GEORGE
TEL: +27 (0) 44 873 4923 **FAX:** +27 (0) 44 874 5953
EMAIL: info@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: Unit 17 Cathedral Square, Cathedral Street, George, 6530
PO BOX: 9087, George, 6530

CAPE TOWN
TEL: +27 (0) 21 554 5195 **FAX:** +27 (0) 86 575 2869
EMAIL: betsy@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: Tableview, Cape Town, 7441
PO BOX: 443, Milnerton, 7435

DRAFT
BASIC ASSESSMENT REPORT

FOR THE

THE PROPOSED INSTALLATION OF A BULK SEWERAGE PIPELINE, SEWERAGE BY-PASS PIPELINE AND STORMWATER OUTLETS ON RE/8662, STREET PARCEL RE/8581, RE/464, RE/8596, ERF 3645, AND STREET PARCEL RE/23074 IN ROSEMOOR, GEORGE, WESTERN CAPE PROVINCE

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended 7 April 2017)

PREPARED FOR: George Municipality
P.O Box 19
George
6530

DATE: 7 May 2026

SES REF NO: DBAR/BS/RM/GM/05/26
DEADP REF NO: 16/3/3/1/D2/47/0013/26

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

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)

The Proposed Installation of a Bulk Sewerage Pipeline, Sewerage By-Pass Pipeline and Stormwater outlets on RE/8662, Street Parcel RE/8581, RE/464, RE/8596, Erf 3645 and Street Parcel RE/23074 in Rosemoor, George, Western Cape Province.

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@westerncape.gov.za
   Directorate: Development Management (Region 1):
   City of Cape Town; West Coast District Municipal area;
   Cape Winelands District Municipal area and Overberg District Municipal area.

   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 http://www.westerncape.gov.za 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	
CAPE TOWN OFFICE: **DIRECTORATE: DEVELOPMENT MANAGEMENT (REGION 1)** (City of Cape Town, West Coast District, Cape Winelands District & Overberg District)	**GEORGE REGIONAL OFFICE:** **DIRECTORATE: DEVELOPMENT MANAGEMENT (REGION 3)** (Central Karoo District & Garden Route District)
The completed Form must be sent via electronic mail to: DEADPEIAAdmin@westerncape.gov.za Queries should be directed to the Directorate: Development Management (Region 1) at: E-mail: DEADPEIAAdmin@westerncape.gov.za Tel: (021) 483-5829 Western Cape Government Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 1) Private Bag X 9086 Cape Town, 8000	The completed Form must be sent via electronic mail to: DEADPEIAAdmin.George@westerncape.gov.za Queries should be directed to the Directorate: Development Management (Region 3) at: E-mail: DEADPEIAAdmin.George@westerncape.gov.za Tel: (044) 814-2006 Western Cape Government Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 3) Private Bag X 6509 George, 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. For linear activities or development proposals of more than 25 kilometres, a smaller scale e.g., 1:250 000 can be used. The scale must be indicated on the map. The map must indicate the following: • an accurate indication of the project site position as well as the positions of the alternative sites, if any; • road names or numbers of all the major roads as well as the roads that provide access to the site(s) • a north arrow; • a legend; and • a linear scale. For ocean based or aquatic activity, the coordinates must be provided within which the activity is to be undertaken and a map at an appropriate scale clearly indicating the area within which the activity is to be undertaken. Where comment from the Western Cape Government: Transport and Public Works is required, a map illustrating the properties (owned by the Western Cape Government: Transport and Public Works) that will be affected by the proposed development must be included in the Report.
Provide a detailed site development plan / site map (see below) as Appendix B1 to this BAR; and if applicable, all alternative properties and locations.	
Site Plan:	Detailed site development plan(s) must be prepared for each alternative site or alternative activity. The site plans must contain or conform to the following: • The detailed site plan must preferably be at a scale of 1:500 or at an appropriate scale. The scale must be clearly indicated on the plan, preferably together with a linear scale. • The property boundaries and numbers of all the properties within 50m of the site must be indicated on the site plan. • On land where the property has not been defined, the co-ordinates of the area in which the proposed activity or development is proposed must be provided. • The current land use (not zoning) as well as the land use zoning of each of the adjoining properties must be clearly indicated on the site plan. • The position of each component of the proposed activity or development as well as any other structures on the site must be indicated on the site plan. • Services, including electricity supply cables (indicate aboveground or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure and access roads that will form part of the proposed development **must** be clearly indicated on the site plan. • Servitudes and an indication of the purpose of each servitude must be indicated on the site plan. • Sensitive environmental elements within 100m of the site must be included on the site plan, including (but not limited to): o Watercourses / Rivers / Wetlands o Flood lines (*i.e.*, 1:100 year, 1:50 year and 1:10 year where applicable);

	○ Coastal Risk Zones as delineated for the Western Cape by the Department of Environmental Affairs and Development Planning ("DEA&DP"): ○ Ridges; ○ Cultural and historical features/landscapes; ○ Areas with indigenous vegetation (even if degraded or infested with alien species). • Whenever the slope of the site exceeds 1:10, a contour map of the site must be submitted. • North arrow A map/site plan must also be provided at an appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred and alternative sites indicating any areas that should be avoided, including buffer areas.
Site photographs	Colour photographs of the site that shows the overall condition of the site and its surroundings (taken on the site and taken from outside the site) with a description of each photograph. The vantage points from which the photographs were taken must be indicated on the site plan, or locality plan as applicable. If available, please also provide a recent aerial photograph. Photographs must be attached to this BAR as **Appendix C**. The aerial photograph(s) should be supplemented with additional photographs of relevant features on the site. Date of photographs must be included. Please note that the above requirements must be duplicated for all alternative sites.
Biodiversity Overlay Map:	A map of the relevant biodiversity information and conditions must be provided as an overlay map on the property/site plan. The Map must be attached to this BAR as **Appendix D**.
Linear activities or development and multiple properties	GPS co-ordinates must be provided in degrees, minutes and seconds using the Hartebeeshoek 94 WGS84 co-ordinate system. Where numerous properties/sites are involved (linear activities) you must attach a list of the Farm Name(s)/Portion(s)/Erf number(s) to this BAR as an Appendix. For linear activities that are longer than 500m, please provide a map with the co-ordinates taken every 100m along the route to this BAR as **Appendix A3**.

ACRONYMS

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

ATTACHMENTS

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

The following checklist of attachments must be completed.

APPENDIX			**✓ (Tick) or x (cross)**
Appendix A:	**Maps**		
	Appendix A1:	**Locality Map**	**X**
	Appendix A2:	**Coastal Risk Zones as delineated in terms of ICMA for the Western Cape by the Department of Environmental Affairs and Development Planning**	
	Appendix A3:	**Map with the GPS co-ordinates for linear activities**	**X**
Appendix B:	**Appendix B1:**	**Site development plan(s)**	**X**
	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;**	**X**
Appendix C:	**Photographs**		**X**
Appendix D:	**Biodiversity overlay map**		**X**
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**	**X**
	Appendix E2:	**Copy of comment from Cape Nature**	
	Appendix E3:	**Final Comment from the DWS**	
	Appendix E4:	**Comment from the DEA: Oceans and Coast**	
	Appendix E5:	**Comment from the DAFF**	
	Appendix E6:	**Comment from WCG: Transport and Public Works**	
	Appendix E7:	**Comment from WCG: DoA**	
	Appendix E8:	**Comment from WCG: DHS**	
	Appendix E9:	**Comment from WCG: DoH**	

	Appendix E10:	**Comment from DEA&DP: Pollution Management**	
	Appendix E11:	**Comment from DEA&DP: Waste Management**	
	Appendix E12:	**Comment from DEA&DP: Biodiversity**	
	Appendix E13:	**Comment from DEA&DP: Air Quality**	
	Appendix E14:	**Comment from DEA&DP: Coastal Management**	
	Appendix E15:	**Comment from the local authority**	
	Appendix E16:	**Confirmation of all services (water, electricity, sewage, solid waste management)**	
	Appendix E17:	**Comment from the District Municipality**	
	Appendix E18:	**Copy of an exemption notice**	
	Appendix E19	**Pre-approval for the reclamation of land**	
	Appendix E20:	**Proof of agreement/TOR of the specialist studies conducted.**	
	Appendix E21:	**Proof of land use rights**	
	Appendix E22:	**Proof of public participation agreement for linear activities**	
Appendix F:	**I&AP List**		**X**
Appendix G:	**Specialist Report(s)**		**X**
Appendix G1:	**Aquatic Impact Assessment**		**X**
Appendix G2:	**Terrestrial Biodiversity Compliance Statement and Assessment Sewer**		**X**
Appendix G3:	**Terrestrial Biodiversity Compliance Statement and Assessment Stormwater**		**X**
Appendix G4:	**Engineering Design Report**		**X**
Appendix H:	**EMPr**		**X**
Appendix I:	**Screening tool report**		**X**

Appendix J:	**The impact and risk assessment for each alternative**	**Section H of the BAR**
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**	**Section E of the BAR**
Appendix L:	**Site Specific Alien and Invasive Species Management Programme**	**X**
Appendix M:	**Proof of Application to the Department of Water and Sanitation**	**X**

SECTION A: ADMINISTRATIVE DETAILS

Highlight the Departmental Region in which the intended application will fall	~~CAPE TOWN OFFICE: REGION 1~~		**GEORGE OFFICE: REGION 3**
	~~(City of Cape Town, West Coast District~~	~~(Cape Winelands District & Overberg District)~~	**(Central Karoo District & Garden Route District)**
Duplicate this section where there is more than one Proponent Name of Applicant/Proponent:	George Municipality		
Name of contact person for Applicant/Proponent (if other):	Johannes Franciscus Koegelenberg		
Company/ Trading name/State Department/Organ of State:	George Municipality		
Company Registration Number:			
Postal address:	PO Box 19		
	George	Postal code: 6530	
Telephone:	044 801 9278	Cell:	
E-mail:	rjacobs@george.gov.za / avmolendorff@george.gov.za / jkoegelenberg@george.gov.za	Fax: ( )	
Company of EAP:	Sharples Environmental Services cc		
EAP name:	Michael Bennett (EAP) Christiaan Smit (Candidate EAP)		
Postal address:	PO Box 9087		
	George	Postal code: 6530	
Telephone:	( )	Cell:	
E-mail:	Michael@sescc.net / Christiaan@sescc.net	Fax: ( )	
Qualifications:	Michael: • BSc in Environmental and Geographic Science & Ocean and Atmospheric Science. Christiaan: • MPhil in Environmental Management. • PGD in Environmental Management. • BSc in Biodiversity and Ecology.		
EAP registration no:	Michael (EAP): 2021/3163 Christiaan (Candidate EAP): 2024/8297		
Duplicate this section where there is more than one landowner Name of landowner:	George Municipality		
Name of contact person for landowner (if other):	Johannes Franciscus Koegelenberg		
Postal address:	PO Box 19		
	George	Postal code: 6530	
	044 801 9278	Cell:	
Telephone: E-mail:	rjacobs@george.gov.za / avmolendorff@george.gov.za / jkoegelenberg@george.gov.za	Fax: ( )	
Name of Person in control of the land:	George Municipality		
Name of contact person for person in control of the land:	Johannes Franciscus Koegelenberg		
Postal address:	PO Box 19		

	George	Postal code: 6530
Telephone:	044 801 9278	Cell:
E-mail:	rjacobs@george.gov.za / avmolendorff@george.gov.za / jkoegelenberg@george.gov.za	Fax: ( )

Duplicate this section where there is more than one Municipal Jurisdiction Municipality in whose area of jurisdiction the proposed activity will fall:	George Municipality	
Contact person:	Acting Municipal Manager: Bevin Ellman Director Civil Engineering Services: Johannes Franciscus Koegelenberg	
Postal address:	PO Box 19	
	George	Postal code: 6530
Telephone	044 801 9278	Cell:
E-mail:	rjacobs@george.gov.za / avmolendorff@george.gov.za / jkoegelenberg@george.gov.za / bellman@george.gov.za	Fax: ( )

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

1.	Is the proposed development (please tick):	New	x	Expansion	
2.	Is the proposed site(s) a brownfield of greenfield site? Please explain.				

Brownfield - The proposal is to replace existing sewerage pipelines and upgrade existing stormwater outlets in disturbed/transformed areas. There are also many existing stormwater outlet structures and infrastructure such as ariel power cables occurring along the proposed sites.

3.	**For Linear activities or developments**
3.1.	Provide the Farm(s)/Farm Portion(s)/Erf number(s) for all routes:

Bulk Sewerage Pipeline:

- RE/8662
- RE/8596
- Street Parcel RE/8581
- RE/464

Sewer By Pass:

- Erf 3645
- RE/464

Stormwater Outlets:

- **Please note that the stormwater outlet structures' erf portions are included under Point 4 – other developments – below.**

3.2.	Development footprint of the proposed development for all alternatives.	+/- 451.8 m²

Bulk Sewerage Pipeline = 380.8m²

Sewer By Pass line = 71m²

Therefore, the total development footprint = 451.8m²

Please note that the stormwater outlet structures' footprint size are included in under Point 4 – other developments – below.

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.

Sharples Environmental Services cc (SES) have been appointed by Lyners Engineers on behalf of the George Municipality to compile the Basic Assessment Report of the proposed installation of a sewerage pipeline, sewerage by pass line, and additional stormwater outlet structures in Rosemoor, George, Western Cape. Please refer to the figures below for the locality of the proposed pipeline routes and stormwater outlet structures.

Figure 1: Locality Map.

Figure 2: Close-up Locality Map of Bulk Sewerage Pipeline.

The pipeline will be approximately 1038m in length with varying diameters (250mm and 400mm). Approximately 230m of the pipeline will have a diameter of 250mm and approximately 808m of the pipeline will have a diameter of 400mm. The pipeline will also connect to adjoining manholes which are part of the sewerage upgrades for Rosemoor (these will occur within existing roads). Please refer to the Figures below for the layout plans of the Rosemoor Sewer Upgrades and Sewerage Pipeline.

