</td><td>Medium</td><td>Medium</td></tr>
<tr><td>Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)</td><td>Medium</td><td>Medium</td></tr>
<tr><td>Degree to which the impact can be avoided:</td><td>High</td><td>High</td></tr>
<tr><td>Degree to which the impact can be managed:</td><td>High (can be managed)</td><td>High</td></tr>
<tr><td>Degree to which the impact can be mitigated:</td><td>High (can be mitigated)</td><td>High</td></tr>
<tr><td>Proposed mitigation:</td><td colspan="2"><u>General mitigation:</u></td></tr>
</table>

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | • Ensure programme of works is planned accordingly and includes recommended measures where necessary, such as implementing search and rescue activities.<br>• Ensure financial allowances are made for the recommended measures, such as search and rescue plans, rehabilitation, etc.<br>• Ensure all relevant permits/licenses/approvals are in place and are valid prior to commencing with works.<br>• 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.<br>• 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.<br>• Inform ECO of planned works ahead, so as to ensure inductions are undertaken timeously.<br>• Involve ECO in selection of site camp location.<br>• Following the Public Participation Process, the following design specifications need to be taken into account:<br>• 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.<br>• 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:<br>• Utilize hand sanitizer for washing hands.<br>• Request that labour use their own water bottles, to be filled up, rather than drinking from taps.<br><br><u>Increase fire risk:</u><br>• Position fire safety equipment at all proposed sites.<br>• Establish non-smoking signage on site, to remind maintenance teams that this activity must be avoided.<br>• 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.<br>• If security is positioned on site, at night, they must be briefed on fire hazard risks.<br>• During construction no uncontrolled fires are allowed.<br>• 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 | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | these emergency numbers, and can contact emergency services immediately. | | |
| 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:** | **Site establishment and Pre-construction activities**<br><br>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.<br>• Non-compliance with approved documentation. | | |
| Probability of occurrence: | Probable | Probable | |
| 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-High, High, or Very-High) | **Medium** | **Medium** | |
| 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:**<br><br>• Inform ECO of planned works ahead, to ensure inductions are undertaken timeously.<br>• Involve ECO in selection of site camp location. | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | • Ensure all labour and sub-contractors undergo environmental inductions.<br>• Ensure all permits are obtained – allow at least 1 or 2 months before commencement.<br>• 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.<br><br>**Landowners;**<br><br>• 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.<br>• Ensure clear signage is erected on the access road.<br>• 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.<br><br>**Site Camp Establishment:**<br><br>• Ensure site selected is inspected and approved by ECO.<br>• Utilize disturbed or transformed areas for site camp establishment.<br>• Ensure the site camp is positioned on a levelled area and is easily accessible.<br>• Ensure site camp is fenced off with appropriate fencing and shade cloth, to block out activities within.<br>• Ensure access to site is at one point, unless to existing points of entry/exit are identified.<br>• Ensure access onto site is controlled.<br>• Ensure there is 24hr security, if required.<br>• Designate specific areas for specific purpose, including storage areas, machinery storage areas, parking areas, waste disposal areas, etc.<br><br>• 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:<br>o Copies of audit reports.<br>o Copies of disposal/cleaning slips related to waste disposal at a registered waste disposal site and from company appointed to clean toilets.<br>o Copies of purchase orders for rehabilitation material etc.<br>o Copies of all approvals, including: Environmental Authorization, EMPr, and any other license/permit/approval.<br>o Incident register.<br>o Complaints register.<br>o Copies of induction registers. | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | • 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).<br>• Must contain a spill-kit.<br>• Plan positioning of Portable Toilets for labour working along the route.<br>• Consider designating a vehicle for the transportation of labourers to toilets<br>• Clean potable water must be available to workers on site during construction.<br><br>**Portable Toilets:**<br>• 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.<br>• Ensure toilets are positioned at least 32m's from any watercourse.<br>• Ensure toilets are rented from a registered company, with whom arrangements should be made for cleaning of these toilets on a weekly basis.<br>• Disposal slips/cleaning slips from this company must be obtained following every cleaning and must be filed in the Environmental File.<br>• Ensure an adequate quantity of toilets are provided at each working area.<br><br>**Hazardous substances** including oil/fuel etc. should be:<br>• Stored in bunded areas, on hardened/impermeable surfaces, where the barrels/drums/containers are protected from the natural elements.<br>• Appropriate signage indicating hazardous/flammable materials are stored.<br>• A fire extinguisher and contact details for the fire department and other emergency numbers must be positioned in close proximity.<br>• May only be decanted/filled on the aforementioned surface.<br>• Must be disposed of as hazardous waste, at an appropriately registered facility.<br><br>**Waste Management:**<br><br>• Designate areas for temporary waste storage, this area should be:<br>• Protected from wind/rain displacement.<br>• Should be on a levelled surface.<br>• 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. | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | • Ensure weighted covers are positioned on skips/bins, to ensure that animals cannot get into the bins as well as to avoid waste dispersion.<br>• Label bins appropriately.<br>• 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.<br>• Waste containers for general waste and hazardous waste must be disposed in appropriate and clearly marked containers and kept in a designated area/s.<br>• No waste/excavated soil/ etc. intended to be removed from site may remain on site for more than 90-days.<br><br>• Ensure waste receptacles are available where works are being undertaken, this can take the form of black bin bags, etc. however it must:<br>• Be sufficient to hold the waste without tearing/spilling.<br>• 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.<br>• 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.<br><br>**Working Corridor:**<br><br>• Designate working corridor, where possible and especially in sensitive areas (ie. forest areas and watercourses/riparian areas), utilize the smallest possible working corridor.<br>• Utilize a physical barrier to indicate the extent of the working corridor, ie. poles and mesh fencing.<br>• Refer to EMPr for areas indicated as very sensitive, to ensure that the working corridors in these areas are reduced as much as possible. | | |
| 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 |
| **CONSTRUCTION PHASE** | | | |
| **Potential impact and risk:** | **Erosion, Earthworks and Land Clearance** | | |
| **Nature of impact:** | Negative | Negative | **No Impact** |
| **Extent and duration of impact:** | Site specific / Medium term | Site Specific/ Medium term | |
| **Consequence of impact or risk** | Susceptibility of some areas to erosion because of construction related disturbances due to of vegetation cover and soil disturbance in and around the watercourse, as well as alien invasive encroachment and management is needed. | | |
| **Probability of occurrence:** | Definite | Definite | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| **Degree to which the impact may cause irreplaceable loss of resources:** | Medium | Medium | |
| **Degree to which the impact can be reversed:** | Partly reversable | Partly reversable | |
| **Indirect impacts:** | • Alien invasive encroachment.<br>• Erosion of banks and sediments | | |
| **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:** | Partly avoided | Partly avoided | |
| **Degree to which the impact can be managed:** | Manageable (Can be managed) | Manageable (Can be managed) | |
| **Degree to which the impact can be mitigated:** | Medium (Can be partly mitigated) | Medium( Can be partly mitigated) | |
| **Proposed mitigation:** | **General mitigation measures:**<br>• Ensure working corridor is demarcated appropriately.<br>• Ensure the working corridor is not excided.<br>• Take into account sloped areas.<br>• Be mindful of rainfall events, and plan construction works during dry season where possible.<br>• Ensure programme of works includes rehabilitation after.<br>• Ensure ALL works on site, remain within the working corridor (this includes stockpiling, if necessary, on site).<br>**Stockpiling:**<br>• Ensure stockpiles do not exceed 2m's in height.<br>• Prohibit stockpiling of material close to slopes.<br>• Ensure stockpiles are bunded, and if necessary, cover with shade cloth to avoid loss of material.<br>• Separate topsoil and subsoils during excavations. | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | • Remove alien invasives/weeds established on stockpiled soils prior to re-instatement.<br>• Continue with weed management throughout construction, in line with the EMPr.<br><br>**Excavations:**<br><br>• Ensure excavations are undertaken as per specifications.<br>• Ensure that excavations are not left open overnight. If it is necessary to do so, the working corridor demarcation must be checked by the safety officer to ensure that ether is no potential for encroachment by fauna or people. The excavation may need to be covered using metal sheeting or other somewhat rigid cover.<br>• No excavations may be left open overnight if rain is predicted.<br>• Integrate shoring measures if pit walls are collapsing.<br><br>**Exposed surfaces:**<br><br>• Implement weed management measures as detailed in the EMPr.<br>• After backfilling an area, immediately commence with rehabilitation, as detailed in the EMPr, and continue with weed management.<br>• Ensure dust creation is controlled, as detailed in the EMPr.<br>• No surface should be left exposed for extended periods of time.<br><br>**Alien invasive management:**<br><br>• Ensure that alien invasive species are identified, and measures are taken to consistently remove alien invasive species from within the development footprint – implement weed management plan/alien invasive management plan as per EMPr.<br>• Stockpiled alien invasive species cleared from site, should be contained and removed from site as soon as possible, so as to not allow dispersal.<br>• Indigenous vegetation must be utilized where possible. | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | • Implement rehabilitation plan.<br><br>**Erosion Management:**<br><br>• Suitable measures must be implemented in areas that are susceptible to erosion. Areas must be rehabilitated, and a suitable cover crop planted once construction is completed.<br>• If natural vegetation re-establishment does not occur, a suitable grass must be applied.<br>• Be mindful of weather conditions that may cause runoff.<br>• Utilize silt fences, if necessary, at demarcated working corridor fence line, to capture runoff.<br><br>**Soil Contamination:**<br><br>• Ensure all machinery utilizes drip trays.<br>• Ensure all machinery is maintained prior to allowing them to be utilized on site.<br>• Utilize spill-kit for contaminated soil and dispose of at a registered site If cement is to be mixed, ensure this is done on a bunded impermeable surface, and transferred so that there is no interaction with natural ground.<br>• No contaminated soil may be utilized during backfilling.<br><br>**Waste Management:**<br><br>• Utilize waste receptacles on site.<br>• Do not litter on site.<br>• Remove waste receptacles positioned outside of site camp, at the end of every day.<br>• Do not allow food wrappers or food items to build up in any waste receptacles as this will attract scavenging fauna, and other pests.<br><br>**Stormwater management:**<br><br>• Stormwater Management Plans must be developed for the site and should include the following:<br>o The management of stormwater during construction. | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | ○ The installation of stormwater and erosion control infrastructure. The management of infrastructure after completion of construction.<br>Diversion channels should be constructed ahead of the open cuts, and above emplacement areas and stockpiles to intercept clean runoff and divert it around disturbed areas into the natural drainage system downstream of the site.<br><br>Rehabilitation is necessary to control erosion and sedimentation of all eroded areas (where works will take place).<br>• Visual inspections will be done on a regular basis with regard to the stability of water control structure erosion and siltation.<br>• flora.<br><br>**Soil Aspects**<br><br>• Sufficient topsoil must be stored for later use during decommissioning, particularly from outcrop areas.<br>• Topsoil shall be removed from all areas where physical disturbance of the surface will occur prior to commencement of any operations.<br>• The removed topsoil shall be stored on high ground<br>• Topsoil shall be kept separate from overburden and shall not be used for building or maintenance of road.<br>• The stockpiled topsoil shall be protected from being blown away or being eroded. The application of a suitable grass seed/runner mix will facilitate this and reduce the minimise weeds.<br>• Rehabilitation of Processing and Excavation Areas<br>• On completion of construction, the surface of the processing areas especially if compacted due to hauling and dumping operations shall be scarified to a depth of at least 200 mm and graded to an even surface condition and the previously stored topsoil will be returned to its original depth over the area | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | • The area shall be fertilised, if necessary, to allow vegetation to establish rapidly. The site shall be seeded with suitable grasses and local indigenous seed mix.<br>• Waste (non-biodegradable refuse) will not be permitted to be deposited in the excavations.<br>• If a reasonable assessment indicates that the reestablishment of vegetation is unacceptably slow, the ECO may require that the soil be analysed and any deleterious effects on the soil arising from the activity, be corrected and the area be seeded with a vegetation seed mix to his or her satisfaction.<br>• Final rehabilitation must comply with the requirements mention in the Rehabilitation Plan.<br><br>**Monitoring:**<br><br>• Bush clearing<br>• Ensure working plant has no oil or hydraulic leaks<br>• Check delineated footprints area not exceeded<br>• Regular checks on trenches for trapped animals and possible drowning risks.<br>• Regular demarcation tape. | | |
| **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 | |
| | | | |
| **Potential impact and risk:** | **Impact on Agricultural Resources**<br>Based on the site located within agriculture this impact has been considered. However, 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. The proposed footprint of the development does not impinge anywhere on these pasture croplands. | | |
| **Nature of impact:** | Negative | Negative | No impact |
| **Extent and duration of impact:** | Site specific / short term | Site specific / short term | |
| **Consequence of impact or risk:** | • Loss of agricultural resources | | |
| **Probability of occurrence:** | Negligible | Negligible | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| **Degree to which the impact may cause irreplaceable loss of resources:** | Negligible | Negligible | |
| **Degree to which the impact can be reversed:** | Completely reversible | Completely reservable | |
| **Indirect impacts:** | None | None | |
| **Cumulative impact prior to mitigation:** | Negligible | Negligible | |
| **Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)** | Negligible (-) | Negligible (-) | |
| **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 mitigation:**<br>• A minimum footprint approach must be followed for the purpose of the works associated with the proposal.<br>• Site camp to be in an already disturbed area, within the road reserve. | | |
| **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:**<br>Disturbance of aquatic habitat biota from clearance of vegetation, earthworks, temporary deviation road, and further invasive alien plant infestation | | |
| **Nature of impact:** | Negative | Negative | No impact |
| **Extent and duration of impact:** | Regional/ Long-term | Regional/ Long-term | |
| **Consequence of impact or risk:** | Can result in deterioration in freshwater ecosystem integrity, and a reduction in the supply of ecosystem services. | | |
| **Probability of occurrence:** | Definite | Definite | |
| **Degree to which the impact may cause irreplaceable loss of resources:** | Partial Loss | Partial Loss | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| **Degree to which the impact can be reversed:** | Barely | Barley | |
| **Indirect impacts:** | Highly probable | High Probable | |
| **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:** | 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:**<br>• A construction method statement must be compiled and available on site. Use the smallest possible working corridor. Outside the working corridor, all watercourses are to be considered no go areas.<br>• It is recommended that the upstream side be used for the temporary deviation road, if possible.<br>• The construction boundary must be clearly demarcated, especially on the downstream side.<br>• Vegetation removal must be avoided as far as possible. Prior to commencement, any indigenous instream vegetation in the construction corridor must be moved to a similar location instream, outside of the working area, permanently, or for use in rehabilitation.<br>• Remove any alien plant species within the working corridor and as far as possible along the reach.<br>• Stockpiles must not be located within 30 metres of the riparian zone. The furthest threshold must be adhered to. Erosion control measures including silt fences, low soil berms and/or shutter boards must be put in place around the stockpiles to limit sediment runoff from stockpiles.<br>• Where possible, construction activities should be conducted during the drier months of the year to minimise the possibility of erosion, sedimentation and transport of suspended solids associated with disturbed areas and rainfall events. Planning for such a situation must be undertaken.<br>• Coarse bedding material or geotextile wrapped dump rock must be considered for temporary deviationroad. Or a similar design which can be easily removed without causing sediment to remain in the watercourse. Consider narrower temporary deviation road road.<br>• Diversions must be temporary in nature and no permanent walls, berms or dams may be installed within a watercourse. Sandbags used in any diversion or for any other activity within a | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | watercourse must be in a good condition, so that they do not burst and empty sediment into the watercourse. Upon completion of the construction at the site, the diversions shall be removed to restore natural flow patterns. Under no circumstance shall a new channel or drainage canals be excavated to divert water away from construction activities.<br>• Monitoring should be conducted before commencement to confirm demarcations are in place and indigenous vegetation is relocated where possible nearby, once a week during construction within the river, and bi-monthly post-construction and rehabilitation for a period of three months or until fully rehabilitated according to ECO. | | |
| **Residual impacts:** | Very low | Very Low | |
| **Cumulative impact post mitigation:** | Negligible | Negligible | |
| **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:** Sedimentation and erosion. Excavation and infilling in the river and sediment laden surface stormwater runoff entering from road side drains. | | |
| **Nature of impact:** | Negative | Negative | No Impact |
| **Extent and duration of impact:** | Regional/ long-term | Regional/ Long-term | |
| **Consequence of impact or risk:** | Poorly designed or constructed causeway outlets can cause confined flow and erosion downstream. These impacts can result in the deterioration of aquatic ecosystem integrity and a reduction/loss of habitat for flora & fauna. | | |
| **Probability of occurrence:** | Probable | Probable | |
| **Degree to which the impact may cause irreplaceable loss of resources:** | Marginal loss | Marginal loss | |
| **Degree to which the impact can be reversed:** | Barley | Barley | |
| **Indirect impacts:** | Highly probable | Highly probable | |
| **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:** | Moderate | Moderate | |
| **Degree to which the impact can be managed:** | High (can be managed) | High (can be managed | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| **Degree to which the impact can be mitigated:** | High (can be mitigated) | High (can be mitigated) | |
| **Proposed mitigation:** | **Aquatic Specialist recommendation:**<br>• The longitudinal gradient must not be altered in a way that results in erosion downstream or impoundment of flows upstream. The cross-sectional profile of the bed and banks must also be restored as far as possible to pre-construction state.<br>• Flow across the width of the wetland must not be confined. The design must allow for unhindered longitudinal flow through the structure and erosion protection downslope with energy dissipaters such as dense baffles.<br>• The stormwater road side drains and outlets should be formalised and stabilised to manage the increase of surface water flows directly into the watercourse.<br>• Sedimentation must be minimised with appropriate measures.<br>• All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable.<br>• Construction must have contingency plans for high rainfall events during construction.<br>• The longitudinal gradient must not be altered in a way that results in erosion downstream or impoundment of flows upstream. The cross sectional profile of the bed and banks must also be restored as far as possible to a more natural state.<br>• Any temporary deviation roads or working areas must be fully rehabilitated to the preconstruction condition at a minimum. Consider an upstream temporary deviation road if practical.<br><br>Water Use Licence requirements:<br>• Limitation of disturbance: Activities within the watercourse must be restricted to the smallest practicable footprint and shortest feasible duration, with no unnecessary widening or extension of disturbance beyond the approved footprint.<br>• Protection of aquatic habitat and flow: Natural flow regimes must be maintained as far as practicable during construction, and measures must be implemented to prevent excessive sedimentation, erosion, or scouring of the riverbed and banks.<br>• Pollution prevention: No hydrocarbons, cement, concrete, chemicals, fuels, or other hazardous substances may enter the watercourse. All construction materials and plant must be managed in accordance with the GA conditions and method statements.<br>• Vegetation management and rehabilitation: Clearing of indigenous riparian vegetation must be minimised. All disturbed areas within the watercourse and riparian zone must be rehabilitated post-construction using appropriate indigenous species.<br>• Alien invasive species control: Disturbed areas must be monitored and managed to prevent the establishment and spread of alien invasive plant species, in line with the Aquatic Biodiversity Specialist Assessment and the EMPr (Appendix G). | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | • Monitoring and compliance: An Environmental Control Officer (ECO) must oversee compliance with the GA conditions, specialist recommendations, and the EMPr during construction. | | |
| **Residual impacts:** | Low | Low | |