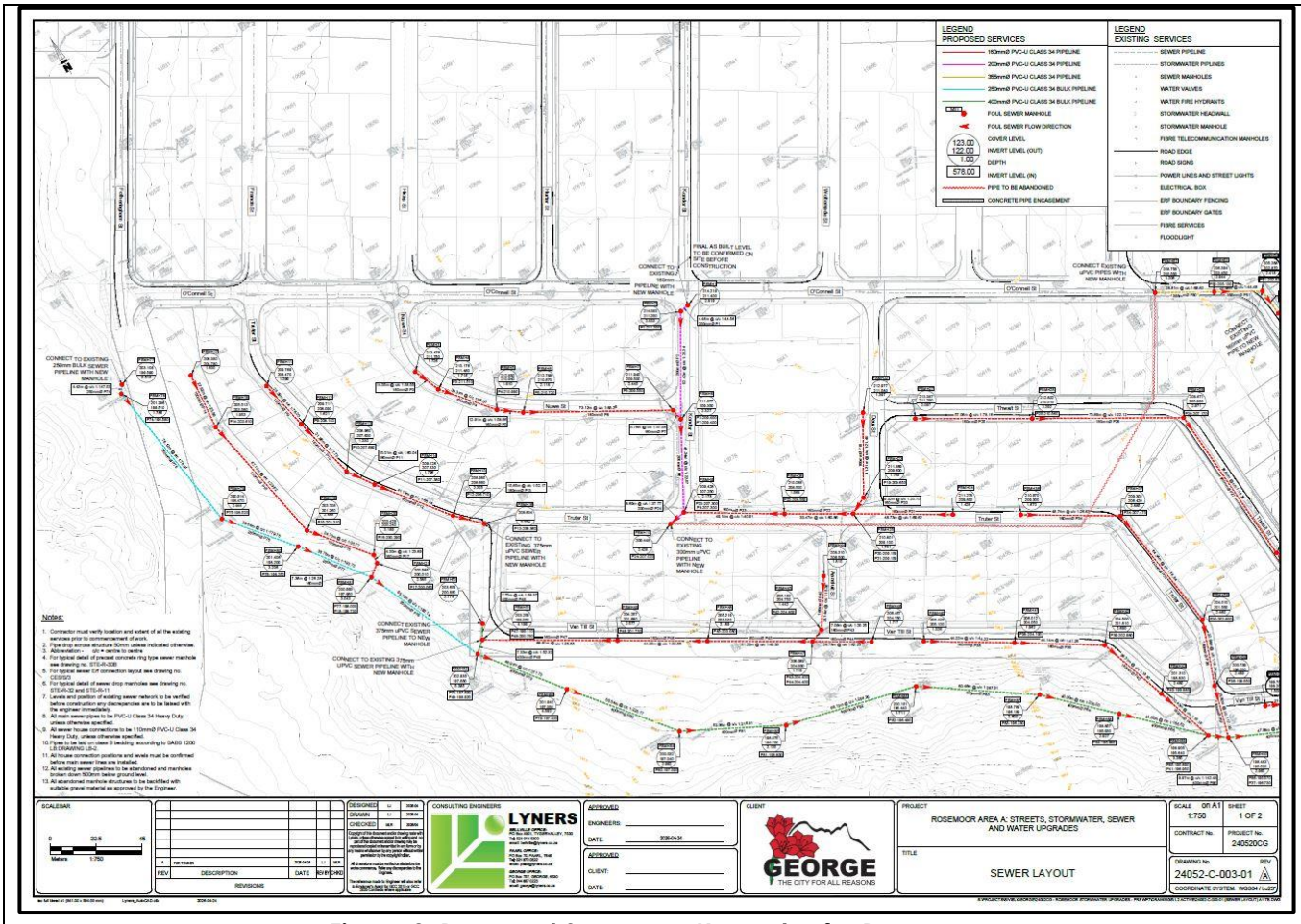


Figure 3: Proposed Sewerage Upgrades for Rosemoor.

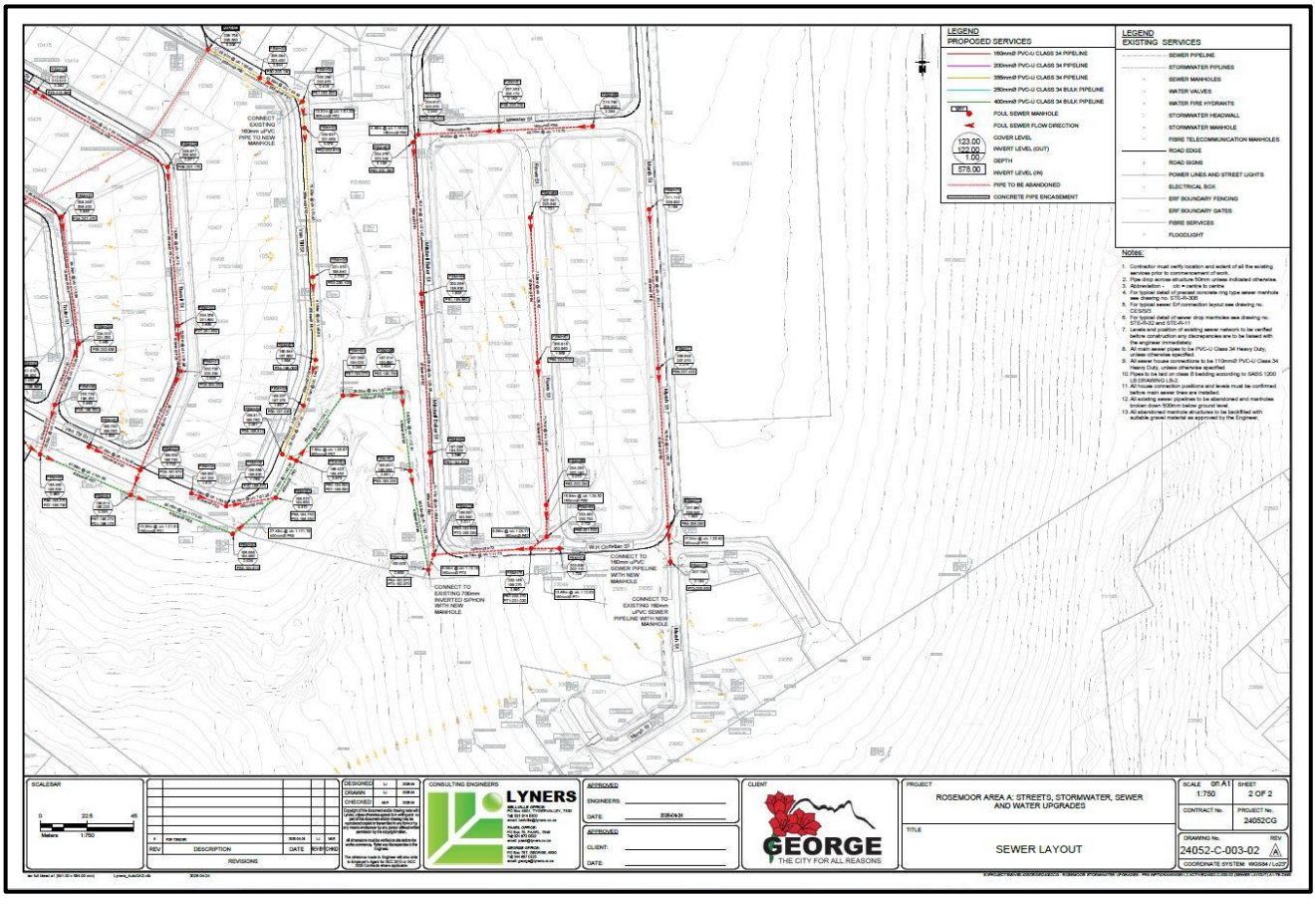


Figure 4: Proposed Sewerage Upgrades for Rosemoor.

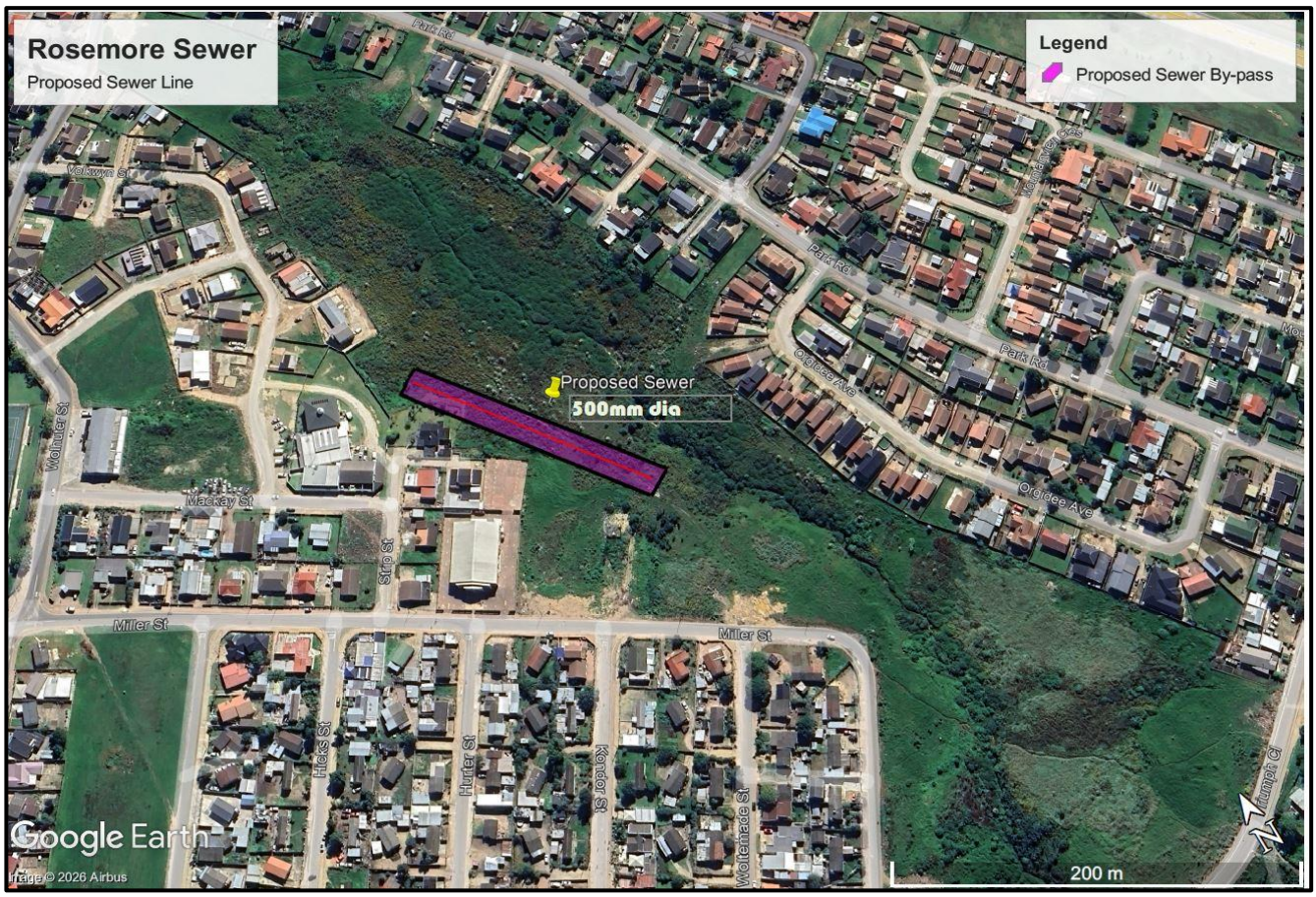


Figure 5: Proposed Sewerage By-Pass Line.

The proposed sewerage by-pass pipeline will be approximately 142m in length with a diameter of 500mm.

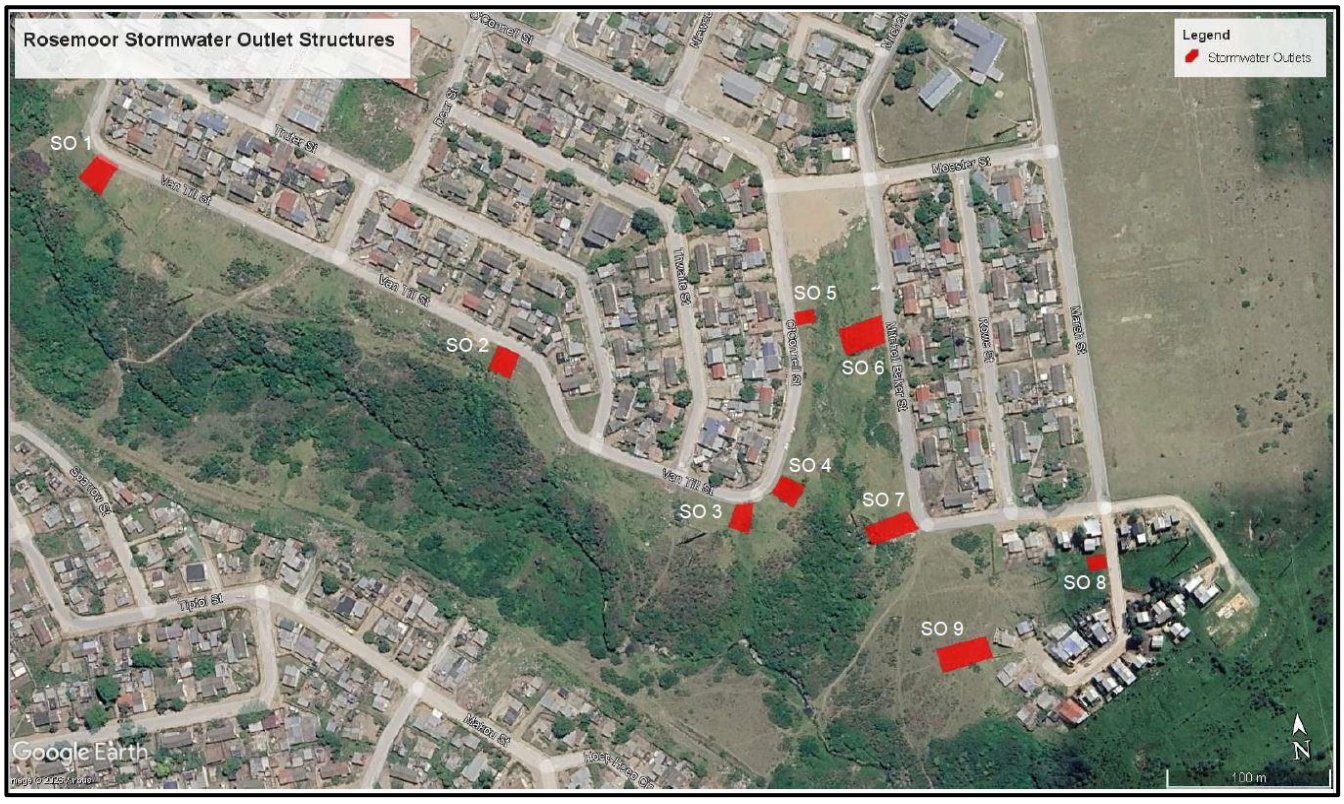


Figure 6: Proposed Stormwater Outlet Structures.

Nine stormwater outlet structures are proposed to be constructed, as illustrated in Figure 6 above. The stormwater outlet structures will each have a development footprint of approximately 36m^2, which will equal a total development footprint of 324m^2.

3.4.	Indicate how access to the proposed routes will be obtained for all alternatives.

The proposed routes will be accessed directly from the adjacent road network.