| **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:** Change in instream flow patterns on hydrological form and function during the construction phase. | | |
| **Nature of impact:** | Negative | Negative | No impact – Status quo remains as is |
| **Extent and duration of impact:** | Regional and permanent | Regional and permanent | |
| **Consequence of impact or risk:** | Altered instream flow hydraulics due to different design resulting in form and function changes within aquatic habitat. The impact can result in further deterioration in freshwater ecosystem integrity, and a reduction in the supply of ecosystem services, but positive impacts if designed to mimic more natural flow pattern and channel morphology. | | |
| **Probability of occurrence:** | Definite | Definite | |
| **Degree to which the impact may cause irreplaceable loss of resources:** | Marginal loss | Marginal loss | |
| **Degree to which the impact can be reversed:** | Barley | Barley | |
| **Indirect impacts:** | Highly probable | Highly probable | |
| **Cumulative impact prior to mitigation:** | Low | Low | |
| **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:** | Low | Low | |
| **Degree to which the impact can be mitigated:** | Partly | Partly | |
| **Proposed mitigation:** | **<u>Aquatic Specialist recommendation</u>:**<br>• The design must allow for unhindered longitudinal flow through the structure and erosion protection downslope with energy dissipaters such as dense baffles. | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | • Diversions must be temporary in nature and no permanent walls, berms or dams may be installed within a watercourse.<br>• The stormwater management infrastructure, such as road side drains, must be designed to ensure the runoff is not highly concentrated before entering the riparian area.Effective stormwater management must include effective stabilisation (gabions and Reno mattresses) of exposed soil and side drain outlets. Contingency plans must be in place for high rainfall events which may occur during construction.<br>• The temporary deviation road must allow for longitudinal flow with no scour at any diversion outlets. The temporary deviation road material must be removed, and the channel morphology and substrate be reinstated.<br>• The project will need to comply with all regulations of the National Water Act (Act 36 of 1998), including the protection of downstream users, and minimise any potential ecological impacts upon water resources<br>• Conditions for impeding or diverting the flow of water or altering the bed, banks , course or characteristics of a watercourse (Government Notice R509 of 2016). (1) The water user must ensure that:<br>(a) impeding or diverting the flow or altering the bed, banks, course or characteristics of a watercourse do not detrimentally affect other water users, property, health and safety of the general public, or the resource quality;<br>(b) the existing hydraulic, hydrologic, geomorphic and ecological functions of the watercourse in the vicinity of the structure is maintained or improved upon;<br>(c) a full financial provision for the implementation of the management measures prescribed in this General Authorisation, including an annual financial provision for any future maintenance, monitoring, rehabilitation, or restoration works, as may be applicable; and<br>(d) upon written request of the responsible authority, they implement any additional management measures or monitoring programmes that may be reasonably necessary to determine potential impacts on the water resource or management measures to address such impacts.<br>• (2) Prior to the carrying out of any works, the water user must ensure that all persons entering on -site, including contractors and casual labourers, are made fully aware of the conditions and related management measures specified in this General Authorisation.<br>• (3) The water user must ensure that -<br>(a) any construction camp, storage, washing and maintenance of equipment, storage of construction materials, or chemicals, as well as any sanitation and waste management facilities -<br>(i) is located outside the 1 in 100 year flood line or riparian habitat of a river, spring, lake, dam or outside any drainage feeding any wetland or pan, and (this is not possible as the entire valley floor through the poort will be within the floodline. However, the abovementioned activities must be located in | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | areas outside of riparian habitat and as far as possible, such as at rest stops)<br>(ii) is removed within 30 days after the completion of any works.<br>(b) The water user must ensure that the selection of a site for establishing any impeding or diverting the flow or altering the bed, banks, course or characteristics of a watercourse works:<br>(i) is not located on a bend in the watercourse; (this is not possible for this project as some work is on the existing bridges that are located near bends in the river)<br>(ii) avoid high gradient areas, unstable slopes, actively eroding banks, interflow zones, springs, and seeps;<br>(iii) avoid or minimise realignment of the course of the watercourse;<br>(iv) minimise the footprint of the alteration, as well as the construction footprint so as to minimise the effect on the watercourse.<br>(c) The water user must ensure that a maximum impact footprint around the works is established, clearly demarcated, that no vegetation is cleared or damaged beyond this demarcation, and that equipment and machinery is only operated within the delineated impact footprint.<br>(d) The water user must ensure that measures are implemented to minimise the duration of disturbance and the footprint of the disturbance of the beds and banks of the watercourse.<br>(e) The water user must ensure that measures are implemented to prevent the transfer of biota to a site, which biota is not indigenous to the environment at that site.<br>(f) The water user must ensure that all works, including emergency alterations or the rectification of incidents, start upstream and proceed in a downstream direction, to ensure minimal impact on the water resource.<br>(g) The water user must ensure that all material excavated from the bed or banks of the watercourse are stored at a clearly demarcated location until the works have been completed, upon which the excavated material must be backfilled to the locations from where it was taken (i.e. material taken from the bed must be returned to the bed, and material taken from the banks must be returned to the banks).<br>(h) The water user must ensure that adequate erosion control measures are implemented at and near all alterations, including at existing structures or activities with particular attention to erosion control at steep slopes and drainage lines.<br>(i) The water user must ensure that alterations or hardened surfaces associated with such structures or works -<br>(i) are structurally stable;<br>(ii) do not induce sedimentation, erosion or flooding;<br>(iii) do not cause a detrimental change in the quantity, velocity, pattern, timing, water level and assurance of flow in a watercourse;<br>(iv) do not cause a detrimental change in the quality of water in the watercourse;<br>(v) do not cause a detrimental change in the stability or geomorphological structure of the watercourse; and | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | (vi) does not create nuisance condition, or health or safety hazards.<br>(j) The water user must ensure that measures are implemented at alterations, including at existing structures or activities, to -<br>(i) prevent detrimental changes to the breeding, nesting or feeding patterns of aquatic biota, including migratory species;<br>(ii) allow for the free up and downstream movement of aquatic biota, including migratory species; and<br>(iii) prevent a decline in the composition and diversity of the indigenous and endemic aquatic biota.<br>(k) The water user must ensure that no substance or material that can potentially cause pollution of the water resource is being used in works, including for emergency alterations or the rectification of reportable incidents.<br>(l) The water user must ensure that measures are taken to prevent increased turbidity, sedimentation and detrimental chemical changes to the composition of the water resource as a result of carrying out the works, including for emergency alterations or the rectification of reportable incidents.<br>(m) The water user must ensure that in- stream water quality is measured on a weekly basis during construction, including for emergency alterations or the rectification of reportable incidents, which measurement must be by taking samples, and by analysing the samples for pH, EC/TDS, TSS/Turbidity, and /or Dissolved Oxygen ( "DO ") both upstream and downstream from the works.<br>(n) The water user must ensure that in- stream flow, both upstream and downstream from the works, is measured on an ongoing basis by means of instruments and devices certified by the South African Bureau of Standards ( "SABS "), and that such measurement commences at least one week prior to the initiation of the works, including for emergency alterations or the rectification of reportable incidents.<br>(o) During the carrying out of any works, the water user must take the photographs and video- recordings referred to in paragraph (p) below, on a daily basis, starting one (1) week before the commencement of any works, including for emergency structures and the rectification of reportable incidents, and continuing for one (1) month after the completion of such works:<br>(p) The following videos recordings and photographs must be taken as contemplated in paragraph (o) above:<br>(i) one or more photographs or video -recordings of the watercourse and its banks at least 20 meters upstream from the structure;<br>(ii) one or more photographs or video -recordings of the watercourse and its banks at least 20 meters downstream from the structure; and<br>(iii) two or more photographs or video -recordings of the bed and banks at the structure, one of each taken from each opposite bank.<br>(iiii) Upon completion of any works, the water user must ensure that the hydrological functionality and integrity of the | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | watercourse, including its bed, banks, riparian habitat and aquatic biota is equivalent to or exceeds that what existed before commencing with the works.. | | |
| **Residual impacts:** | Low | Low | |
| **Cumulative impact post mitigation:** | + Low (Positive) | + Low (Positive) | |
| **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:** During construction, earthworks will expose and mobilise earth materials, and a number of materials as well as hydrocarbons/ cement/ chemicals may end up in the surface water. | | |
| **Nature of impact:** | Negative | Negative | No impact – Status quo remains as is. |
| **Extent and duration of impact:** | Regional and medium-term | Regional and medium-term | |
| **Consequence of impact or risk:** | This can result in possible deterioration in aquatic ecosystem integrity and species diversity. | | |
| **Probability of occurrence:** | Probable | Probable | |
| **Degree to which the impact may cause irreplaceable loss of resources:** | Marginal loss | Marginal loss | |
| **Degree to which the impact can be reversed:** | Reversible | Reversible | |
| **Indirect impacts:** | Probable | Probable | |
| **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-Low | Medium-Low | |
| **Degree to which the impact can be avoided:** | High | High | |
| **Degree to which the impact can be managed:** | High (Can be manged) | High (Can be manged) | |
| **Degree to which the impact can be mitigated:** | High (can be mitigated) | High (can be mitigated ) | |
| **Proposed mitigation:** | **<u>Aquatic Specialist recommendation</u>:**<br>• Spills or leaks from vehicles or machinery must be entirely avoided. Cement/concrete batching is to be located in an area of low environmental sensitivity away from the river channel and pre-approved by the ECO. No batching activities shall occur on unprotected ground. Adequate surface protection will be required. Concrete batching should be | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | restricted to a level and bunded/sealed surface above the riverbanks.<br>• Contaminated water containing fuel, oil or other hazardous substances must never be released into the environment. It must be disposed of at a registered site.<br>• Sedimentation must be minimised with appropriate measures.<br>• Where possible, construction activities should be conducted during the drier months of the year.<br>• All post-construction building material and waste must be cleared in accordance with the EMPr. The solid domestic waste must be removed and disposed of offsite.<br>• Any use of herbicides in removing alien plant species is required to be investigated by the ECO before use, for the necessity, type proposed to be used, effectiveness and impacts of the product on aquatic biota.<br>• Construction must be immediately followed by rehabilitation. | | |
| **Residual impacts:** | Negligible | Negligible | |
| **Cumulative impact post mitigation:** | Low | Low | |
| **Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)** | **Very Low** | **Very Low** | **No impact** |
| | | | |
| **Potential impact and risk:** | **Animal Biodiversity: Impact of the project on animal and avi-faunal species** | | |
| **Nature of impact:** | Negative (-) | Negative (-) | No impact – Status quo remains as is |
| **Extent and duration of impact:** | Site Specific / Medium term | Site Specific/ Medium term | |
| **Consequence of impact or risk:** | • Loss of faunal species due to the disturbance of their habitat. | | |
| **Probability of occurrence:** | Low | Low | |
| **Degree to which the impact may cause irreplaceable loss of resources:** | Completely reversable | Completely reversable | |
| **Degree to which the impact can be reversed:** | Reversable | Reversable | |
| **Indirect impacts:** | Loss of biodiversity | Loss of biodiversity | |
| **Cumulative impact prior to mitigation:** | Low | Low | |
| **Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)** | Low | Low | |
| **Degree to which the impact can be avoided:** | Partially avoided | Partially avoided | |
| **Degree to which the impact can be managed:** | High (can be managed) | High (can be managed) | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| **Degree to which the impact can be mitigated:** | High (can be mitigated) | High (can be mitigated) | |
| **Proposed mitigation:** | **General Mitigation:**<br>• Before construction can commence, a general sweep of the area is required to make sure no faunal and avi-faunal species are on site. | | |
| **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 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:*<br>• Spill kits must be available on site at all times. | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | • Where fuelling does occur on site, a drip tray must be used to contain any spilled fuel.<br>• All construction vehicles must be equipped with drip trays at all times.<br>• No maintenance activities may occur on site for the duration of the construction phase.<br>• 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.<br>• 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 site characteristics there is a risk of dust pollution and rock slides during the blasting and excavation activities, that will also cause noise. | | |
| **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<br>• Safety risk due to rock fragments in the road and watercourse<br>• Site camp lights impairing drivers' vision<br>• Effects on human and animal health from noise impacting on hearing and disturbances on animals within the area. | | |
| **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 | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| **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:** | <u>Dust:</u><br>• Dust suppression methods, such as non-potable water spraying must be used during the construction phase of the proposed refurbishment project.<br>• Vehicular speed must be controlled at all times with no indiscriminatory driving permitted by any construction vehicles, or the general public.<br><u>Noise:</u><br>• 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).<br>• No constructions activities are permitted between 17:00 and 7:00 unless previously agreed upon between the Contracting team and the Municipality.<br>• Construction workers are to remain within the designated site boundary at all times.<br>• Eating areas are to be located away from any residential units/homesteads and tourists attractions within proximity to the current working areas.<br><u>Lights:</u><br>• 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).<br>• Where practically possible, low intensity lighting must be used for areas which requires to be illuminated.<br><u>General housekeeping:</u><br>• A clean site policy must be adopted at all time during the construction phase.<br>• 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. | | |
| **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 | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| **Consequence of impact or risk:** | • The constructed deviation road will need to have proper signage, demarcations that will direct and facilitate traffic flow. | | |
| **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 causeway. | | |
| **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:** | High (can be avoided) | High (can be avoided) | |
| **Degree to which the impact can be managed:** | High (can be completely managed) | High (can be completely managed) | |
| **Degree to which the impact can be mitigated:** | High (can be partly mitigated) | High (can be partly mitigated) | |
| **Proposed mitigation:** | General:<br>• Proper signage must be used and signage must align with the National Road Traffic Act (Act No. 93 of 1996).<br>• 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:<br>o Identifying working area as a construction site;<br>o Cautioning against relevant construction activities;<br>o Prohibiting access to construction site;<br>o Clearly specifying possible detour routes and/or delay periods;<br>o Possible indications of time frames attached to the construction activities, and;<br>o Details of responsible contractors and engineers are working on the site.<br>• Construction activities should not be planned over the December/January high-season (i.e. between 15 December and 6 January) as well as the Easter holidays unless required for the critical path of the project.<br>• 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 | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| **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:** | **Plant biodiversity: Impact of the project on indigenous flora** | | |
| **Nature of impact** | Negative (-) | Negative (-) | |
| **Extent and duration of impact:** | Site Specific /Long term | Site Specific/ Long term | |
| **Consequence of impact or risk:** | • Loss of irreplaceable indigenous vegetation resources, due to land clearing. | | |
| **Probability of occurrence:** | Low | Low | |
| **Degree to which the impact may cause irreplaceable loss of resources:** | Partly reversable | Partly reversable | |
| **Degree to which the impact can be reversed** | Medium | Medium | |
| **Indirect impacts:** | Loss of biodiversity | Loss of biodiversity | |
| **Cumulative impact prior to mitigation:** | Low | Low | |
| **Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium, Medium-High, High, or Very-High)** | Low | Low | |
| **Degree to which the impact can be avoided:** | Partially avoided | Partially 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 managed) | High (can be managed) | |
| **Proposed mitigation:** | **<u>General mitigation</u>**<br><br>Due to the specialist assessing the site there was no SCCs. However, before construction can commence, a general sweep of the area is required to make sure no indigenous plant species are located within the project site. | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| **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 | |
| | | | |
| **Potential impact and risk:** | Socio-economic impacts: Employment opportunities | | |
| **Nature of impact** | Positive | Positive | Negative |
| **Extent and duration of impact:** | Local / Long term | Local / 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, Medium-High, High, or Very-High)** | Medium | Medium | 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<br>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** | **Medium-High (+)** | **Medium-High (+)** | **Medium-High (-)** |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| **(e.g. Low, Medium, Medium-High, High, or Very-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:** Poorly designed or constructed causeway outlets can cause confined flow and erosion downstream. | | |
| **Nature of impact:** | Negative | Negative | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| **Extent and duration of impact:** | Regional/Long-term | Regional/Long-term | No impact – Status quo remains as is |
| **Consequence of impact or risk:** | These impacts can result in the deterioration of aquatic ecosystem integrity and a reduction/loss of habitat for flora & fauna. | | |
| **Probability of occurrence:** | Probable | Probable | |
| **Degree to which the impact may cause irreplaceable loss of resources:** | Marginal loss | Marginal loss | |
| **Degree to which the impact can be reversed:** | Barley | Barley | |
| **Indirect impacts:** | Highly Probable | Highly Probable | |
| **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:** | Moderate | Moderate | |
| **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>Aquatic Specialist recommendation</u>:**<br>• The longitudinal gradient must not be altered in a way that results in erosion downstream or impoundment of flows upstream. The cross-sectional profile of the bed and banks must also be restored as far as possible to pre-construction state.<br>• Flow across the width of the wetland must not be confined. The design must allow for unhindered longitudinal flow through the structure and erosion protection downslope with energy dissipaters such as dense baffles.<br>• The stormwater road side drains and outlets should be formalised and stabilised to manage the increase of surface water flows directly into the watercourse.<br>• Sedimentation must be minimised with appropriate measures.<br>• Any temporary deviation roads or working areas must be fully rehabilitated to the preconstruction condition at a minimum. Consider an upstream temporary deviation roads if practical. | | |
| **Residual impacts:** | Low | Low | |
| **Cumulative impact post mitigation:** | Low | Low | |
| **Significance rating of impact after mitigation (e.g. Low, Medium,** | Low | Low | No impact |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| **Medium-High, High, or Very-High)** | | | |
| | | | |
| **Potential Impact and Risk:** | **Aquatic Impact:** Change in instream flow patterns on hydrological form and function during the construction and into the operational phase. | | No impact status quo remains as is. |
| **Nature of Impact:** | Negative | Negative | |
| **Extent and duration of Impact:** | Regional/Permanent | Regional/Permanent | |
| **Consequence of impact or risk:** | Altered instream flow hydraulics due to different design resulting in form and function changes within aquatic habitat. The impact can result in further deterioration in freshwater ecosystem integrity, and a reduction in the supply of ecosystem services, but positive impacts if designed to mimic more natural flow pattern and channel morphology. | | |
| **Probability of occurrence** | Definite | Define | |
| **Degree to which the impact may cause irreplaceable loss of resources:** | Marginal Loss | Marginal Loss | |
| **Degree to which the impact can be reversed:** | Barley | Barley | |
| **Indirect impacts:** | Highly probable | Highly probable | |
| **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 :** | Low | Low | |
| **Degree to which the impact can be mitigated:** | Partly | Partly | |
| **Proposed mitigation:** | **<u>Aquatic Specialist recommendation</u>:**<br>• The stormwater management infrastructure, such as road side drains, must be designed to ensure the runoff is not highly concentrated before entering the riparian area.<br>• Effective stormwater management must include effective stabilisation (gabions and Reno mattresses) of exposed soil and side drain outlets. Contingency plans must be in place for high rainfall events which may occur during construction. The | | |