3.5.	SG Digit codes of the Farms/Farm Portions/Erf numbers for all alternatives
RE/8662	C02700020000866200000
RE/8596	C02700020000859600000
Street Parcel RE/8581	C02700020000858100000
RE/464	C02700020000046400000
Erf 3645	C02700020000364500000

3.6.	**Bulk Sewerage Pipeline**			
	Starting point co-ordinates for all alternatives			
	Latitude (S)	**33º**	**59'**	**2.05"**
	Longitude (E)	**22º**	**29'**	**6.70"**
	Middle point co-ordinates for all alternatives			
	Latitude (S)	**33º**	**58'**	**54.14"**
	Longitude (E)	**22º**	**28'**	**47.74"**
	End point co-ordinates for all alternatives			
	Latitude (S)	**33º**	**58'**	**58.86"**
	Longitude (E)	**22º**	**28'**	**58.25"**
	Sewerage By-Pass Pipeline			
	Starting point co-ordinates for all alternatives			
	Latitude (S)	**33º**	**58'**	**16.97"**
	Longitude (E)	**22º**	**29'**	**3.52"**
	Middle point co-ordinates for all alternatives			
	Latitude (S)	**33º**	**58'**	**19.58"**
	Longitude (E)	**22º**	**29'**	**5.88"**
	End point co-ordinates for all alternatives			
	Latitude (S)	**33º**	**58'**	**20.66"**
	Longitude (E)	**22º**	**29'**	**6.86"**

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):	
	RE/8596	110673.1 m^2
	Street Parcel RE/8581	206728.18 m^2
	RE/8662	22389.46 m^2
	Street Parcel RE/23074	1983.28 m^2
4.2.	Developed footprint of the existing facility and associated infrastructure (if applicable):	N/A
4.3.	Development footprint of the proposed development and associated infrastructure size(s) for all alternatives:	324 m^2
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).	

Sharples Environmental Services cc (SES) have been appointed by Lyners Engineers on behalf of the George Municipality to compile the Basic Assessment Report of the proposed installation of a sewerage pipeline, sewerage by pass line, and additional stormwater outlet structures in Rosemoor, George, Western Cape. Please refer to the figures below for the locality of the proposed pipeline routes and stormwater outlet structures.

Figure 7: Locality Map.

Figure 8: Close-up Locality Map of Bulk Sewerage Pipeline.

The pipeline will be approximately 1038m in length with varying diameters (250mm and 400mm). Approximately 230m of the pipeline will have a diameter of 250mm and approximately 808m of the

pipeline will have a diameter of 400mm. The pipeline will also connect to adjoining manholes which are part of the sewerage upgrades for Rosemoor (these will occur within existing roads). Please refer to the Figures below for the layout plans of the Rosemoor Sewer Upgrades and Sewerage Pipeline.

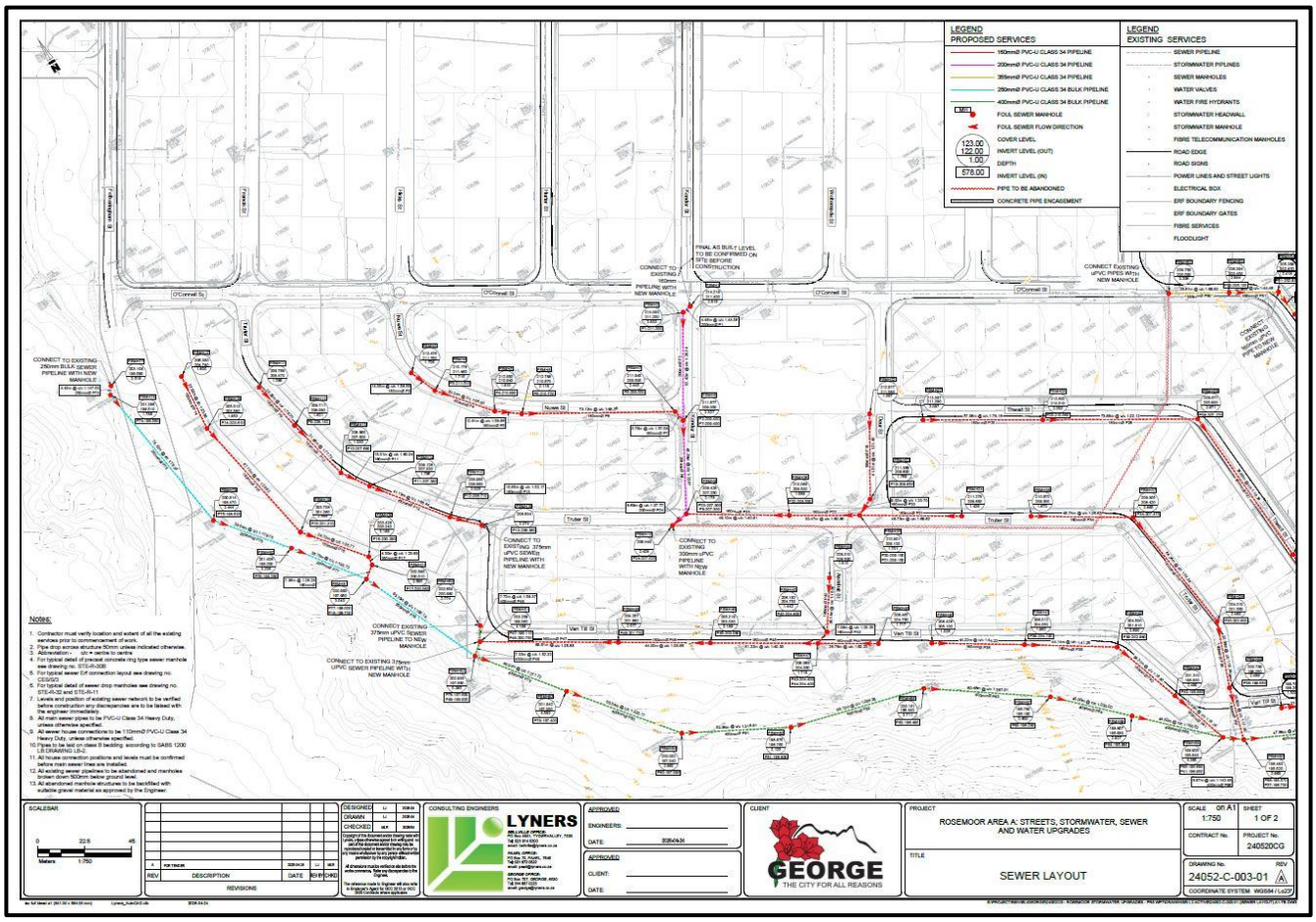


Figure 9: Proposed Sewerage Upgrades for Rosemoor.

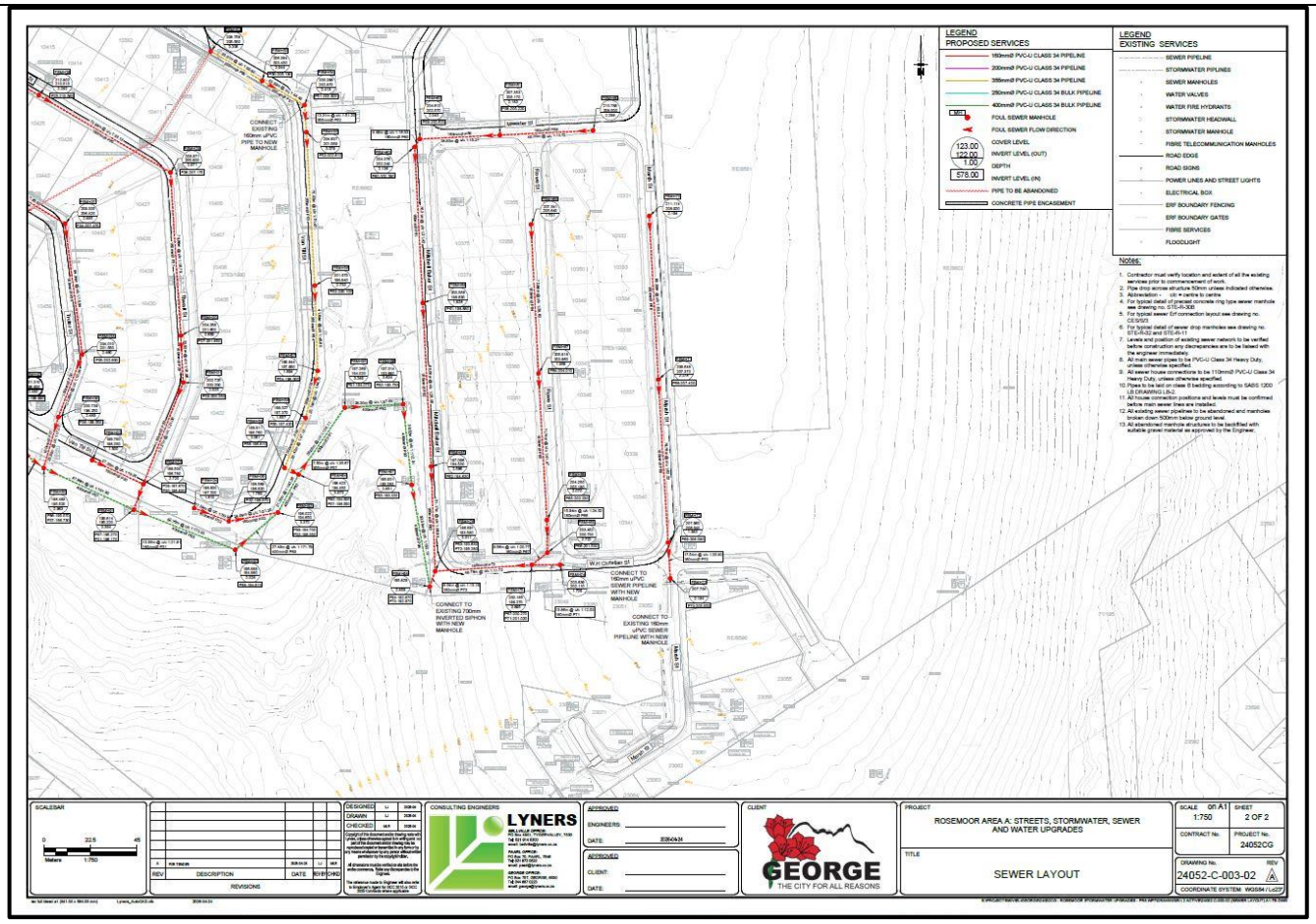


Figure 10: Proposed Sewerage Upgrades for Rosemoor.

Figure 11: Proposed Sewerage By-Pass Line.

The proposed sewerage by-pass pipeline will be approximately 142m in length with a diameter of 500mm.

Figure 12: Proposed Stormwater Outlet Structures.

Nine stormwater outlet structures are proposed to be constructed, as illustrated in Figure 12 above. The stormwater outlet structures will each have a development footprint of approximately 36m^2, which will equal a total development footprint of 324m^2. The stormwater outlet structures will be implemented according to two design options shown below, the larger design structure has an approximate footprint of 36m^2 and it is assumed that this will be the structure implement. However, on site during construction it could be determined that the smaller structure will be implemented.

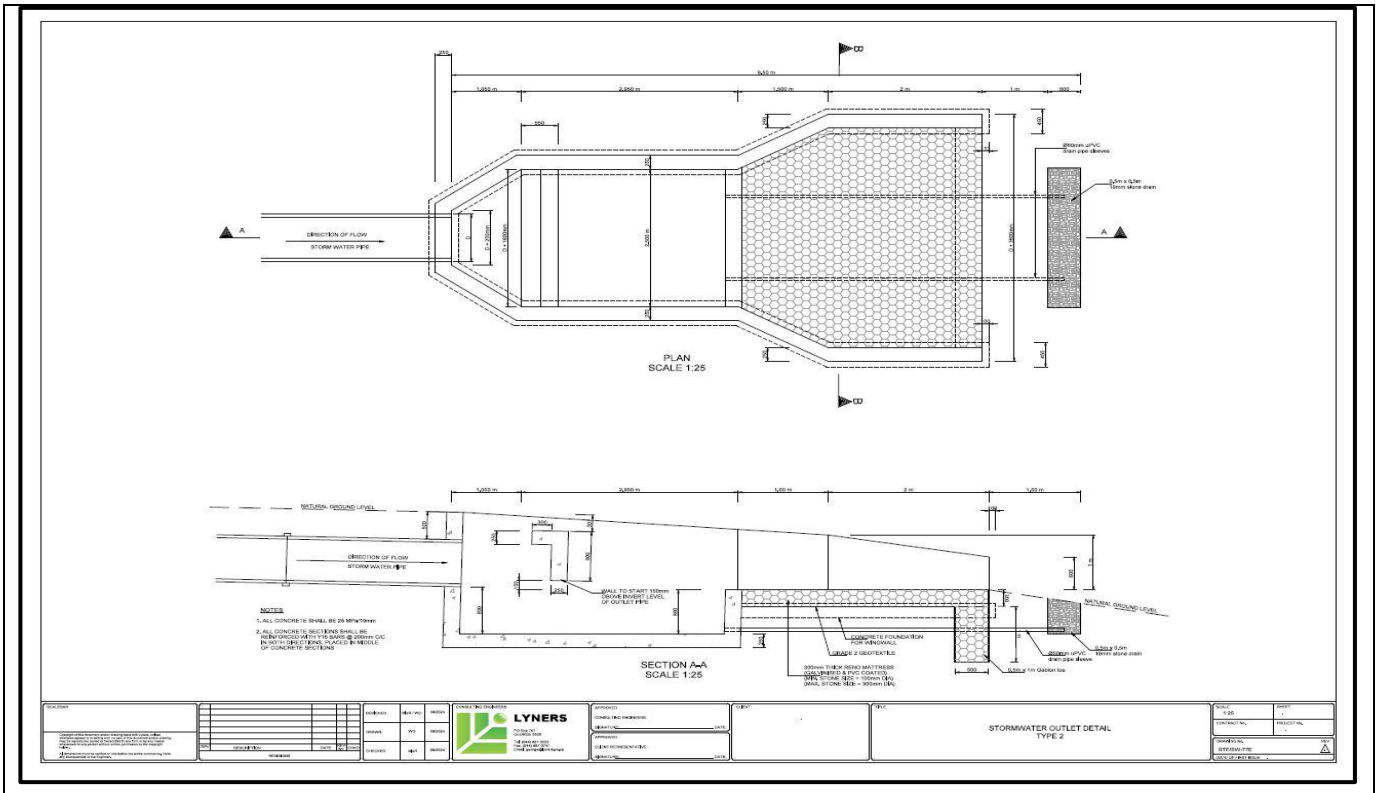


Figure 13: Stormwater Outlet Structure Design Drawing 1.