| Alternative: | Alternative A (Temporary deviation road upstream) | Alternative B (Temporary deviation road downstream) | No-Go Alternative |
|---|---|---|---|
| | project will need to comply with all regulations of the National Water Act (Act 36 of 1998), including the protection of downstream users, and minimise any potential ecological impacts upon water resources. Conditions for impeding or diverting the flow of water or altering the bed, banks, course or characteristics of a watercourse (Government Notice R509 of 2016) need to be adhered to for Low impact of the projects.<br>• Prior to the commencement of rehabilitation, a suitable qualified aquatic specialist (SACNASP) must be appointed to guide and oversee the rehabilitation of the affected watercourse and riparian area.<br><br>WULA Requirements:<br>• Vegetation management and rehabilitation: Clearing of indigenous riparian vegetation must be minimised. All disturbed areas within the watercourse and riparian zone must be rehabilitated post-construction using appropriate indigenous species.<br>• Alien invasive species control: Disturbed areas must be monitored and managed to prevent the establishment and spread of alien invasive plant species.<br>• Monitoring and compliance: An Environmental Control Officer (ECO) must oversee compliance with the GA conditions. | | |
| **Residual impacts:** | Low | Low | |
| **Cumulative impact post mitigation:** | +Low (Positive) | +Low (Positive) | |
| **Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)** | Low | Low | |