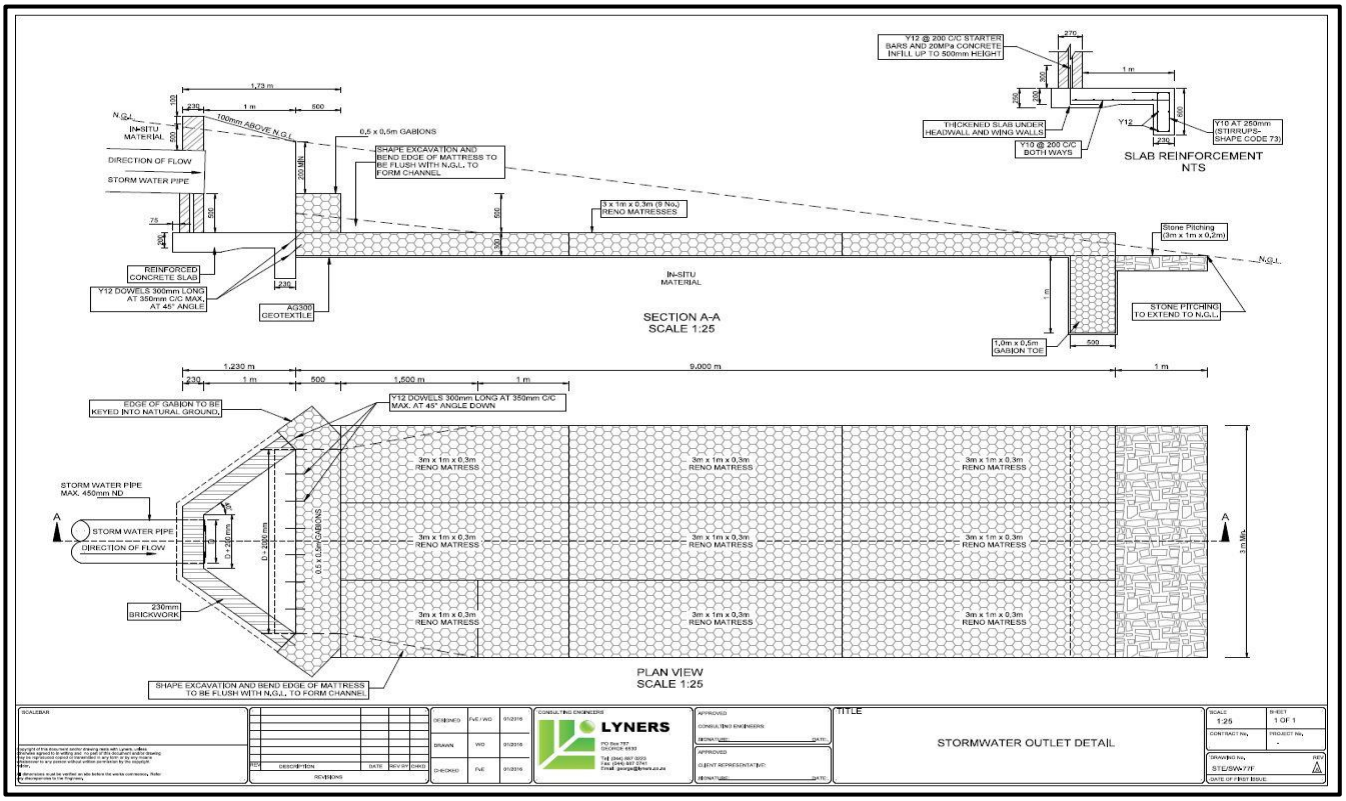


Figure 14: Stormwater Outlet Structure Design Drawing 2.

4.5.	Indicate how access to the proposed site(s) will be obtained for all alternatives.
The proposed sites will be accessed directly from the adjacent road network.	
4.6.	SG Digit code(s) of the proposed site(s) for all alternatives:
RE/8596	C02700020000859600000

Street Parcel RE/8581	C02700020000858100000
RE/8662	C02700020000866200000
Street Parcel RE/23074	C02700020002307400000

4.7.	Coordinates of the proposed site(s) for all alternatives:			
SO 1	Latitude (S)	**33º**	**58′**	**49.79″**
	Longitude (E)	**22º**	**28′**	**40.86″**
SO 2	Latitude (S)	**33º**	**58′**	**54.29″**
	Longitude (E)	**22º**	**28′**	**49.80″**
SO 3	Latitude (S)	**33º**	**58′**	**57.77″**
	Longitude (E)	**22º**	**28′**	**55.04″**
SO 4	Latitude (S)	**33º**	**58′**	**57.37″**
	Longitude (E)	**22º**	**28′**	**56.04″**
SO 5	Latitude (S)	**33º**	**58′**	**54.11″**
	Longitude (E)	**22º**	**28′**	**56.84″**
SO 6	Latitude (S)	**33º**	**58′**	**54.59″**
	Longitude (E)	**22º**	**28′**	**58.12″**
SO 7	Latitude (S)	**33º**	**58′**	**58.33″**
	Longitude (E)	**22º**	**28′**	**58.43″**
SO 8	Latitude (S)	**33º**	**58′**	**59.38″**
	Longitude (E)	**22º**	**29′**	**3.02″**
SO 9	Latitude (S)	**33º**	**59′**	**1.17″**
	Longitude (E)	**22º**	**29′**	**0.71″**

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.

- Amended Environmental Impact Assessment Regulations, GN No. R. 324 – 327 (7 April 2017)
- The Constitution of the Republic of South Africa, 1996 (Act 108 of 1996)
- Spatial Planning and Land Use Management Act, No. 16 of 2013 (SPLUMA)
- Infrastructure Development Act, 2014 (Act No. 23 of 2014)
- The National Environmental Management Laws Amendment Act, 2022

4. Policies

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

- National Development Plan 2030 (2012);
- Western Cape Provincial Spatial Development Framework (PSDF) 2014;
- George Municipality Spatial Development Framework (SDF);

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.

Guideline on Need and Desirability (2013/2017)	Guideline considered during the assessment of the Need and Desirability of the proposed development project.
Guideline on Environmental Management Plans (2005)	Guideline considered in the compilation of the EMP attached to this Basic Assessment Report.
Guideline for the Review of Specialist Input into the EIA Process (2005)	Guideline considered during the review and integration of specialist input into this Basic Assessment Report.
Integrated Environmental Management Information Series 7: Cumulative Effects Assessment (2004)	Guideline considered during the assessment of the cumulative effect of the identified impacts.
Guideline on Public Participation (2013)	Guideline considered in the undertaking of the public participation for the proposed development. All relevant provisions contained in the guideline were adhered to in the basic assessment process as appropriate, except where an exemption/deviation has been granted by the Competent Authority.
Guideline on Alternatives (2013)	Guideline considered when identifying and evaluating possible alternatives for the proposed development. Alternatives that were considered in the impact assessment process are reported on in this Basic Assessment Report (see Section E).

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

The following specialist studies were undertaken for this proposal:

Specialist Assessment	Assessment Protocol
Aquatic Biodiversity Assessment	Aquatic
Terrestrial Biodiversity Assessment	Terrestrial
Plant Species Assessment	Plant
Animal Species	Animal
Archaeological and Cultural Heritage Assessment – NID	General

SECTION D: APPLICABLE LISTED ACTIVITIES

List the applicable activities in terms of the NEMA EIA Regulations

Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 1**	Describe the portion of the proposed development to which the applicable listed activity relates.
10	**The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes –** (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where— (a) such infrastructure is for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	The bulk sewerage pipeline is approximately 1038m in length however, only 808m of the pipeline will have a diameter above 0.36m (400mm). The sewer by-pass pipeline will be 142m in length with an internal diameter of 0.50m (500mm), **therefore this activity is not triggered as the total length of pipeline upgrades with a diameter of more than 0.36m does not exceed the 1000m threshold.**
12	**The development of—** (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or **(ii) infrastructure or structures with a physical footprint of 100 square metres or more;** where such development occurs— (a) within a watercourse; (b) in front of a development setback; or **(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; —** excluding— (aa) the development of infrastructure or structures within existing ports or harbours	he pipeline route crosses a non-perennial drainage line, and it occurs within 32m of non-perennial drainage lines. The development footprint of the pipeline is approximately 380.8 m^2. In addition the stormwater outlet structures 4,5,6 and 7 are situated within 32m of a non-perennial drainage line, with a total combined footprint of approximately 144m^2. **Therefore, this activity will be triggered by the proposed development.**

	that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; (ee) where such development occurs within existing roads, road reserves or railway line reserves; or (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.	
19	**The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;** but excluding where such infilling, depositing, dredging, excavation, removal or moving— (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	Non-perennial drainage lines cross the pipeline route and stormwater outlet structure number 6, this could result in the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse. **Therefore, this activity is triggered.**
27	**The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—** **(i) the undertaking of a linear activity**; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The total disturbance area of the bulk sewerage line and the by pass line will be greater than 1 hectare (approximately 11800m^2), however this is for a linear activity (+/- 10m disturbance corridor across 1370m). **Therefore, this activity will not be triggered by the proposed development.** The total development footprint for the stormwater outlet structures will be approximately 324m^2, **therefore this activity is not triggered.**

46	**The expansion and related operation of infrastructure for the bulk transportation of sewage**, effluent, process water, waste water, return water, industrial discharge or slimes where the existing infrastructure— (i) has an internal diameter of 0,36 metres or more; or (ii) has a peak throughput of 120 litres per second or more; and (a) where the facility or infrastructure is expanded by more than 1 000 metres in length; or (b) where the throughput capacity of the facility or infrastructure will be increased by 10% or more; excluding where such expansion— (aa) relates to the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes within a road reserve or railway line reserve; or (bb) will occur within an urban area.	The proposed pipeline will be a new activity and not an expansion of infrastructure and only 808m of the pipeline will have a diameter above 0.36m (400mm). The sewer by-pass pipeline will be 142m in length with an internal diameter of 0.50m (500mm), **therefore this activity is not triggered as the total length of pipeline upgrades with a diameter of more than 0.36m does not exceed the 1000m threshold and it not an expansion activity.**
Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 3**	Describe the portion of the proposed development to which the applicable listed activity relates.
12	**The clearance of an area of 300 square metres or more of indigenous vegetation** except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a Maintenance management plan. **i. Western Cape** **i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity** **Assessment 2004;** **ii. Within critical biodiversity areas identified in bioregional plans;** iii. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas; iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or v. On land designated for protection or conservation purposes in an Environmental	The pipeline route, by-pass line and stormwater outlet structures will entail the clearance of more than 300 square meters of vegetation. According to the VegMap 2024 Beta, the area is mapped as having Garden Route Granite Fynbos Vegetation with an Ecosystem Threat Status of Critically Endangered. According to the WCBSP 2023, the pipeline route also intersects with areas mapped as CBAs. **Therefore, this activity will be triggered by the proposed development.**

	Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.	
14	**The development of—** (i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or **(ii) infrastructure or structures with a Physical footprint of 10 square metres or more;** where such development occurs— (a) within a watercourse; (b) in front of a development setback; or **(c) if no development setback has been adopted, within 32metres of a watercourse, measured from the edge of a watercourse;** excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour. **i. Western Cape** **i. Outside urban areas:** (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas listed in terms of an international convention; **(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;** (gg) Core areas in biosphere reserves; or (hh) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined.	The pipeline route crosses a non-perennial drainage line, and it occurs within 32m of non-perennial drainage lines. The development footprint of the pipeline is approximately 380.8 m^2. **Therefore, this activity will be triggered by the proposed development, as the site does is not defined as an urban area.**

Note:

- The listed activities specified above must reconcile with activities applied for in the application form. The onus is on the Applicant to ensure that all applicable listed activities are included in the application. If a specific listed activity is not included in an Environmental Authorisation, a new application for Environmental Authorisation will have to be submitted.
- Where additional listed activities have been identified, that have not been included in the application form, and amended application form must be submitted to the competent authority.

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

~~Activity No(s):~~	~~Provide the relevant **Basic Assessment Activity(ies)** as set out in **Category A**~~	~~Describe the portion of the proposed development to which the applicable listed activity relates.~~

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

~~Activity No(s):~~	~~Provide the relevant **Listed Activity(ies)**~~	~~Describe the portion of the proposed development to which the applicable listed activity relates.~~

SECTION E: PLANNING CONTEXT AND NEED AND DESIRABILITY

1.	Provide a description of the preferred alternative.

Sharples Environmental Services cc (SES) have been appointed by Lyners Engineers on behalf of the George Municipality to compile the Basic Assessment Report of the proposed installation of a sewerage pipeline, sewerage by pass line, and additional stormwater outlet structures in Rosemoor, George, Western Cape. Please refer to the figures below for the locality of the proposed pipeline routes and stormwater outlet structures.

Figure 15: Locality Map.

Figure 16: Close-up Locality Map of Bulk Sewerage Pipeline.

The pipeline will be approximately 1038m in length with varying diameters (250mm and 400mm). Approximately 230m of the pipeline will have a diameter of 250mm and approximately 808m of the pipeline will have a diameter of 400mm. The pipeline will also connect to adjoining manholes which are part of the sewerage upgrades for Rosemoor (these will occur within existing roads). Please refer to the Figures below for the layout plans of the Rosemoor Sewer Upgrades and Sewerage Pipeline.

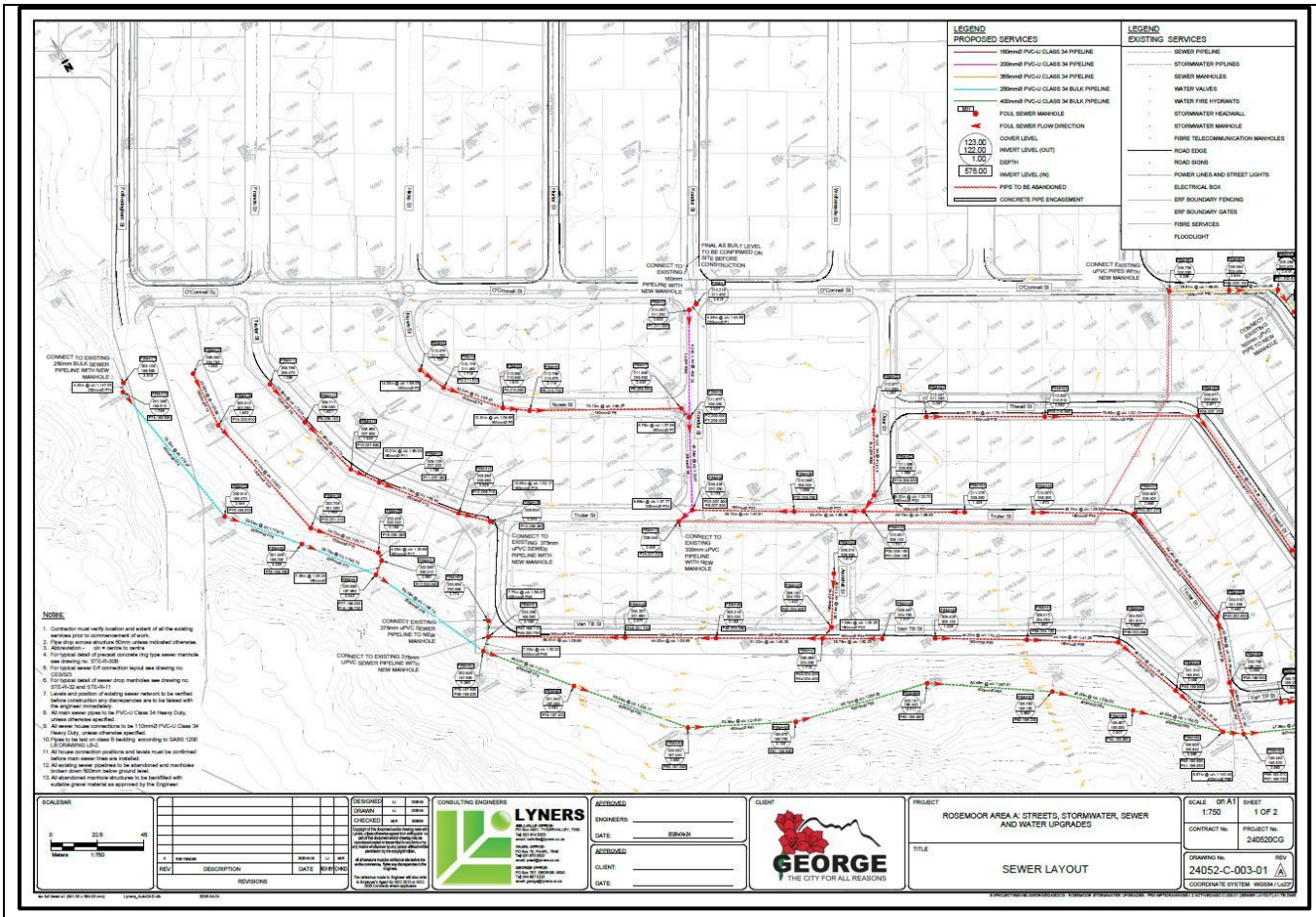


Figure 17: Proposed Sewerage Upgrades for Rosemoor.