## 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 OBSERVATIONS** | | | | | |
| Point of Human Origins | Dr Peter Nillsen (Heritage Consultant) | Low | It was confirmed by the appointed Heritage Consultant that the proposed activities do not trigger Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999). Therefore, the Heritage consultant confirmed that it was not required to submit a NID to the Heritage Western Cape. It was however requested by the project engineer that the specialist provide a statement for inclusion into this BAR and supporting documents. | 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. | No management measures have been recommended. |
| **AQUATIC BIODIVERSITY ASSESSMENT** | | | | | |
| Upstream Consulting | Debbie Fordham (Aquatic Consultant) | Very High | The total footprint of the proposed by-pass is approximately 534 m2, including the area located within the road reserve. The proposed temporary by-pass infrastructure will be located either upstream or downstream of the existing causeway infrastructure, depending on the site conditions at the time of construction. It was determined that the channelled valley bottom wetland on the Leermansdrift River will be directly impacted, as the causeway is within the watercourse. There is potential for indirect downstream impacts upon the Bietou River. The watercourses where therefore assessed in detail to determine the impact of the project. Based on having the specialist assess the watercourse, after | a characterisation of hydrogeomorphic (HGM) types was conducted. Following the desktop findings, the infield site assessment on the 5th of November confirmed the location and extent of these systems. Subsequent screening provided an indication of which of these systems may potentially be impacted upon by the project. It was determined that the channelled valley bottom wetland on the Leermansdrift River will be directly impacted, and there is potential for indirect downstream impacts upon the Bietou River. The watercourses were therefore | Herewith a summary of the impacts identified by the appointed specialist:<br><br>Construction Phase & Operational Phase:<br><br>• Disturbance of aquatic habitat biota from clearance of vegetation, earthworks, temporary deviation road, and further invasive alien plant infestation, which can result in deterioration in freshwater ecosystem integrity, and a reduction in the supply of ecosystem services.<br>• Excavation and infilling in the river and sediment laden surface stormwater runoff entering from road side drains. Poorly designed or constructed causeway outlets can cause confined flow and erosion downstream. These impacts can result in |

| 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. | | | | |
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| **Specialist Company** | **Specialist Details** | **Sensitivity of receptors** | **Summary of findings** | **Specific structural components that will directly impact upon the resource** | **Summary of Management measures** |
| | | | mitigation measures are in place. There should be a low impact on the watercourses within the project area. Furthermore, the project will benefit the watercourse in the future by the new causeway design will allow for diffuse flow and may result in positive impacts in the long-term.<br><br>The reach of the Bietou River is located in the Lowland geozone and has perennial flow. In 1999 the PES of the Bietou River was classified as Class B (Largely Natural) however, the data from the latest National Biodiversity Assessment (NBA 2018) classifies the river as having a 'C' PES score, indicating a 'Moderately Modified' ecosystem. The broad floodplain wetland of the Bietou River is more than 600ha in size and is a valuable ecological resource. The Bietou wetland is essentially part of the greater Keurbooms Estuary and therefore impacts on the Bietou will in turn impact the Keurbooms system. The Keurbooms Estuary downstream is a Warm Temperate permanently open estuarine system classed as Vulnerable and Poorly Protected. Land transformation for agriculture and development, as well as alien tree infestation in this area, have modified the natural dynamic of the systems.<br><br>The study area does not fall within any Strategic Water Source Areas for surface water or groundwater (Le Maitre et al. 2018).. A Strategic Water Source Areas (SWSA) is | assessed in detail to determine the impact of the project.<br>Impact assessment was undertaken for the following grouped potential impacts, direct and indirect in nature:<br><br>• Impact 1: Disturbance and loss of aquatic habitat and biota<br><br>• Impact 2: Sedimentation and erosion, which could also occur into the operational phase<br><br>• Impact 3: Hydrological changes<br><br>• Impact 4: Potential impact on localised surface water quality<br><br>The impact significance upon aquatic biodiversity for the project was determined as Low after mitigation. The impact assessment was based on a number of | the deterioration of aquatic ecosystem integrity and a reduction/loss of habitat for flora & fauna.<br>• Change in instream flow patterns on hydrological form and function during the construction and into the operational phase. Altered instream flow hydraulics due to different design resulting in form and function changes within aquatic habitat. The impact can result in further deterioration in freshwater ecosystem integrity, and a reduction in the supply of ecosystem services, but positive impacts if designed to mimic more natural flow pattern and channel morphology.<br><br>Construction Phase only:<br><br>• During construction, earthworks will expose and mobilise earth materials, and a number of materials as well as hydrocarbons/ cement/ chemicals may end up in the surface water. This can result in possible deterioration in aquatic ecosystem integrity and species diversity.<br><br>• 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:<br><br>• A construction method statement must be compiled and available on site. Use the smallest |

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| **Specialist Company** | **Specialist Details** | **Sensitivity of receptors** | **Summary of findings** | **Specific structural components that will directly impact upon the resource** | **Summary of Management measures** |
| | | | where the water that is supplied is of national importance for water security. Regardless of its location outside of any SWSAs, the causeway replacement will not impact any SWSAs, as there will be no reduction in water volume and no permanent changes to water quality. | assumptions. At present, there are no detailed layout plans, civil designs, or construction or rehabilitation method statements, and it is assumed that there will not be any significant expansion of the disturbed area or changes to road alignment.<br><br>During construction there will be clearance of riparian vegetation, excavations of the bed and bank, infilling, diversion of flow, a temporary deviation road, and potential for cement and fuel spills within the watercourse. The impacts can be decreased to acceptable levels provided that mitigation measures are implemented and adhered to. In conclusion, from an aquatic perspective, there are no fatal flaws associated with the project, provided all the mitigation measures are strictly adopted.<br><br>The proposed project has a Water Use License (WUL) in terms of Chapter 4 and Section 21 of the National Water Act No. 36 of 1998, prior to the commencement of activities. Due to the low risk the activities pose, after mitigation, the project falls within the Ambit of General Authorisation for Section 21 | possible working corridor. Outside the working corridor, all watercourses are to be considered no go areas.<br><br>• It is recommended that the upstream side be used for the temporary deviation road, if possible.<br><br>• The construction boundary must be clearly demarcated, especially on the downstream side.<br><br>• Vegetation removal must be avoided as far as possible. Prior to commencement, any indigenous instream vegetation in the construction corridor must be moved to a similar location instream, outside of the working area, permanently, or for use in rehabilitation.<br><br>• Remove any alien plant species within the working corridor and as far as possible along the reach.<br><br>• Stockpiles must not be located within 30 metres of the riparian zone. The furthest threshold must be adhered to. Erosion control measures including silt fences, low soil berms and/or shutter boards must be put in place stockpiles. |