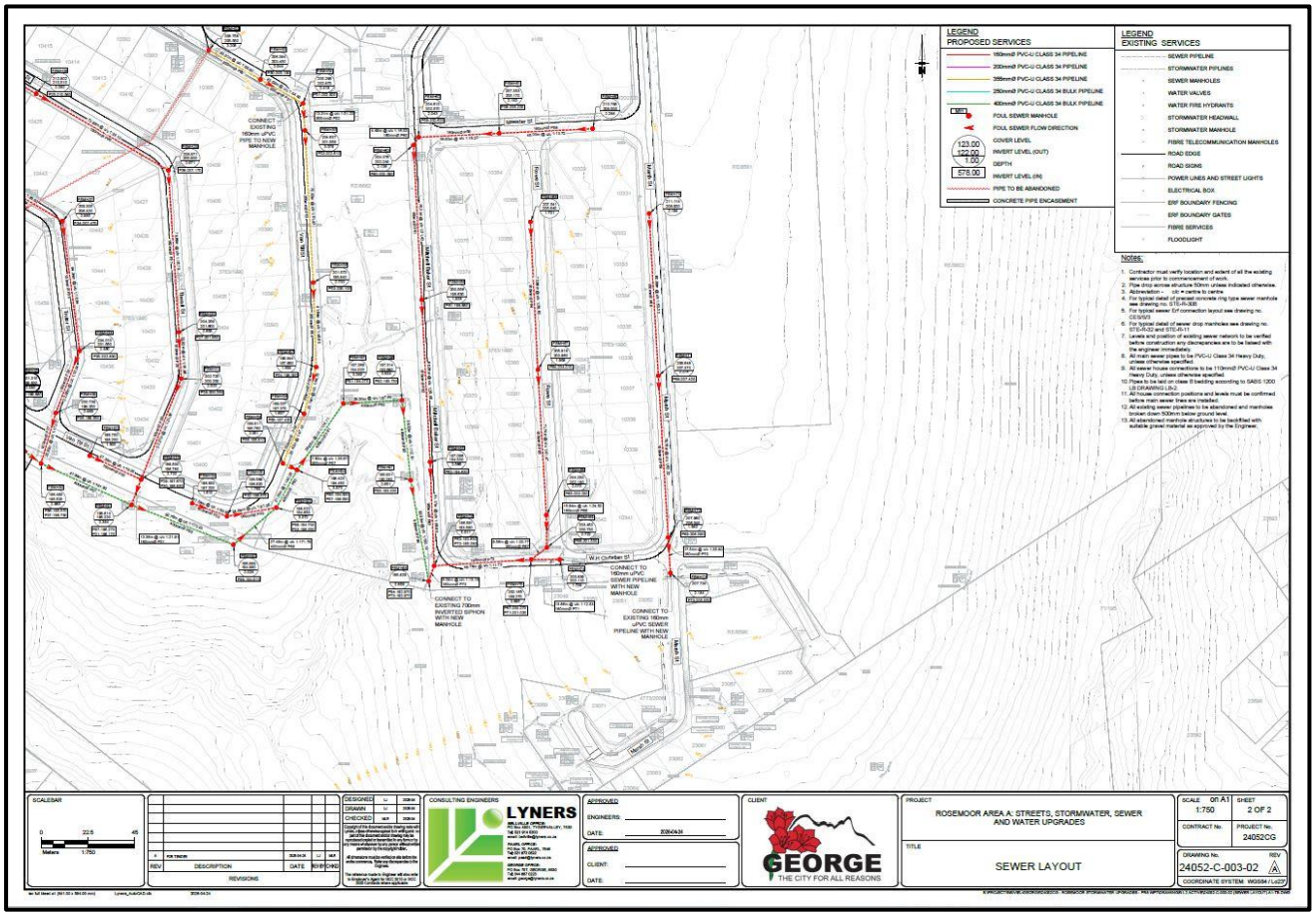


Figure 18: Proposed Sewerage Upgrades for Rosemoor.

Figure 19: Proposed Sewerage By-Pass Line.

The proposed sewerage by-pass pipeline will be approximately 142m in length with a diameter of 500mm.

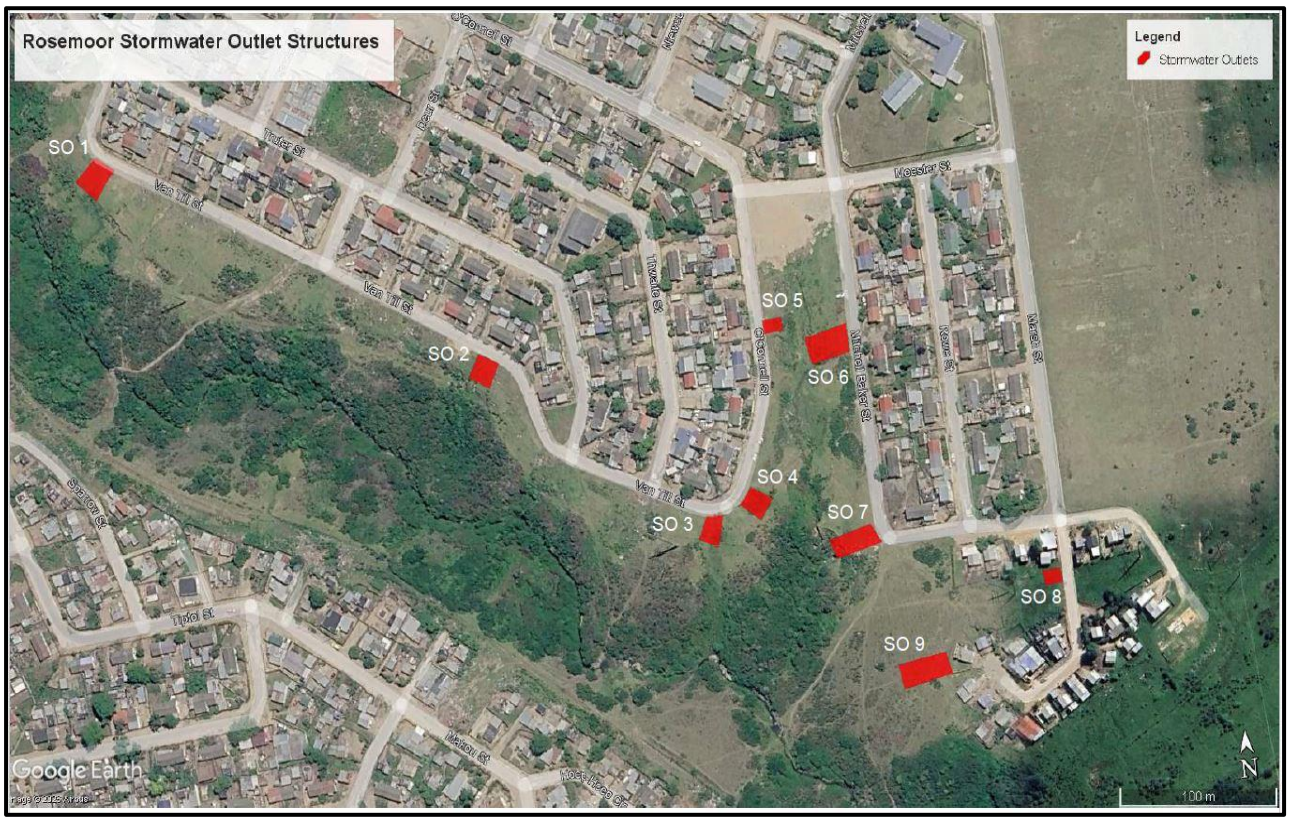


Figure 20: Proposed Stormwater Outlet Structures.

Nine stormwater outlet structures are proposed to be constructed, as illustrated in Figure 12 above. The stormwater outlet structures will each have a development footprint of approximately 36m^2, which will equal a total development footprint of 324m^2. The stormwater outlet structures will be implemented according to two design options shown below, the larger design structure has an approximate footprint of 36m^2 and it is assumed that this will be the structure implement. However, on site during construction it could be determined that the smaller structure will be implemented.

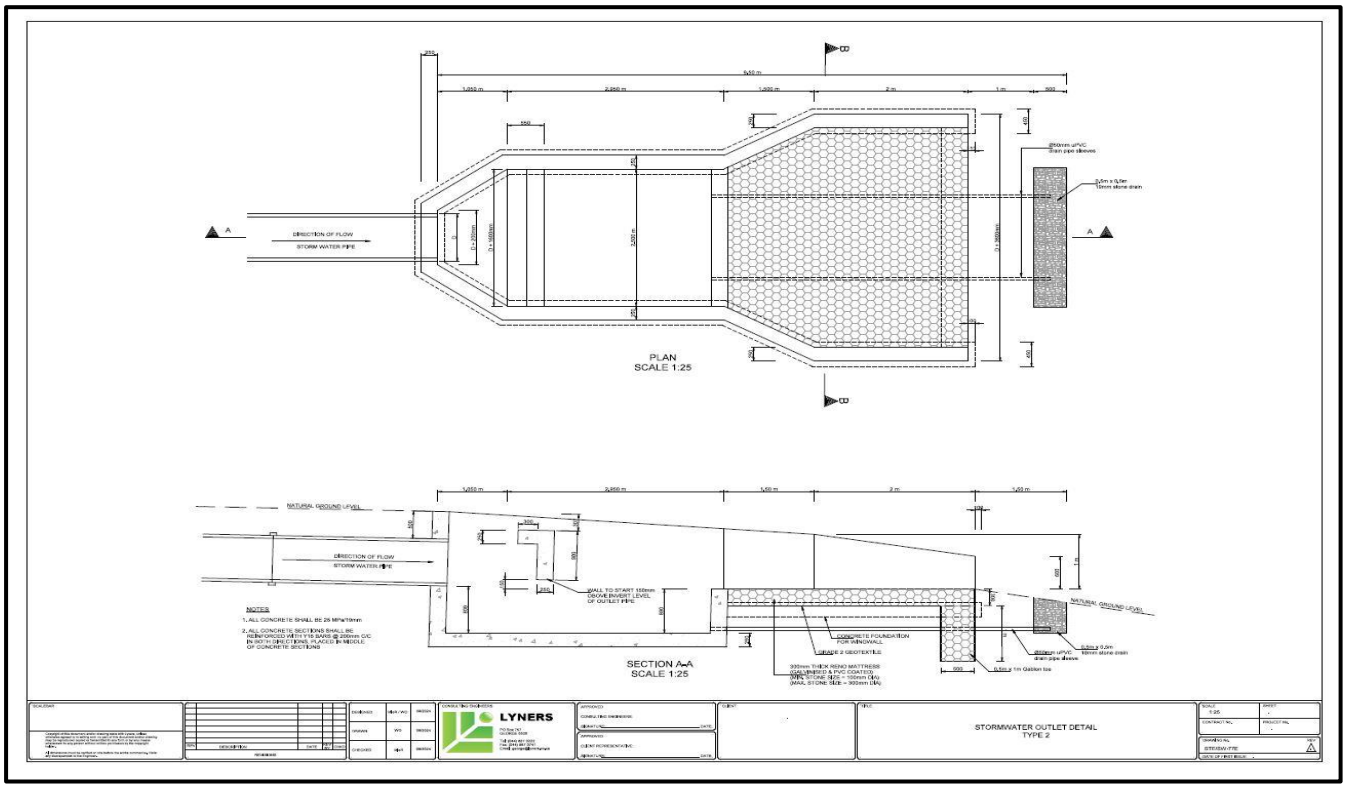


Figure 21: Stormwater Outlet Structure Design Drawing 1.

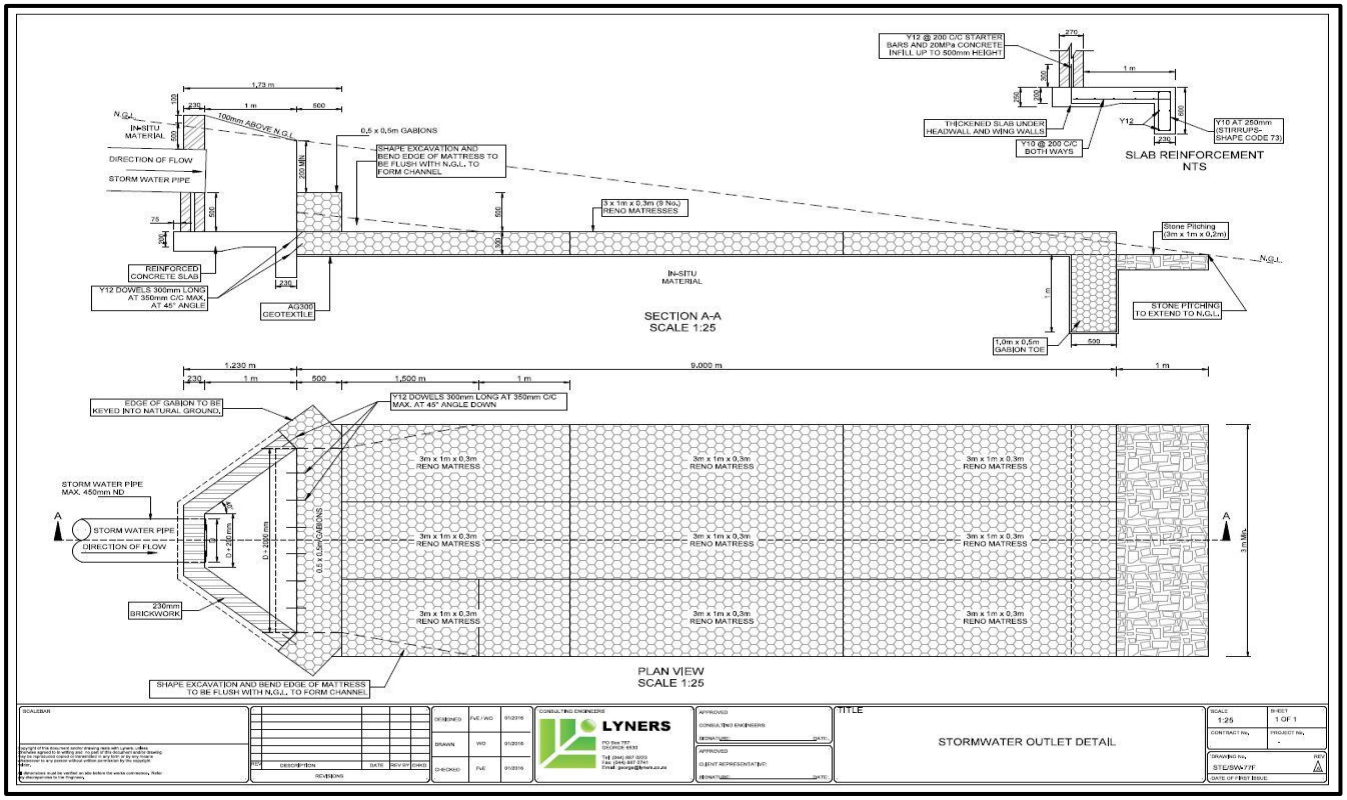


Figure 22: Stormwater Outlet Structure Design Drawing 2.

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 proposal is for the replacement of an existing bulk sewerage pipeline, sewerage by-pass pipeline and the upgrading of existing stormwater outlets, therefore the proposal is in line with the existing land use rights as there is currently a bulk sewerage pipeline running along the proposed route and stormwater outlet pipes.

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 potential conflicts associated with this proposal.

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

The proposed development is aligned with the western cape provincial spatial development framework (PSDF) in the following ways:

The sewerage pipeline proposal is aligned with the Western Cape Provincial Spatial Development Framework in the following ways:

Infrastructure-Led Development and Service Delivery
The PSDF promotes the provision, upgrading and maintenance of bulk and municipal infrastructure to support existing settlements and ensure sustainable service delivery. The proposed sewerage pipelines and stormwater outlets form part of the upgrading of existing municipal wastewater and stormwater infrastructure in Rosemoor and directly supports improved sanitation services within an established urban area.

Focus on Existing Urban Areas and Infill Development
The PSDF prioritises development within existing urban footprints to limit urban sprawl and reduce pressure on natural and agricultural areas. The proposed pipelines and stormwater outlets are located entirely within the developed suburb of Rosemoor and will largely be installed within existing road reserves and previously disturbed areas, thereby complying with the PSDF's emphasis on urban infill and consolidation.

Efficient Use of Existing Infrastructure and Corridors
The PSDF encourages the use of existing infrastructure corridors and disturbed areas for new infrastructure development. The proposed pipeline routes and stormwater outlets follows existing roads and municipal service corridors and connects to existing manholes and stormwater inlets, minimising the need for new disturbance and avoiding sensitive or undeveloped areas.

Environmental Sustainability and Risk Reduction
By upgrading sewerage infrastructure, the proposed development contributes to reducing the risk of sewer overflows, leakages and associated pollution of surface and groundwater resources. This is consistent with the PSDF's objective of promoting environmentally sustainable development and protecting ecological systems within urban environments. By upgrading stormwater outlet structures, the proposed development contributes to reducing floods during heavy rainfall periods in Rosemoor, and by reducing erosion and subsequent modification to the surrounding wetland habitat.

Support for Socio-Economic Well-Being
Reliable and adequate sanitation infrastructure is a key component of healthy, functional communities. The proposed sewerage and stormwater upgrades will improve service reliability for residents of Rosemoor, supporting the PSDF's broader goals of improving quality of life, public health and urban resilience.

In summary, the proposed sewerage pipeline upgrades and stormwater outlet upgrades are consistent with the western cape PSDF as it represents infrastructure-led development within an existing urban area, utilises established service corridors, limits environmental disturbance, and supports sustainable, well-functioning human settlements.

4.2	The Integrated Development Plan of the local municipality.

The proposed development is aligned with the Integrated Development Plan (IDP) of the George Municipality in the following respects:

Upgrading and Maintenance of Bulk Municipal Infrastructure
The George Municipal IDP identifies the upgrading and maintenance of water and sanitation infrastructure as a core municipal priority to ensure reliable service delivery and to accommodate existing and future demand. The proposed sewerage and stormwater upgrades form part of planned sewerage and stormwater upgrades in Rosemoor and directly contributes to strengthening the municipal wastewater and stormwater network.

Improved Basic Service Delivery
A key objective of the IDP is to provide safe, reliable and efficient basic services, including sanitation, to all communities within the municipal area. The proposed development supports this objective by improving the capacity and reliability of the sewerage and stormwater infrastructure serving an established residential area, thereby reducing the risk of system failures and service disruptions.

Development within Existing Urban Areas
The IDP promotes development and infrastructure investment within existing urban areas to support densification, optimise the use of existing services and limit unnecessary expansion into undeveloped land. The proposed pipelines and stormwater outlets are located within the existing suburb of Rosemoor and will largely be installed within existing road reserves and previously disturbed areas, which is consistent with this approach.

Environmental protection and sustainable development
The IDP emphasises the importance of sustainable development and the protection of environmental resources while meeting infrastructure needs. By upgrading ageing sewer and stormwater infrastructure, the proposed development will help reduce the risk of sewer spillages, flooding, modification to the surrounding wetland habitat and pollution of the surrounding environment, supporting the municipality's environmental management objectives.

Support for Human Settlement Functionality and Public Health
Reliable sanitation and stormwater infrastructure is fundamental to healthy and functional human settlements. The proposed sewerage and stormwater upgrades will contribute to improved public health outcomes and the long-term functionality of the Rosemoor area, in line with the IDP's social development and quality-of-life goals.

In summary, the proposed sewerage pipelines and stormwater upgrades are consistent with the objectives and priorities of the George Municipality Integrated Development Plan, as it supports infrastructure-led development, improved service delivery, environmental sustainability, and the efficient functioning of an existing urban area.

4.3.	The Spatial Development Framework of the local municipality.

The proposed development is aligned with the Spatial Development Framework (SDF) of the George Municipality in the following ways:

Development within the Existing Urban Footprint
The George Municipal SDF promotes development and infrastructure investment within established urban areas in order to limit urban sprawl and protect surrounding natural and agricultural resources. The proposed sewerage pipelines and stormwater outlets are located entirely within the existing suburb of Rosemoor and therefore complies with the SDF's spatial vision of urban consolidation.

Use of Existing Infrastructure Corridors
The SDF encourages the utilisation of existing infrastructure and transport corridors for new services to minimise additional land disturbance. The proposed sewage and stormwater network upgrades will be installed predominantly within existing road reserves and previously disturbed areas which is consistent with this principle.

Support for Efficient and Sustainable Service Delivery
A key objective of the SDF is to ensure that bulk and internal municipal infrastructure supports the long-term sustainability and functionality of urban areas. The proposed sewerage and stormwater upgrades will improve the capacity and reliability of the wastewater and stormwater system in Rosemoor, thereby supporting efficient service delivery in line with the SDF.

Environmental Management within Urban Areas

The SDF recognises the importance of protecting environmental resources while accommodating necessary infrastructure development. By upgrading existing sewer and stormwater infrastructure, the proposed development will reduce the risk of sewer overflows, flooding, erosion and subsequent modification of the nearby wetland habitat and associated environmental pollution, supporting the SDF's objectives of environmentally responsible development within the urban environment.

Strengthening Human Settlements
The SDF aims to promote well-functioning, healthy and resilient human settlements. Reliable sanitation infrastructure is a critical component of this objective. The proposed sewerage and stormwater upgrades will contribute to improved public health and service reliability for the Rosemoor community, in alignment with the SDF's settlement planning goals.

In summary, the proposed sewerage and stormwater upgrades are consistent with the objectives and spatial principles of the George Municipality Spatial Development Framework, as it represents infrastructure-led development within an existing urban area, makes use of established service corridors, limits additional environmental disturbance, and supports sustainable urban functionality.

4.4.	The Environmental Management Framework applicable to the area.

No EMF for the area.

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

Comments from authorities to be included in the Final BAR following comments received during the public participation process.

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

The Western Cape Biodiversity Spatial Plan (2023, Figure 23 & 24) indicates that most of the proposed Sewer pipeline and stormwater outlet footprints fall within transformed roads and road reserves, with predominantly the 250mm & 400 mm lines within areas designated CBA 1 & 2 and ESA 2, which are associated with the watercourses and surrounding vegetation that are undeveloped within the urban area.

The Biodiversity Spatial Plan indicates areas of land as well as aquatic features which must to be safeguarded in their natural state if biodiversity is to persist and ecosystems are to continue functioning. Land in this category is referred to as a Critical Biodiversity Area. CBAs incorporate:

I. areas that need to be safeguarded in order to meet national biodiversity thresholds.
II. areas required to ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem services; and/or
III. important locations for biodiversity features or rare species.

Ecological Support Areas (ESAs) are supporting zones required to prevent the degradation of Critical Biodiversity Areas and Protected Areas. An ESA may be an ecological process area that connects and therefore sustains Critical Biodiversity Areas or a terrestrial feature. None are present within the site or immediate vicinity. Defining criteria and recommended activities are summarised in Table 1 below.

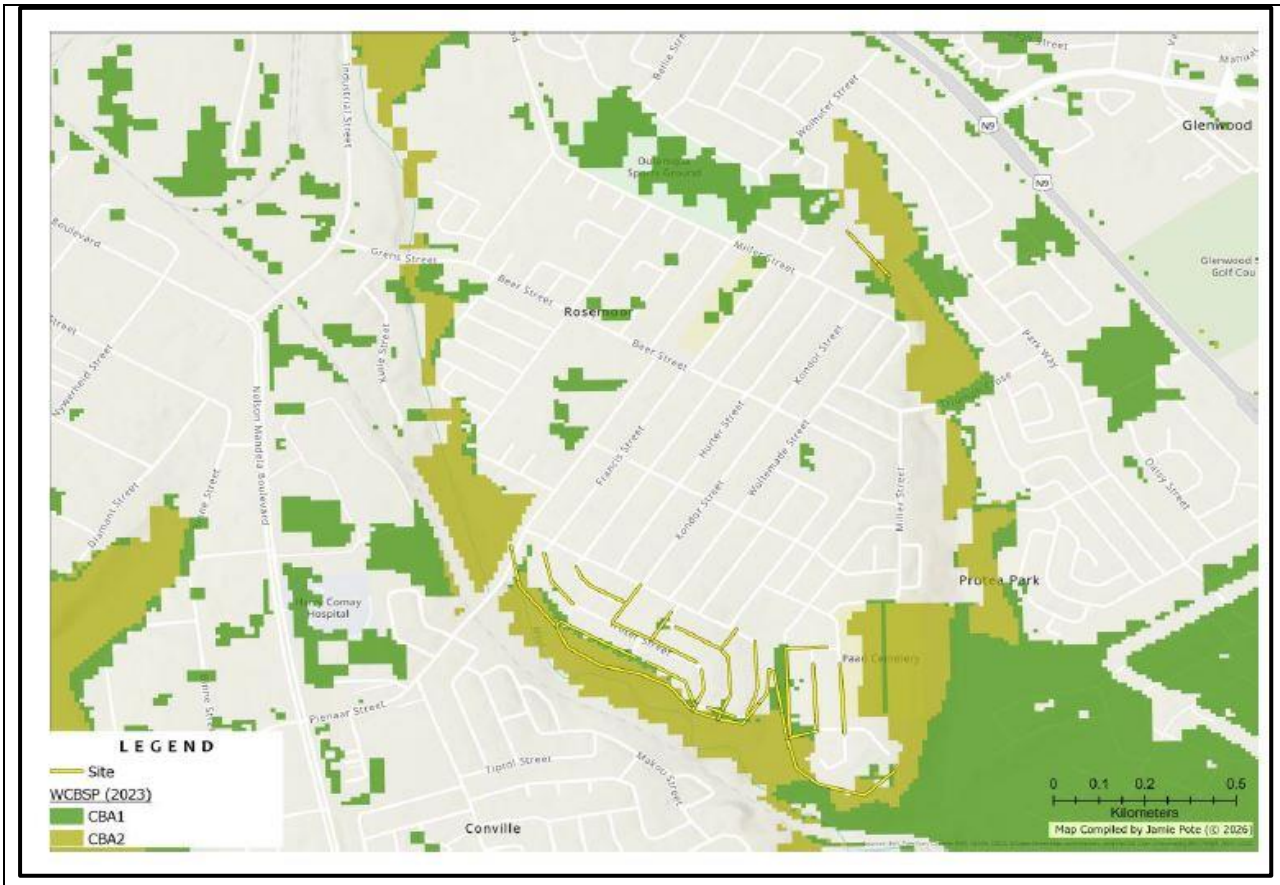


Figure 23: Western Cape Biodiversity Spatial Plan (WCBSP, 2023) –The site does overlap with some designated CBA 1, CBA 2 and ESA 2 areas (Sewerage pipelines).

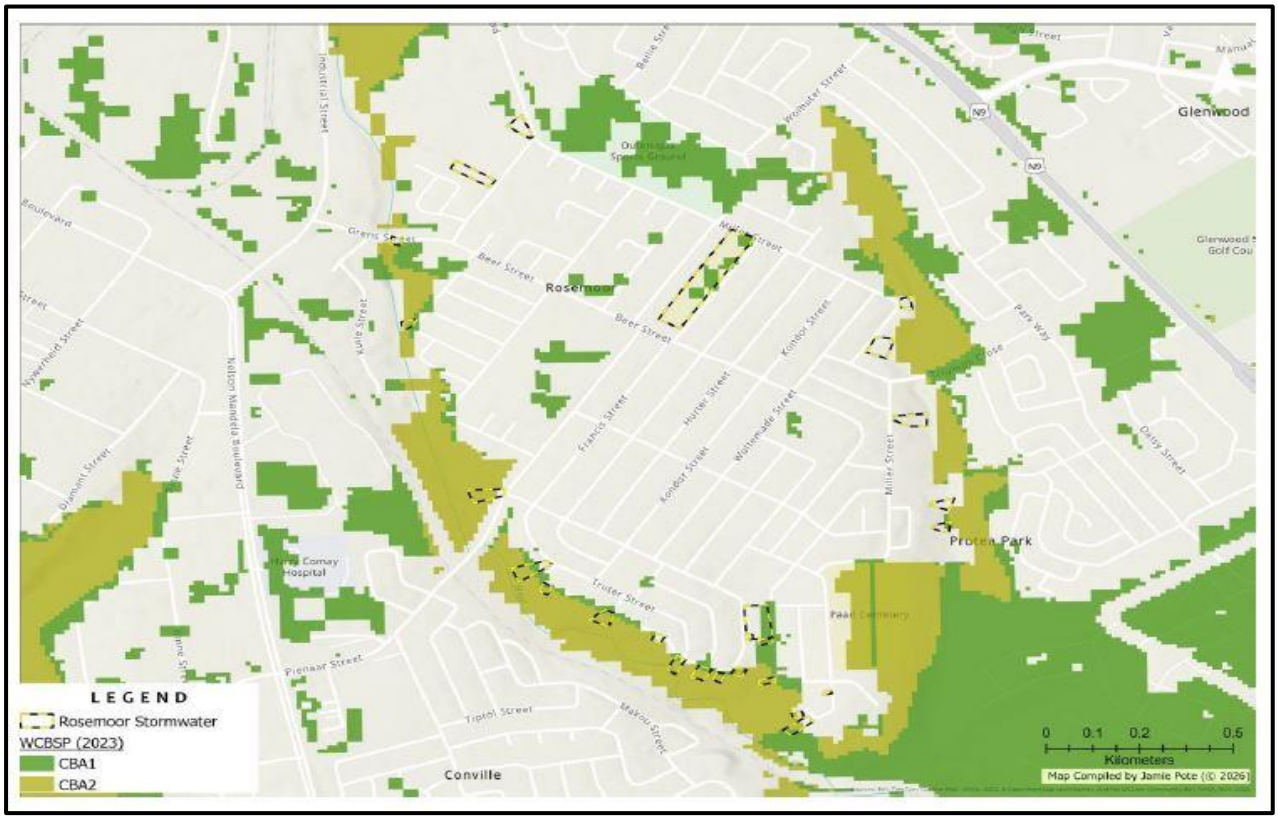


Figure 24: Western Cape Biodiversity Spatial Plan (WCBSP, 2023) –The site does overlap with some designated CBA 1, CBA 2 and ESA 2 areas (Stormwater outlets).