| 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. | | | | |
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| **Specialist Company** | **Specialist Details** | **Sensitivity of receptors** | **Summary of findings** | **Specific structural components that will directly impact upon the resource** | **Summary of Management measures** |
| | | | | (c) and (i) water uses. The WUL was obtained on the 8th of December 2025. All GA conditions apply to the proposed project. | • Where possible, construction activities should be conducted during the drier months of the year to minimise the possibility of erosion, sedimentation and transport of suspended solids associated with disturbed areas and rainfall events. Planning for such a situation must be undertaken.<br>• Coarse bedding material or geotextile wrapped dump rock must be considered for temporary deviation road. Or a similar design which can be easily removed without causing sediment to remain in the watercourse. Consider narrower temporary deviation road.<br>• Diversions must be temporary in nature and no permanent walls, berms or dams may be installed within a watercourse. Sandbags used in any diversion or for any other activity within a watercourse must be in a good condition, so that they do not burst and empty sediment into the watercourse. Upon completion of the construction at the site, the diversions shall be removed to restore natural flow patterns. Under no circumstance shall a new channel or drainage canals be excavated to divert water away from construction activities.<br>• Monitoring should be conducted before commencement to confirm demarcations are in place and indigenous vegetation is relocated where possible nearby, once a week during construction within the river, and bi-monthly post- |

| 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. | | | | |
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| **Specialist Company** | **Specialist Details** | **Sensitivity of receptors** | **Summary of findings** | **Specific structural components that will directly impact upon the resource** | **Summary of Management measures** |
| | | | | | construction and rehabilitation for a period of three months or until fully rehabilitated according to ECO.<br>• The longitudinal gradient must not be altered in a way that results in erosion downstream or impoundment of flows upstream. The cross sectional profile of the bed and banks must also be restored as far as possible to pre-construction state.<br>• Flow across the width of the wetland must not be confined. The design must allow for unhindered longitudinal flow through the structure and erosion protection downslope with energy dissipaters such as dense baffles.<br>• The stormwater road side drains and outlets should be formalised and stabilised to manage the increase of surface water flows directly into the watercourse.<br>• Sedimentation must be minimised with appropriate 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. | | | | |
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| **Specialist Company** | **Specialist Details** | **Sensitivity of receptors** | **Summary of findings** | **Specific structural components that will directly impact upon the resource** | **Summary of Management measures** |
| | | | | | • All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable.<br>• Construction must have contingency plans for high rainfall events during construction.<br>• The longitudinal gradient must not be altered in a way that results in erosion downstream or impoundment of flows upstream. The cross sectional profile of the bed and banks must also be restored as far as possible<br>• to a more natural state.<br>• Any temporary deviationroads or working areas must be fully rehabilitated to the preconstruction condition at a minimum. Consider an upstream temporary deviation road if practical.<br>• The design must allow for unhindered longitudinal flow through the structure and erosion<br>• protection downslope with energy<br>• dissipaters such as dense baffles. |

| 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. | | | | |
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| **Specialist Company** | **Specialist Details** | **Sensitivity of receptors** | **Summary of findings** | **Specific structural components that will directly impact upon the resource** | **Summary of Management measures** |
| | | | | | • Diversions must be temporary in nature and no permanent walls, berms or dams may be installed within a watercourse.<br>• The stormwater management infrastructure, such as road side drains, must be designed to ensure the runoff is not highly concentrated before entering the riparian area.<br>• Effective stormwater management must include effective stabilisation (gabions and Reno mattresses) of exposed soil and side drain outlets. Contingency plans must be in place for high rainfall events which may occur during construction.<br>• The temporary deviation road must allow for longitudinal flow with no scour at any diversion outlets. The temporary deviation roadmaterial must be removed, and the channel morphology and substrate be reinstated.<br>• The project will need to comply with all regulations of the National Water Act (Act 36 of 1998), including the protection of downstream users, and minimise any potential ecological impacts upon water resources. Appendix 3 shows the conditions |

| 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. | | | | |
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| **Specialist Company** | **Specialist Details** | **Sensitivity of receptors** | **Summary of findings** | **Specific structural components that will directly impact upon the resource** | **Summary of Management measures** |
| | | | | | of General Authorisation which must be adhered to for Low impact projects.<br><br>• Spills or leaks from vehicles or machinery must be entirely avoided. Cement/concrete batching is to be located in an area of low environmental sensitivity away from the river channel and pre-approved by the ECO. No batching activities shall occur on unprotected ground. Adequate surface protection will be required. Concrete batching should be restricted to a level and bunded/sealed surface above the riverbanks.<br><br>• Contaminated water containing fuel, oil or other hazardous substances must never be released into the environment. It must be disposed of at a registered site.<br><br>• Sedimentation must be minimised with appropriate measures.<br><br>• Where possible, construction activities should be conducted during the drier months of the year.<br><br>• All post-construction building material and waste must be cleared in accordance with the EMPr. The |

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| **Specialist Company** | **Specialist Details** | **Sensitivity of receptors** | **Summary of findings** | **Specific structural components that will directly impact upon the resource** | **Summary of Management measures** |
| | | | | | solid domestic waste must be removed and disposed of offsite.<br>• Any use of herbicides in removing alien plant species is required to be investigated by the ECO before use, for the necessity, type proposed to be used, effectiveness and impacts of the product on aquatic biota.<br>• Construction must be immediately followed by rehabilitation. |
| **Plant Species, Animal Species and Terrestrial Biodiversity Theme Compliance Statement** | | | | | |
| Enviro Works. | Megan Smith & Nicolene Cloete (Ecological Specialists) | Low | Terrestrial Theme:<br><br>During the investigation the specialist has regarded the site to be of low terrestrial sensitivity as opposed to the screening tool regarding the area as being very high. The specialist concluded that based on the area already being degraded and the ecological state already been disturbed in the area, and that its unlikely to affect the Garden Route Biosphere Reserve (GRBR). The site is highly vegetated by alien invasive species and therefore will minimally impact on the GRBR and its ecological state. The specialist also concluded the compliance | Terrestrial Theme:<br><br>The presence of the Garden Route Biosphere Reserve has been confirmed as delineated by the Western Cape Biodiversity Spatial Plan. The target for Garden Route Biosphere Reserve with regards to development is to minimize habitat and species loss and ensure ecosystem functionality through strategic landscape planning. The Western Cape Biodiversity Spatial | The following management measures have been proposed for which needs to be taken into consideration during the construction phase of the proposal for all themes:<br>• The majority of the study area has already been subjected to disturbance. The list below highlights the key integrated mitigation measures that are applicable to the development to suitably manage and mitigate ecological impacts, on both fauna and flora that are associated with the footprint. Provided that all management and mitigation measures are implemented, as stipulated in this report, the overall risk to floral and faunal |

| 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. | | | | |
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| **Specialist Company** | **Specialist Details** | **Sensitivity of receptors** | **Summary of findings** | **Specific structural components that will directly impact upon the resource** | **Summary of Management measures** |
| | | | statement that the construction site footprint has a low value of Ecological Importance (SEI).<br><br>Plant Theme:<br><br>During the investigation the specialist has regarded the site to be of low plant sensitivity as opposed to the screening tool regarding the area as being a medium sensitivity. The site is highly degraded and disturbed. The specialist recorded (30) plant species on site, each of them are rated as 'least concern' or 'not evaluated' in accordance with the Red List Status. No Species of Conservation Concern was found on site.<br><br>Animal Species Theme:<br><br>During the site inspection, no species of conservation concern were found within the proposed development footprint. This is likely a result of the degraded nature of the site creating unsuitable habitat for these species.<br><br>It is expected that the faunal species in these areas are limited to avifauna, as well as smaller reptiles, amphibians, and mammals all of which are common and non-threatened. Given that the project only entails upgrades, the species would have the ability to seek refuge in case of any | Plan does offer flexibility in permissible land-uses, but some authorisation may still be required for high-impact land-uses.<br>Because the Garden Route Biosphere Reserve extends to a very large area outside of the development footprint and the area impacted is mostly already developed and has a high abundance of alien species, the proposed development footprint does not significantly contribute to the overall functioning of the Biosphere Reserve. Therefore, the loss in Garden Route Biosphere Reserve for the proposed development will not impact the functioning of the overall Garden Route Biosphere Reserve or the wider area. It is also noted that ecological connectivity will be not disturbed further providing that the functioning of the Biosphere Reserve will remain in intact during and after construction works.<br><br>The Site Ecological Importance (SEI) of the footprint was evaluated as | diversity, habitat and Species of Conservation Concern can be adequately mitigated and minimised.<br><br>• Fires are strictly prohibited.<br><br>• Sufficient fire management equipment must be on the site.<br><br>• Smoking must be restricted to designated smoking areas.<br><br>• No dumping of sewage or hazardous waste into an adjacent ecosystem.<br><br>• All activities must remain within the designated footprint.<br><br>• All areas outside of the footprint must be considered no-go areas |

| 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. | | | | |
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| **Specialist Company** | **Specialist Details** | **Sensitivity of receptors** | **Summary of findings** | **Specific structural components that will directly impact upon the resource** | **Summary of Management measures** |
| | | | disturbances in the area. No SCC was found on site. | Low for each of the habitat units. The was determined based on the low biodiversity value and ecological functioning and high recovery rate.<br><br>Plant Theme:<br><br>During the site inspection, no species of special concern were found within the proposed footprint. Various common, non-threatened, and non-protected species were recorded on the footprint (Table 6). Additionally, several species of alien species were observed throughout the site.<br>Considering the extremely proliferation of invasive alien species throughout the proposed development footprint, it is evident that the area is highly disturbed and degraded. It is worth mentioning that thorough assessments were conducted in the surroundings of the developed sites, and no observations of special concern species were made, likely as a result of no suitable habitat for these | • Vehicles use must be restricted to designated roads.<br><br>• All staff must be trained to ensure that they are aware of any potential fauna may be on the footprint or surrounds.<br><br>• Vehicles should be restricted to a clearly demarcated area and drivers must be vigilant.<br><br>• Should any faunal species need to be translocated, a faunal or avifaunal (in the case of birds) specialist will need to be consulted.<br><br>• All personnel working on site must undergo environmental inductions to ensure they are aware of the environmental sensitivities of the site.<br><br>• No fauna may be caught, trapped, or harmed in any way. |

| 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. | | | | |
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| **Specialist Company** | **Specialist Details** | **Sensitivity of receptors** | **Summary of findings** | **Specific structural components that will directly impact upon the resource** | **Summary of Management measures** |
| | | | | species occurring throughout, the site.<br><br>Animal Species Theme:<br><br>During the site inspection, no species of conservation concern were found within the proposed development footprint. This is likely a result of the degraded nature of the site creating unsuitable habitat for these species.<br><br>It is expected that the faunal species in these areas are limited to avifauna, as well as smaller reptiles, amphibians, and mammals all of which are common and non-threatened. Given that the project only entails upgrades, the species would have the ability to seek refuge in case of any disturbances in the area. | • No feeding of any fauna is allowed.<br><br>• All recommendations in the aquatic and avifaunal assessments must be adhered to.<br><br>• A soil erosion method statement is needed for the site.<br><br>• Soil erosion monitoring needs to be done every two weeks during construction. |
| **AVI-FAUNAL COMPLIANCE STATEMENT** | | | | | |
| MORA Ecological Services (Pty) Ltd | Mokgatla Molepo & Reviewed by Megan Smith from Enviro Works | Low | Before the specialist went on site, the specialist confirmed highly sensitive species that can occur on site and the likelihood of the species occurring are Stephanoaetus coronatus, Neotis denhami and the Circus ranivorus. However, after conducting the site | No areas of impact are anticipated on these resources. | • The proposed Culverts and pipes upgrades will be in already disturbed areas, and anticipated avifaunal impacts are predicted to be Very Low. |

| 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. | | | | |
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| **Specialist Company** | **Specialist Details** | **Sensitivity of receptors** | **Summary of findings** | **Specific structural components that will directly impact upon the resource** | **Summary of Management measures** |
| | | | inspection, the specialist confirmed that the likelihood of the species being on the site is regarded as low to very low in likelihood.<br><br>In addition, the site visit verified the specialist findings concluded that there are zero (0) mammals, zero (0) amphibian species and thirteen (13) Avian species. The specialist has further confirmed there was no presence of the Species of Conservation Concern (SCC). | | • None of the identified sensitive bird species from DFFE screening tool report were observed on site.<br><br>• No habitats within the proposed Culverts and pipes upgrade footprint are considered sensitive.<br><br>• Contractor should adhere to the recommendations provided within the EMPr.<br><br>• Construction activities should be restricted to the project area.<br><br>• No fires should be made around the site.<br><br>• It is the opinion of the specialist that this application be considered. |

| 2. | List the impact management measures that were identified by all Specialist that will be included in the EMPr |
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**Terrestrial, Animal and plants Biodiversity by Megan Smith from Enviroworks:**

The majority of the study area has already been subjected to disturbance. The list below highlights the key integrated mitigation measures that are applicable to the development to suitably manage and mitigate ecological impacts, on both fauna and flora that are associated with the footprint. Provided that all management and mitigation measures are implemented, as stipulated in this report, the overall risk to floral and faunal diversity, habitat and Species of Conservation Concern can be adequately mitigated and minimised.