Table 1: Criteria defining Critical Biodiversity Areas (Source: WC BSP, 2023):

CBA MAP CATEGORY	DEFINING CRITERIA
Protected Areas (Not Present)	Areas that are proclaimed as protected areas under national or provincial legislation. Must be kept in a natural state, with a management plan focused on maintaining or improving the state of biodiversity. A benchmark for biodiversity.
Critical Biodiversity Areas 1 (CBA) (Present)	Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. Maintain in a natural or near natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.
Critical Biodiversity Areas 1 (CBA 2) (Present)	Areas in a degraded or secondary condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. Maintain in a functional, natural, or near-natural state, with no further loss of natural habitat. These areas should be rehabilitated.
Ecological Support Areas 1 (ESA 1) (Not Present)	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PA's or CBA's and are often vital for delivering ecosystem services. Restore and/or manage to minimise impact on ecological infrastructure functioning; especially soil and water-related services.
Other Natural Areas (ONA) (Present)	Areas that have not been identified as a priority in the current systematic biodiversity plan but retain most of their natural character and perform a range of biodiversity and ecological infrastructure functions. Although they have not been prioritised for biodiversity, they are still an important part of the natural ecosystem. Minimise habitat and species loss and ensure ecosystem functionality through strategic landscape planning. Offers flexibility in permissible land uses, but some authorisation may still be required for high-impact land uses.
No Natural Area Remaining (NNAR) (Present)	Areas that have been modified by human activity to the extent that they are no longer natural, and do not contribute to biodiversity targets. These areas may still provide limited biodiversity and ecological infrastructure functions, even if they are never prioritised for conservation action. Manage in a biodiversity-sensitive manner, aiming to maximise ecological functionality. Offers the most flexibility regarding potential land uses, but some authorisation may still be required for high impact land uses.

7.	Explain how the proposed development is in line with the intention/purpose of the relevant zones as defined in the ICMA.
Not Applicable.	
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 Reports have not changed.	
9.	Explain how the proposed development will optimise vacant land available within an urban area.
The proposed sewerage pipelines and additional stormwater outlets will optimise the use of vacant land within the existing urban area by improving the capacity and efficiency of the municipal wastewater and stormwater network. This infrastructure enhancement enables infill development and densification on serviced plots, reduces pressure for urban expansion, and ensures that municipal investment is focused within the current urban edge.	
10.	Explain how the proposed development will optimise the use of existing resources and infrastructure.
The proposed sewerage pipeline upgrades and stormwater outlet upgrades will optimise the use of existing resources and infrastructure by rehabilitating and re-utilising an existing municipal sewer and stormwater corridor within the urban area. It improves system efficiency, reduces environmental risk, and extends the operational life of existing assets without requiring new bulk infrastructure.	
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).

N/A – it is proposed to upgrade an existing pipeline (service).	
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.

In order to properly interpret the EIA Regulations' requirement to consider "Need and Desirability", it is necessary to turn to the principles contained in NEMA, which serve as a guide for the interpretation, administration and implementation of NEMA and the EIA Regulations. With regard to the issue of "need", it is important to note that this "need" is not the same as the "general purpose and requirements" of the activity. While the "general purpose and requirements" of the activity might to some extent relate to the specific requirements, intentions and reasons that the applicant has for proposing the specific activity, the "need" relates to the interests and needs of the broader public. In this regard the NEMA Principles specifically inter alia require that environmental management must:

- "place people and their needs at the forefront of its concern" and equitably serve their interests;
- "be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option;
- pursue environmental justice "so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person";
- ensure that decisions take "into account the interests, needs and values of all interested and affected parties"; and
- ensure that the environment is "held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage".

Community Wellbeing – Clean Water and Sanitation

Sewer systems are essential to the wellbeing of a community. They help to transport wastewater filled with bacteria out of the area and to a place for treatment, so that clean water can be safely distributed back into the environment. But there's a lot that goes into maintaining this essential infrastructure, and every section of it requires routine inspections maintenance, upgrades and upkeep to protect the community it serves.

Stormwater infrastructure is vital to the wellbeing and resilience of a community. It is designed to collect and channel rainwater runoff away from streets, homes, and public spaces, reducing the risk of flooding, erosion, and water contamination. By safely directing excess water to natural waterways or treatment systems, stormwater networks help protect both the built environment and surrounding ecosystems. However, maintaining this infrastructure is an ongoing responsibility. Drains, culverts, channels, and retention systems all require regular inspections, cleaning, upgrades, and repairs to ensure they function effectively and continue to safeguard the community.

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.

To be included in the Final BAR.

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

To be included in the Final BAR.

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

To be included in the Final BAR.

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

To be included in the Final BAR.

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

To be included in the Final BAR.

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.

To be included in the Final BAR.

Note:

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

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

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

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

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

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

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

SECTION G: DESCRIPTION OF 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.		
1.3.	Indicate above which aquifer your proposed development will be located and explain how this has influenced your proposed development.		
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.		

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.		
Confluent – James Dabrowski			
2.3.	Explain how the presence of watercourse(s) and/or wetlands on the property(ies) has influenced your proposed development.		

(Source: Upgrading of Existing Bulk Sewage Pipeline and Stormwater Outlets, Rosemoor, George, Western Cape. Aquatic Biodiversity – Specialist Assessment. 9 March 2026)

DESKTOP SURVEY:

The existing sewage pipeline and stormwater outlets are located within the upper reaches of the Meul River, which falls within quaternary catchment K30C (Figure 25). The main rivers draining this catchment are the Swart and Kaaimans, both of which originate in the Outeniqua Mountains. The Meul is a smaller river system that flows for a relatively short distance before flowing into the sea. The project area falls within the South-Eastern Coastal Belt (20) Level 1 ecoregion (20.02 Level 2 Ecoregion), which is characterized by moderately undulating plains and low mountains with altitude ranging from 0 to 1 300 m above mean sea level. Mean annual precipitation for the catchment area is approximately 800 mm per year and occurs all year-round, with peaks in October to November and March to April. Dominant natural vegetation in the vegetation comprises broadly of fynbos, renosterveld, dune thicket, and afro-montane forest.

Soils in the catchment area are relatively shallow consisting of a diagnostic pedocutanic duplex soil, with a clear textural contrast between the A and B horizon. The B horizon is however heavily enriched with clay, which serves as a barrier to both root growth and water movement. Sub-surface water therefore tends to flow laterally over the top of the B horizon, through the more coarsely textured A horizon. In addition, the area falls within a very high intensity rainfall zone (Macfarlane and Bredin, 2017). For these reasons, soils are highly erodible and is undoubtedly a contributing factor to the extent of erosion observed in and around watercourses – particularly where stormwater is discharged.

The Meul River originates from the industrial centre of George and passes through a combination of formal residential areas and informal settlements (with poor access to water and sanitation services). Sewage spills from blocked manholes and failing pump stations frequently result in sewage spills into both rivers, which has resulted in closure of recreational activities at Ballots Bay (where the Meul River discharges into the sea). The longest section of the bulk sewer pipeline and stormwater outlets run along the northern slopes of a mapped wetland on the Meul River, while a smaller section of the pipeline runs along the eastern tributary (Figure 26).

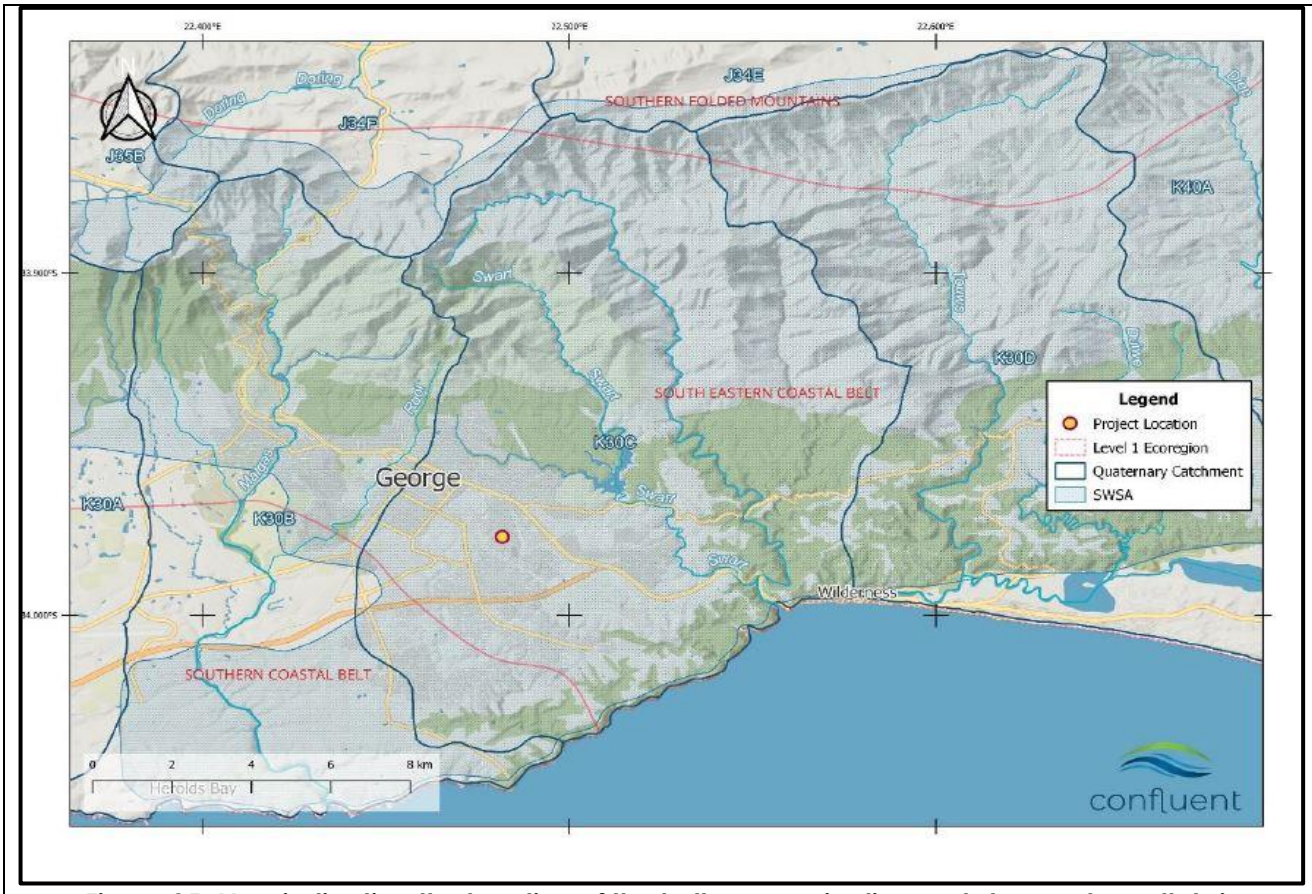


Figure 25: Map indicating the location of the bulk sewer pipeline and stormwater outlets in quaternary catchment K30C.

Figure 26: Map showing the bulk sewer pipeline in relation to mapped watercourses.

National Freshwater Ecosystem Priority Areas

The Meul River is located within sub-quaternary catchment (SQC) 9144 (Figure 27), which, according to the National Freshwater Ecosystem Priority Atlas (NFEPA, Nel et al., 2011), has not been classified as a Freshwater Ecosystem Priority Area (FEPA). The catchment area therefore falls within an SQC that is not considered as being a priority for maintaining freshwater biodiversity at a national scale. This is largely as a result of the extensive urbanisation that has occurred in the catchment area, which has led to the wide-scale degradation of watercourses, particularly in their lower reaches.

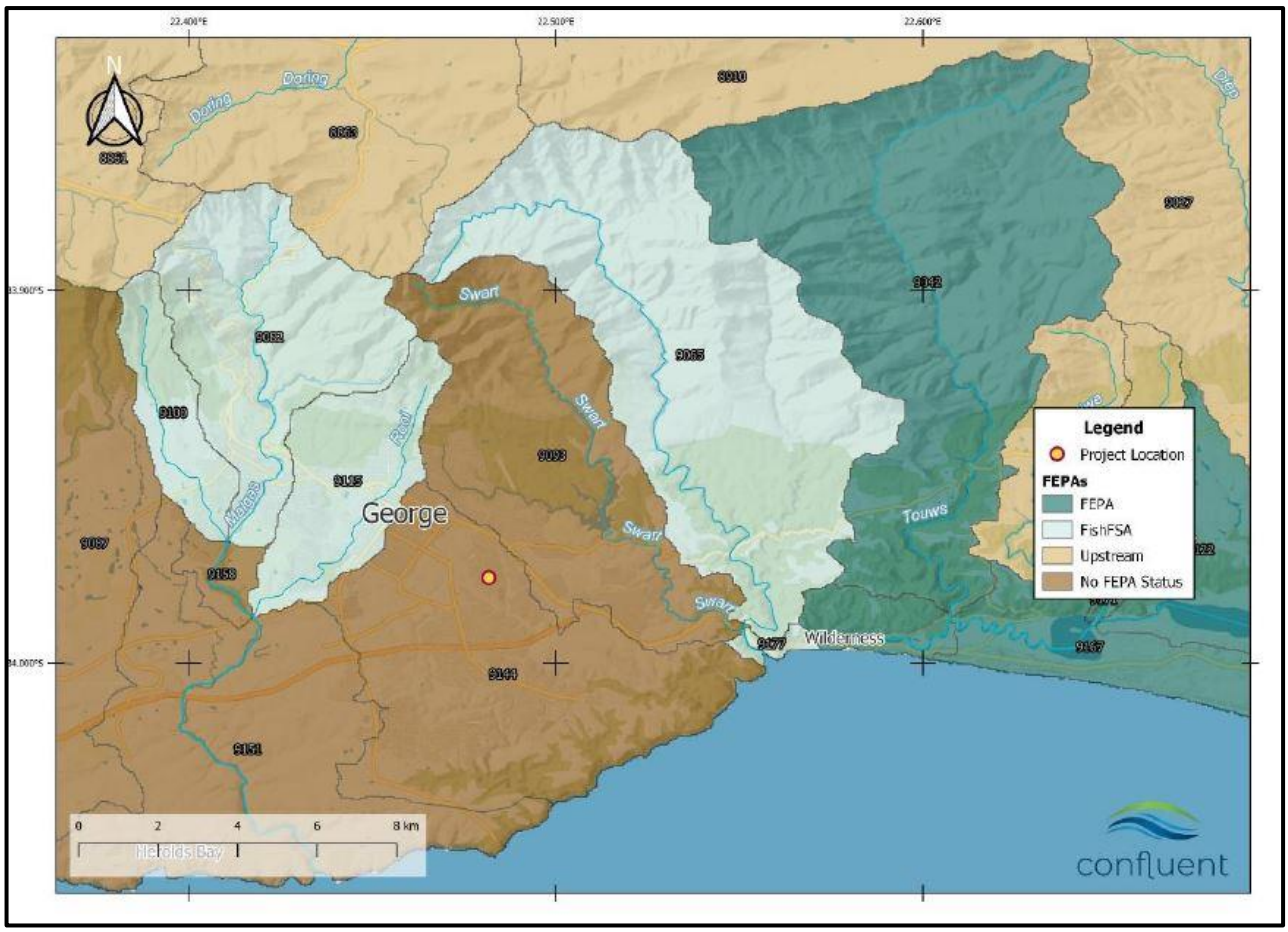


Figure 27: Map indicating the location of bulk sewer pipeline relative to Freshwater Ecosystem Priority Areas.