- Fires are strictly prohibited.
- Sufficient fire management equipment must be on the site.
- Smoking must be restricted to designated smoking areas.
- No dumping of sewage or hazardous waste into an adjacent ecosystem.
- All activities must remain within the designated footprint.
- All areas outside of the footprint must be considered no-go areas.
- Vehicles use must be restricted to designated roads.
- All staff must be trained to ensure that they are aware of any potential fauna may be on the footprint or surrounds.
- Vehicles should be restricted to a clearly demarcated area and drivers must be vigilant.
- Should any faunal species need to be translocated, a faunal or avifaunal (in the case of birds) specialist will need to be consulted.
- All personnel working on site must undergo environmental inductions to ensure they are aware of the environmental sensitivities of the site.
- No fauna may be caught, trapped, or harmed in any way.
- No feeding of any fauna is allowed.
- All recommendations in the aquatic and avifaunal assessments must be adhered to.
- A soil erosion method statement is needed for the site.
- Soil erosion monitoring needs to be done every two weeks during construction.

**Avi-Faunal Biodiversity by Mokgatla Molepo from Mora Ecological Services (None specifically listed for the project, but a few recommendations have been added below):**
The proposed Culverts and pipes upgrades will be in already disturbed areas, and anticipated avifaunal impacts are predicted to be Very Low.

- Contractor should adhere to the recommendations provided within the EMPr.
- Construction activities should be restricted to the project area.
- No fires should be made around the site..

**Archaeological and cultural heritage by Dr Peter Nillsen from Human Origins:**
It was confirmed by the appointed Heritage Consultant that the proposed activities do not trigger Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999). Therefore, the Heritage consultant confirmed that it was not required to submit a Notice of Intent to Develop (NID) to the HWC.
**Aquatic Biodiversity by Debbie fordham from Upstream Consulting:**

*Construction and Operation Phase:*

1. Disturbance of aquatic habitat biota from clearance of vegetation, earthworks, temporary deviation road, and further invasive alien plant infestation, which can result in deterioration in freshwater ecosystem integrity, and a reduction in the supply of ecosystem services.

**Mitigation:**

- A construction method statement must be compiled and available on site. Use the smallest possible working corridor. Outside the working corridor, all watercourses are to be considered no go areas.
- It is recommended that the upstream side be used for the temporary deviation road, if possible.
- The construction boundary must be clearly demarcated, especially on the downstream side.
- Vegetation removal must be avoided as far as possible. Prior to commencement, any indigenous instream vegetation in the construction corridor must be moved to a similar location instream, outside of the working area, permanently, or for use in rehabilitation.
- Remove any alien plant species within the working corridor and as far as possible along the reach.

- Stockpiles must not be located within 30 metres of the riparian zone. The furthest threshold must be adhered to. Erosion control measures including silt fences, low soil berms and/or shutter boards must be put in place around the stockpiles to limit sediment runoff from stockpiles.
- Where possible, construction activities should be conducted during the drier months of the year to minimise the possibility of erosion, sedimentation and transport of suspended solids associated with disturbed areas and rainfall events. Planning for such a situation must be undertaken.
- Coarse bedding material or geotextile wrapped dump rock must be considered for temporary deviation road. Or a similar design which can be easily removed without causing sediment to remain in the watercourse. Consider narrower temporary deviation road.
- Diversions must be temporary in nature and no permanent walls, berms or dams may be installed within a watercourse. Sandbags used in any diversion or for any other activity within a watercourse must be in a good condition, so that they do not burst and empty sediment into the watercourse. Upon completion of the construction at the site, the diversions shall be removed to restore natural flow patterns. Under no circumstance shall a new channel or drainage canals be excavated to divert water away from construction activities.
- Monitoring should be conducted before commencement to confirm demarcations are in place and indigenous vegetation is relocated where possible nearby, once a week during construction within the river, and bi-monthly post-construction and rehabilitation for a period of three months or until fully rehabilitated according to ECO.

2. Excavation and infilling in the river and sediment laden surface stormwater runoff entering from road side drains. Poorly designed or constructed causeway outlets can cause confined flow and erosion downstream. These impacts can result in the deterioration of aquatic ecosystem integrity and a reduction/loss of habitat for flora & fauna.

   **Mitigation:**

   - The longitudinal gradient must not be altered in a way that results in erosion downstream or impoundment of flows upstream. The cross sectional profile of the bed and banks must also be restored as far as possible to pre-construction state.
   - Flow across the width of the wetland must not be confined. The design must allow for unhindered longitudinal flow through the structure and erosion protection downslope with energy dissipaters such as dense baffles.
   - The stormwater road side drains and outlets should be formalised and stabilised to manage the increase of surface water flows directly into the watercourse.
   - Sedimentation must be minimised with appropriate measures.
   - All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable.
   - Construction must have contingency plans for high rainfall events during construction.
   - The longitudinal gradient must not be altered in a way that results in erosion downstream or impoundment of flows upstream. The cross sectional profile of the bed and banks must also be restored as far as possible
   - to a more natural state.
   - Any temporary deviation roads or working areas must be fully rehabilitated to the preconstruction condition at a minimum. Consider an upstream temporary deviation road if practical.

3. Change in instream flow patterns on hydrological form and function during the construction and into the operational phase. Altered instream flow hydraulics due to different design resulting in form and function changes within aquatic habitat. The impact can result in further deterioration in freshwater ecosystem integrity, and a reduction in the supply of ecosystem services, but positive impacts if designed to mimic more natural flow pattern and channel morphology.

   **Mitigation:**

   - The design must allow for unhindered longitudinal flow through the structure and erosion dissipaters such as dense baffles.
   - Diversions must be temporary in nature and no permanent walls, berms or dams may be installed within a watercourse.
   - The stormwater management infrastructure, such as road side drains, must be designed to ensure the runoff is not highly concentrated before entering the riparian area.

- Effective stormwater management must include effective stabilisation (gabions and Reno mattresses) of exposed soil and side drain outlets. Contingency plans must be in place for high rainfall events which may occur during construction.
- The temporary deviation road must allow for longitudinal flow with no scour at any diversion outlets. The temporary deviation road material must be removed, and the channel morphology and substrate be reinstated.
- The project will need to comply with all regulations of the National Water Act (Act 36 of 1998), including the protection of downstream users, and minimise any potential ecological impacts upon water resources. Appendix 3 shows the conditions of General Authorisation which must be adhered to for Low impact projects.

*Construction phase:*

4. During construction, earthworks will expose and mobilise earth materials, and a number of materials as well as hydrocarbons/ cement/ chemicals may end up in the surface water. This can result in possible deterioration in aquatic ecosystem integrity and species diversity.

**Mitigation:**

- Spills or leaks from vehicles or machinery must be entirely avoided. Cement/concrete batching is to be located in an area of low environmental sensitivity away from the river channel and pre-approved by the ECO. No batching activities shall occur on unprotected ground. Adequate surface protection will be required. Concrete batching should be restricted to a level and bunded/sealed surface above the riverbanks.
- Contaminated water containing fuel, oil or other hazardous substances must never be released into the environment. It must be disposed of at a registered site.
- Sedimentation must be minimised with appropriate measures.
- Where possible, construction activities should be conducted during the drier months of the year.
- All post-construction building material and waste must be cleared in accordance with the EMPr. The solid domestic waste must be removed and disposed of offsite.

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| 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. |

This is not applicable; all impact measures are applicable to the project.

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

**Positive impact on the community include:**

- Safety towards road users as the road will be to upgrade and strengthen the structure.
- Improvement to infrastructure and service delivery.
- No long term visual impact as the project is to repair and upgrade existing infrastructure.
- Temporary job creation and knowledge and skills transfer.
- Support to local economy, including sourcing from local suppliers, and appointing local labour.
- Temporary ramp that will solve traffic issues that may have been an issue.

**Negative impact on the community include:**

- Temporary noise and dust generated during construction.

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|---|---|
| 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 36. 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. |
| 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 road and culvert infrastructure. |
| SDG13 | Climate Action | 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.<br><br>The damaged to the road and culvert is a result from an extreme weather event that can be associated to climate change that can be linked to the flooding event. The new causeway will help combat flooding by facilitating a raised road, along with a larger culvert and wing walls. Thiis will further improve the ecology in the area, by avoiding loss of biodiversity due to the disturbance flooding causes. |
| 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. |

The Western Cape Government, Department of Environmental Affairs and Development Planning have incorporated the Western Cape Climate Change Response Strategy: Vision 2050 (1st revision 2023).

The Climate Change Directorate within the Department of Environmental Affairs and Development Planning (DEA&DP) has undertaken the development, review, and coordination of the revised Strategy. The Strategy is envisaged as a transversal strategy providing policy direction in response to climate-related risks and potential opportunities, through either creating or leveraging systemic innovative response programmes that tackle the region's vulnerability to droughts, heat and floods and take advantage of opportunities that will enable climate resilient development which fosters economic growth that is low-carbon and further creates an advanced Green Economy. Even though the Strategy is drafted by the Western Cape Government, it is a guiding document for all sector stakeholders in the province (both public and private sector) who can play a role in responding to climate change.

The four Guiding Objectives structure the narrative, with each Guiding Objective unpacked in the form of a Climate Action Pathway that specifies key actions along the journey to 2050 (In line with the project caused by flooding)

**Objective 1: RESPONSE TO THE CLIMATE EMERGENCY**

- Make Disaster Risk Management Plans more climate resilient by having plans in place to prepare for, and for dealing with extreme heat and flooding events.
- Ensure that spatial planning and development planning reduces risks to people, infrastructure and assets through integration of climate change considerations by aligning transport planning with climate resilient spatial development planning, integrating climate change into spatial and development planning processes, capacitating local government in respect of climate resilient planning, and using spatial performance indicators to inform progress reporting and land use decision-making.

**Objective 2: TRANSITIONING IN AN EQUITABLE AND INCLUSIVE MANNER TO NET ZERO EMISSIONS BY 2050**

- 90% of all disasters globally are now climate related, and the latest science points to the attribution of climate change being a driver behind many extreme weather events.
- WCG need to formally recognise the economic costs and risks of climate related disasters as ones that we are witnessing will increase in magnitude and frequency. In response to the climate change driven drought of 2015-2019, the cumulative totals of the impact of the drought are still being calculated on an ongoing basis. Drought impacts cost R14 billion in the agriculture sector alone. In addition, a single severe storm, and Knysna fires in June 2017 caused R4 – 6 billion losses in damage; the avian influenza outbreak (associated with the drought) caused losses of R800 million to the poultry sector. Over 30 000 seasonal jobs in agriculture were lost. The responses in reactive disaster funding have been but a fraction of the economic cost: R1 billion in 2017; and close to another half a billion rand was requested from national disaster management funds in 201838. The situation is a clear indicator of the economic cost of failure to adapt to climate change. Proactive planning and adaptive measures rather than reactive measures are likely to be less costly.

**Objective 3: REDUCING CLIMATE RISKS AND INCREASING RESILIENCE**

- Improve Disaster Risk Management Plans by ensuring that climate change is a consideration in all Disaster Risk Assessments and by identifying adaptation actions that proactively respond to inevitable future extreme circumstances, such as heat waves, storms, flooding, drought and fires, both in sudden onset and chronic disaster forms, by way of locally appropriate climate change responses.
- Restore the ecological functioning and water quality in our watercourses, by:
  - Halting water pollution
  - Making sure watercourses and their riparian zones retain an ecological base flow.
  - Protecting and supporting ecological infrastructure that perform a flood attenuation function.
  - Expand natural systems in urban environments (or utilise ecological infrastructure approaches where this is not viable) and restore their functioning.
  - Continue with efforts at removing alien vegetation infestations in priority catchments and assessing the eradication efforts in municipalities.

**The project aims at improving the causeway and preventing a reoccurrence of damage within the area again by raising the causeway, improving, and developing a new culvert with large wing walls to facilitate and direct water flow, minimising disaster risk occurring and preparing and dealing with climate change events and risks effectively and improving infrastructure. The new causeway will prevent uprooting caused by flooding that results from biodiversity loss. The EIA will further improve the river system, address alien invasive species within the project footprint.**

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

No conflicting recommendations have been identified.

| | |
|---|---|
| 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 significant residual negative biodiversity impacts will remain, no biodiversity offset was considered for this development.

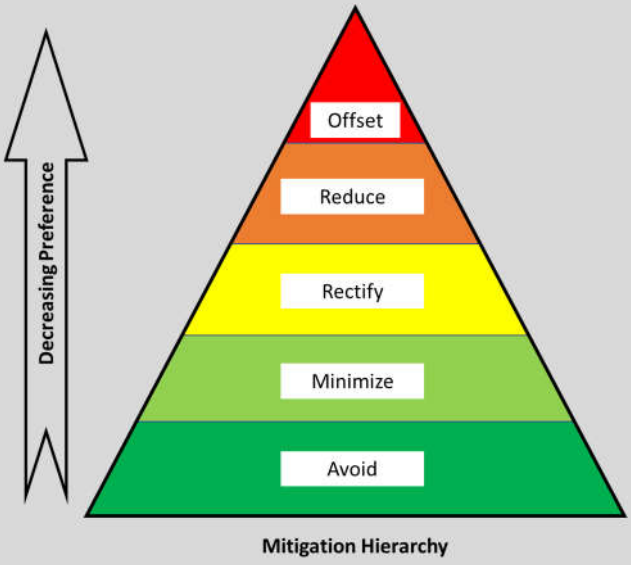



**Figure 37. Mitigation hierarchy.**

Figure 38 describes the mitigation hierarchy approach followed for the purpose of arriving at the best practicable environmental opinion.

**Figure 38. Mitigation hierarchy descriptions.**

| Hierarchy level | | Description in relation to the proposal |
|---|---|---|
| 1 | Avoid | Through the implementation of the proposed project, will provide an effective and safe means of access. Thereby also eliminating/avoiding the need for the construction of a new road. |
| 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 and culvert proposed to be repaired and upgraded). |
| 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 watercourse 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 is 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.<br><br>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:<br>• Terrestrial biodiversity and plant assessment:<br>o Impact during construction phase:Low<br>o Impact during operational phase: Low<br>• Aquatic biodiversity and plant assessment:<br>o Cumulative impact during construction phase: Low<br>o Cumulative impact during operational phase: Low<br>• Animal and avi-faunal Species assessment:<br>o Impact during construction phase: Low<br><br>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:**

Positive impact on the community include:

- Safety towards road users as the road will be to upgrade and strengthen the structure.
- Improvement to infrastructure and service delivery.
- No long term visual impact as the project is to repair and upgrade existing infrastructure.
- Temporary job creation and knowledge and skills transfer.
- Support to local economy, including sourcing from local suppliers, and appointing local labour.
- Temporary ramp that will solve traffic issues that may have been an issue.

Negative impact on the community include:

Temporary impacts such as noise, dust and visual impacts as a result of construction activities.

- *Positive impacts:*
  - The proposed project was deemed as acceptable from the plant, avifaunal and animal species perspective.
  - With the implementation of the appropriate mitigation measures, the proposed project can be deemed as acceptable from an aquatic 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.
  - Opportunity for alien invasive clearance.

- *Negative impacts:*
  - Temporary disturbance to vegetation and fauna, however, can be controlled and managed.
  - Erosion management and control will be needed due to the project being within a watercourse.
  - Temporary nuisances caused as a result of construction activities.
  - Temporary noise and dust generated during construction.

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. |
|---|---|

| Impact | Both designs are needing approval and have the same impacts: Preferred Design with temporary ramp (Upstream + Downstream) | | | |
|---|---|---|---|---|
| | Upstream constructed ramp | | Downstream constructed ramp | |
| | Significance without mitigation | Significance with mitigation | Significance without mitigation | Significance with mitigation |
| **PLANNING AND DESIGN IMPACTS** | | | | |
| Compliance with legislative requirements | Medium (-) | Low (-) | Medium (-) | Low (-) |
| Site establishment and pre-construction activities | Medium (-) | Low (-) | Medium (-) | Low (-) |
| **CONSTRUCTION PHASE** | | | | |

| | | | | |
|---|---|---|---|---|
| Erosion, Earthworks and Land Clearence | Medium (-) | Low (-) | Medium (-) | Low (-) |
| Agricultural: Impact on Agricultural Resources | Negligible (-) | Negligible (-) | Negligible (-) | Negligible (-) |
| Aquatic Impacts: Disturbance of aquatic habitat biota from clearance of vegetation, earthworks, temporary deviation road, and further invasive alien plant infestation | Medium (-) | Low (-) | Medium (-) | Low (-) |
| Aquatic Impacts: Sedimentation and erosion. Excavation and infilling in the river and sediment laden surface stormwater runoff entering from road side drains. | Medium (-) | Low (-) | Medium(-) | Low (-) |
| Aquatic Impacts: Change in instream flow patterns on hydrological form and function during the construction phase. | Medium (-) | Low (-) | Medium | Low |
| Aquatic impact: During construction, earthworks will expose and mobilise earth materials, and a number of materials as well as hydrocarbons/ cement/ chemicals may end up in the surface water. | Medium-Low (-) | Very low (-) | Medium-Low (-) | Very Low (-) |
| Animal Biodiversity: Impact of the project on animal and avi-faunal species | Low (-) | Low (-) | Low (-) | Low (-) |
| General management: Pollution of hydrocarbons due to spills and leaks | Low (-) | Low (-) | Low (-) | Low (-) |
| General nuisances: Noise, dust, light, and general housekeeping | Medium (-) | Low (-) | Medium (-) | Low (-) |
| Road safety: Traffic Impacts and Road Safety | Medium (-) | Low (-) | Medium (-) | Low (-) |
| Plant biodiversity: Impact of the project on indigenous flora | Low (-) | Low (-) | Low (-) | Low (-) |
| Socio-economic impacts: Employment opportunities | Medium (+) | Medium -High (+) | Medium (+) | Medium-High (+) |
| **POST-CONSTRUCTION REHABILITATION PHASE / OPERATIONAL PHASE** | | | | |
| Road safety: Provision of safer road way | Very-High (+) | Very High (+) | Very-High (+) | Very High (+) |
| Aquatic impact: Disturbance of aquatic habitat biota from clearance of vegetation, earthworks, temporary deviation road, and further invasive alien plant infestation. | Medium (-) | Low (-) | Medium (-) | Low (-) |
| Aquatic impact: Poorly designed or constructed causeway outlets can cause confined flow and erosion downstream | Medium (-) | Low (-) | Medium (-) | Low (-) |
| Aquatic Impact: Change in instream flow patterns on hydrological form and function during the construction and into the operational phase. | Medium (-) | Low (-) | Medium (-) | Low (-) |

## 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 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, as this will impact the watercourse.
- The management of alien invasive vegetation species.
- Limit and control erosion as the nature of the site is within a watercourse.

***Post-Construction/Rehabilitation phase:***

- Ensuring that the biophysical components (including the soil, surface water and groundwater resources) of the environment is limited contamination as a result of the proposed works.
- The management of alien invasive vegetation species within the project footprint.
- Ensure that there are limited visual impacts on the surrounding land owners and road users.
- A safer and easier to use causeway and flow for the watercourse from the culvert structure.

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, or ECO 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 not including the approved working area 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 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 and culvert 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:

**Plant Species, Animal Species and Terrestrial Biodiversity Theme Compliance Statement:**

The processes of investigation which have led to the production of this report harbour several assumptions, which include the following:

- All information provided by the applicant to the environmental specialist was correct and valid at the time that it was provided.
- Note that avifauna has been excluded from this assessment.
- The proposed project development footprint as provided by the applicant is correct and will not be significantly deviated from.
- Strategic-level investigations undertaken by the applicant before the commencement of the EIA process determined that the development site represents a potentially suitable and technically acceptable location.
- The public will receive a fair and reoccurring opportunity to participate and comment during the EIA application process, through the provision of adequate public participation timeframes stipulated in the EIA Regulations (2014, as amended).
- The need and desirability of the project are based on strategic national, provincial, and local plans and policies which reflect the interests of both statutory and public viewpoints.
- The EIA application process is a project-level framework, and the specialists are limited to assessing the anticipated environmental impacts associated with the operational phases of the proposed project.
- Strategic-level decision-making is conducted through cooperative governance principles with the consideration of sustainable and responsible development principles underpinning all decision-making.
- Given that an EA application process involves prediction, uncertainty forms an integral part of the process. Two types of uncertainty are associated with the EA application process, namely process-related and prediction-related.
- Uncertainty of prediction is critical at the data collection phase as final certainty will only be obtained upon implementation of the proposed development. Adequate research, experience and expertise may minimise this uncertainty.
- Uncertainty of values depicts the approach assumed during the MP application process, while final certainty will be determined at the time of decision-making. Enhanced communication and widespread/comprehensive coordination can lower uncertainty.
- Uncertainty of related decisions relates to the interpretation and decision-making aspect of the MP application process, which shall be appeased once monitoring of the project phases is undertaken.

- The significance/importance of widespread/comprehensive consultation towards minimising the risk/possibility of omitting significant impacts is further stressed. The use of quantitative impact significance rating formulas (as utilised in this document) can further standardise the interpretation of results and limit the occurrence and scale of uncertainty.

- The initial study was undertaken as a desktop assessment and as such, the information gathered must be considered with caution, as inaccuracies and data-capturing errors are often present within these databases.

- Global Positioning System (GPS) technology is inherently inaccurate and some inaccuracies due to the use of handheld GPS instrumentation may occur. If more accurate assessments are required, the relevant areas will need to be surveyed and pegged according to surveying principles.

- The risk assessment was applied on the basis that the stipulated mitigation measures in all specialist recommendations will be implemented as recommended and therefore the results presented demonstrate the impact significance of perceived impacts on the receiving environment post-mitigation.

**Gaps in the knowledge**

The observations and findings made during the site inspection were during a specific time frame and the condition of the proposed site may vary throughout the year. Therefore, circumstances throughout the year may differ and deliver different results. The site was surveyed in late Autum/early Winter, sampling fauna during this time has the advantage of capturing distinct animal behaviours associated with migration and preparations for hibernation. With foliage decreasing, animals may be more visible, facilitating observation and study during this period.

**Avi-Faunal species Biodiversity Theme Compliance Statement:**

• All information regarding the proposed project and related activities as provided by the client are taken to be accurate.
• Fieldwork was limited to the proposed project footprint.

**Aquatic biodiversity Impact Assessment:**

- Aquatic ecosystems vary both temporally and spatially. Once-off surveys such as this can miss certain ecological information due to seasonality, thus limiting accuracy and confidence. Despite this, confidence in findings is high.
- The location and nature of the proposed activities was provided by the client.

- While disturbance and transformation of habitats can lead to shifts in the type and extent of aquatic ecosystems, it is important to note that the current extent and classification is reported on here.

- All soil/vegetation/terrain sampling points were recorded using a Garmin Global Positioning System (GPS) and captured using Geographical Information Systems (GIS) for further processing.

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

- No detailed assessment of aquatic fauna/biota (e.g. fish, invertebrates, microphytes, etc.) was undertaken, and not deemed necessary.

- The vegetation information provided is based on observation not formal vegetation plots. As such species documented in this report should be considered as a list of dominant and/or indicator wetland/riparian species.
- The scope of work did not include water quality sampling and the water quality characteristics were inferred from the biophysical characteristics of the area and catchment land uses.
- The assessment of impacts and recommendation of mitigation measures was informed by the site-specific ecological concerns arising from the field survey and based on the assessor's working knowledge and experience with similar projects. The degree of confidence is considered high.

| | |
|---|---|
| 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. |

The period for which the EA is required will be 5 years.

Preconstruction Phase – 1 year
Construction Phase – 3 years
Postconstruction Phase/ Decommissioning/ rehabilitation – 1 year

### 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.

There should only be water needed for the construction phase of the operation. The water should be collected in buckets to avoid running water unnecessarily. Efforts to capture rainwater should also be implemented. Potable water within the construction site will also be used drinking water.

### 4. Waste

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

The EMPr will address waste management for the proposed construction and awareness training for the construction team. The waste management plan for the site will be implemented such as the method to reduce, reuse and recycle. Have waste disposal readily available, such as skips and bins allocated on site. Any solid waste intended for disposal must be disposed of at a landfill site, licensed in terms of section 20 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) or the National Environmental Management: Waste Act (Act No. 59 of 2008).

### 5. Energy Efficiency

| | |
|---|---|
| 8.1. | Explain what design measures have been taken to ensure that the development proposal will be energy efficient. |

There isn't any energy anticipated to be required for the construction phase of the project. However, should there need to be energy used there will be awareness towards energy usage and efficiency on site, and educational notices. Furthermore, taking advantage of constructing in the day and if required lighting there will need to be energy efficient LED lights used. Furthermore, it is important that the construction team ensures the duty to ensure that any energy usage power tools to be well maintained and utilised effectively.

## DECLARATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

I ……Betsy Ditcham …, EAP Registration number …2020/1480….. 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;

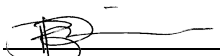
- I have ensured that information containing all relevant facts in respect of the application was distributed or was made available to registered interested and affected parties and that participation will be facilitated in such a manner that all interested and affected parties were provided with a reasonable 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;



20/01/2026

Signature of the EAP: Date:

Sharples Environmental Services cc

Name of company (if applicable):

## SECTION K: DECLARATIONS

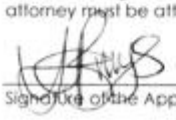
### DECLARATION OF THE APPLICANT

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

I...Louise Buys....., ID number ...8303170171086...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:

- I am 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;
- I am aware of my general duty of care in terms of Section 28 of the NEMA;
- I am 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;
- I 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;
- I 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;
- I 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;
- I am 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.



Signature of the Applicant: Date: 2025-11-05

Department of Infrastructure: Transport Infrastructure Branch

Name of company (if applicable):

**DECLARATION OF THE SPECIALIST**

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

I ……Debra Fordham……, 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 specialist: Date: 07/11/2025

Upstream Consulting

Name of company (if applicable):

**DECLARATION OF THE SPECIALIST**

I ……Colin Fordham……, 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 specialist: Date:07/11/2025

Upstream Consulting

Name of company (if applicable):

below the terrace level and the upper alluvium has probably been deposited during the last several thousand years, but older Quaternary alluvium may be intersected by earthworks.

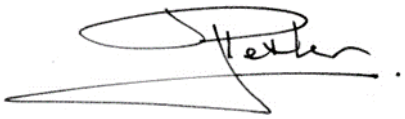
As the context of Site 5 is deposited alluvium, fossils could occur and the SAHRIS palaeontological sensitivity rating for alluvial deposits is Moderate/Green. Theoretically, robust, petrified fossils reworked from the Enon Fm. could occur, but given their scarcity this is improbable. Fossil bones and teeth of late Quaternary age may occur, transported from the upstream catchment. Although previous construction has disturbed the area, floods and disturbance do occasionally unearth fossil material, with consequent fortuitous discoveries. In view of the low volume of affected deposits and the likelihood that fossil bones which may occur would be members of the modern (pre-historic) fauna the palaeontological impact of the re-establishing of the causeway is LOW.

Fossil bone finds are unlikely, but with some possibility, and just in case it is recommended that the Heritage Western Cape Fossil Finds Procedure (HWC-FFP) is included in the Environmental Management Plan (EMP) for the construction earthworks, basically “If fossil bones are uncovered during excavations stop work at that spot and report to Heritage Western Cape”. The links to the HWC and the FFP are below:

https://www.hwc.org.za/sites/default/files/3_11%20Protocol%20Fossil%20Finds%20Final%20June%202016.pdf

HWC: 021 483 9729

Heritage Western Cape will assess the information and liaise with an archaeological or palaeontological specialist, as appropriate.



John Pether

Muir, R.A. 2018. Recalibrating the breakup history of SW Gondwana: The first U-Pb chronostratigraphy for the Uitenhage Group, South Africa. Ph.D. Thesis, University of Cape Town.

**DECLARATION OF THE SPECIALIST**

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

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

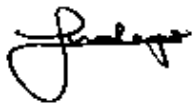
- In terms of the general requirement to be independent:
  - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity;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



10/11/2025

Signature of the EAP: Date:

MORA Ecological Services

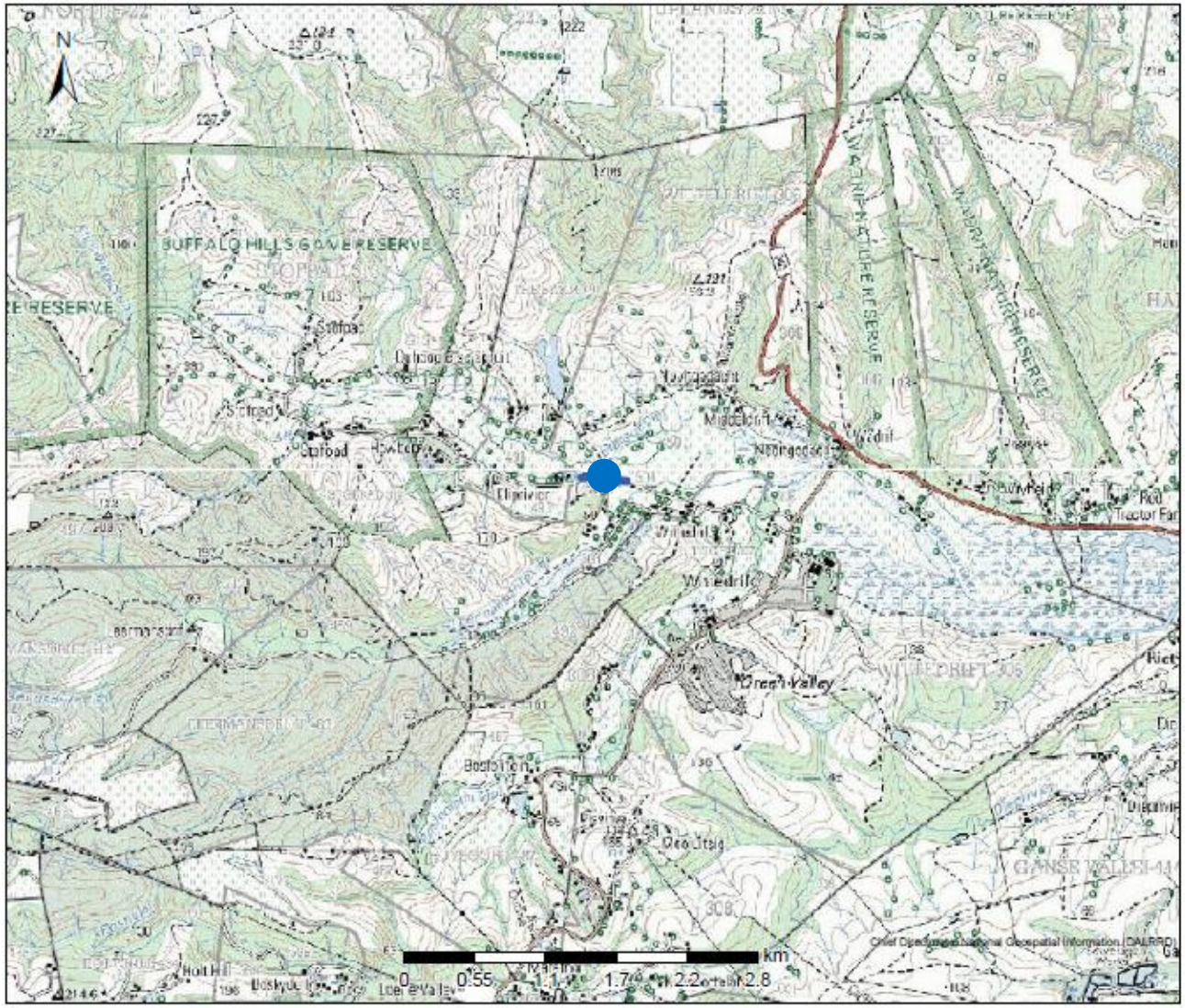
Name of company (if applicable):

- am an Environmental Specialist at Enviroworks.
- act as an independent Environmental Consultant.
- have compiled this Botanical, Faunal and Terrestrial Biodiversity Theme Compliance Statement.
- I do not have or will not have any financial interest in the undertaking of the activity other than remuneration for work as stipulated in the terms of reference.
- remuneration for services by the Proponent in relation to this proposal is not linked to approval by decision-making Authorities responsible for permitting this proposal.
- the consultancy has no interest in secondary or downstream developments as a result of the outcome of this Compliance Statement.
- Have no and will not engage in conflicting interests in the undertaking of the Activity.
- undertake to disclose to the Client and the Competent Authority any material, or information that have or may have the potential to influence the decision of the Competent Authority required in terms of the Environmental Impact Assessment Regulations 2014, as amended.
- will provide the Client and Competent Authority with access to all information at my disposal, regarding this project, whether favourable or not.

Megan Smith

15 November 2023

# Locality Map 1: 50 000




**Legend**

DR1791 KM 1.59
Road and Culvert
Repair Project

34.000786°S

23.321151°E

**Map Center:** Lon: 23°19'13.6"E
Lat: 34°0'9.6"S

**Scale:** 1:50,000

**Date created:** 2025/01/09

Western Cape Government
FOR YOU