Strategic Water Source Area

The project area falls within the Outeniqua Strategic Water Source Area (SWSA), which is considered to be of national importance. SWSAs are defined as areas of land that either:

a. Supply a disproportionate (i.e. relatively large) quantity of mean annual surface water runoff in relation to their size and so are considered nationally important; or
b. Have high groundwater recharge and where the groundwater forms a nationally important resource; or
c. Areas that meet both criteria (a) and (b).

SWSAs are vital for water and food security in South Africa and also provide the water used to sustain the economy. Given this context, management and implementation guidelines have been developed with the objective of facilitating and supporting well-informed and proactive land management, land-use and development planning in these nationally important and critical areas (Le Maitre, et al., 2018). The primary principle behind this objective is to protect the quantity and quality of the water they produce by maintaining or improving their condition. The proposed development footprint falls within an urban 'working landscape' and in this context the management objectives are:

- To maintain at least the present condition and ecological functioning of these landscapes;
- To restore where necessary; and

- To limit or avoid further adverse impacts on the sustained production of high-quality water.

In this respect, maintenance activities that minimize erosion and maintain and protect infrastructure are aligned to the broader management objectives for areas in urban SWSAs.

Western Cape Biodiversity Spatial Plan (WCBSP)
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. The WCBSP 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 southern section of pipeline is located within or immediately adjacent to terrestrial CBA2 areas (Figure 28). These are considered as degraded natural areas that are required in order to meet biodiversity targets and have been assigned as CBA status due to the presence of the critically endangered Garden Granite Fynbos vegetation type. Small patches of the wetland along the Meul River have been assigned as aquatic CBA2. Aquatic CBA2 areas are degraded watercourses that are required in order to meet biodiversity targets for species, ecosystems or ecological processes and infrastructure (Table 2).

Table 2: WCBSP categories and associated management objectives.

Category	Description	Management Objectives
CBA2	Areas in a degraded or secondary condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.	Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land-uses are appropriate.

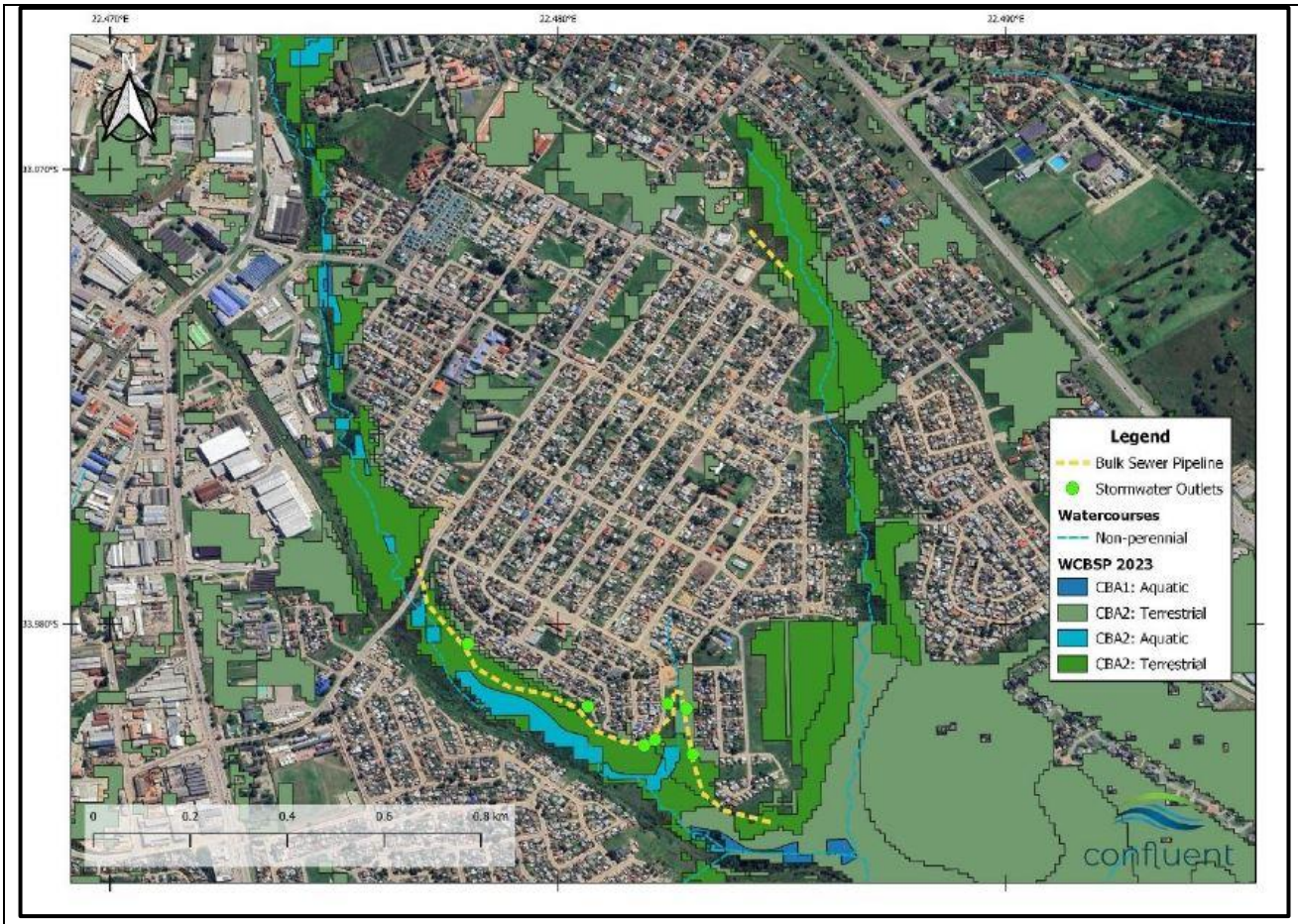


Figure 28: Location of the bulk sewer pipeline in relation to the Western Cape Biodiversity Spatial Plan.

AQUATIC ASSESSMENT

Present Ecological State

While the main Meul River and the eastern tributary can be considered as two distinct hydrogeomorphic units, they are very similar in terms of their fundamental hydrological and geomorphological drivers and the impacts that they currently experience. They were therefore assessed collectively as a single wetland seep system.

The surrounding urban and industrial areas have significantly impacted the ecological condition of the seep wetland system. The wetland receives considerably higher volumes of water due to extensive hardened surfaces in the catchment area, numerous bulk stormwater discharges and numerous smaller discharges from adjacent industrial and residential properties. High stormwater inputs have altered both the hydrological and geomorphological characteristics of the channel, resulting in a heavily incised channel (up to 3 m deep) and a net loss of sediment from the system. The incised channel acts as a drain and will have contributed to accelerating the drawdown of water through the soil profile of the adjacent wetland seeps (i.e. drying out wetland habitat to an extent). Large sections of the western extent of the Meul River have been historically infilled for the establishment of industrial warehouses (above and below Grens Street).

In some stretches, mowing and clearing of vegetation immediately adjacent to the edge of the bank full channel has also contributed to the erosion of the banks of the channel. Roots of vegetation play an important role in binding the soil and conversion from deeply rooted shrubs and trees to shallow-rooted kikuyu lawns will have compromised the ability of the streambank to withstand high volume stormwater flows. It was evident that the most serious bank erosion had occurred along sections where vegetation had been cleared right up to the edge of the embankment.

Water quality has been severely compromised by input of stormwater originating from urban and industrial areas and by sewage input from leaking infrastructure. Bulk sewer pipelines are located along the entire length of the channel and are frequently blocked, leading to the discharge of raw sewage into the system. Existing stormwater outlets discharge relatively high up onto the unprotected slope and have caused several erosion gullies that extend into wetland seep vegetation along the banks. Significant quantities of solid waste and litter have been dumped into these gullies, which acts as source of solid waste pollution to the wetland and Meul River.

Based on the impacts observed the PES of the wetland is **D – Largely Modified.**

Table 3: Wet Health scores for the seep wetland system along the Meul River and its eastern tributary.

PES Assessment	Hydrology	Geomorphology	Water Quality	Vegetation
Impact Score	5.6	2.8	3.3	4.0
PES Score (%)	44%	72%	67%	60%
Ecological Category	D	C	C	D
Trajectory of change	↑	↑	↑	
Confidence (revised results)	Medium	Not rated	Not rated	Not rated
Combined Impact Score	4.1			
Combined PES Score (%)	59%			
Combined Ecological Category	D			

Ecological Importance and Sensitivity

Given the current PES, the location of the wetland within an intensive urban area and the relatively low diversity of habitat types, the ecological importance of the wetland is relatively Low (Table 4). The seep wetland is primarily driven by sub-surface flows and is therefore not sensitive to changes in flows and floods or water quality. The wetland does offer some Moderate hydro-functional attributes in terms of supporting streamflow regulation (e.g. discharging sustained base sub-surface flows into the channel) and assimilating pollutants derived from diffuse surface runoff from the surrounding urban catchment (Table 5). Direct human benefits are Low (Table 6).

Table 4: Ecological Importance and Sensitivity importance criteria for the wetland.

Criteria	Score
Biodiversity Support	
Presence of Red Data species	1
Populations of unique species	1
Migration/feeding/breeding sites	1
Average	**1**
Landscape Scale	
Protection status of wetland	1 – Moderately protected
Protection status of vegetation type	1 – Moderately protected
Regional context of the ecological integrity	1 – Largely modified from natural
Size and rarity of the wetland types present	2 – Moderate size – vulnerable.
Diversity of habitat types	1 – Low diversity
Average	**1.2**
Sensitivity of the Wetland	
Sensitivity to changes in floods	1
Sensitivity to changes in low flows	1
Sensitivity to changes in water quality	1
Average	**1**
ECOLOGICAL IMPORTANCE AND SENSITIVITY	**1.2 (Moderate)**

Table 5: Hydro-functional importance criteria results for the wetland.

Hydro-functional importance			Score
Regulating & supporting benefits	Flood attenuation		1
	Streamflow regulation		2
	Water quality enhancement	Sediment trapping	2
		Phosphate assimilation	2
		Nitrate assimilation	2
		Toxicant assimilation	2
		Erosion control	3
	Carbon storage		1
HYDRO-FUNCTIONAL IMPORTANCE			1.9 (Moderate)

Table 6: Direct human benefit importance criteria results for the wetland.

Direct human benefits		Score
Subsistence benefits	Water for human use	0
	Harvestable resources /cultivated foods	0
Cultural benefits	Cultural heritage	0
	Tourism and recreation & education and research	0
DIRECT HUMAN BENEFITS		0 (Low)

IMPACTS AND MITIGATION MEASURES:

Six impacts have been identified by the aquatic specialist, for which the specialist has proposed mitigation measures which should be adhered to throughout the construction and operational phases of the development.

Construction Phase:

Impact 1: Pollution of Wetland caused by Construction Activities

General construction impacts associated with vehicles, workers and storage of construction equipment and include the following:

- Pollution of watercourses through leakage of fuels, oils, and other pollutants from vehicles and construction machinery, or from washing of equipment and vehicles;
- The presence of construction workers on site will require the need for appropriate ablution facilities. Poor management of these facilities could potentially lead to sewage spills or leaks which could contaminate watercourses;
- Storage of construction materials or the temporary lay-down of equipment within an area that drains in the direction of the watercourse;
- Dumping of excavated material into the watercourse;
- Poor management of waste generated during construction activities; and
- Mixing of concrete or cement in or in close proximity to watercourses.

Mitigation Measures:

- Excavators and all other machinery and vehicles must be checked for oil and fuel leaks daily. No machinery or vehicles with leaks are permitted to work in the wetland;

- Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, must be located on impervious bases and should have bunds around them (sized to contain 110 % of the tank capacity) to contain any possible spills;
- Chemical toilets should be provided on-site at 1 toilet per 10 persons;
- Waste from chemical toilets must be disposed of regularly (at least once a week) in a responsible manner by a registered waste contractor;
- Cement/concrete used in the construction must not be mixed on bare ground or within the delineated extent of the wetlands. An impermeable/bunded area must be established in such a way that cement slurry, runoff and cement water will be contained and will not flow into the surrounding environment or contaminate the soil;
- Workers must be properly instructed in the proper care of the environment, especially with respect to poaching, disturbance of nesting and roosting areas, disposal of human waste, garbage etc.;
- Construction areas to be inspected on a regular basis (at least weekly) by an appropriately qualified ECO for signs of disturbance, sedimentation and pollution during the construction phase. If signs of disturbance, sedimentation or pollution are noted, immediate action should be taken to remedy the situation and, if necessary, a freshwater ecologist should be consulted for advice on the most suitable remediation measures.

Impact 2: Mobilisation of Sediment Caused by the Excavation of Trench

Installation of a new bulk sewer pipeline will require the excavation of a trench along the edge of and through a small section of the wetland which will expose bare soil to environmental elements and could lead to erosion of the embankment during heavy rainfall events. This can result in increased instream turbidity and sedimentation of aquatic habitat (including wetland habitat). Given the current PES of the affected wetland these impacts are not expected to be particularly severe if the appropriate mitigation measures are implemented. There is no impact associated with the No-Go option.

Mitigation Measures:

- Construction activities must be timed to coincide with low rainfall probability (dry season) to avoid erosion of exposed banks;
- A silt fence must be placed downslope of the trench, along the length of the pipeline alignment;
- No laydown areas, stockpiling of construction materials or excavated topsoil is permitted within delineated wetland areas;
- Construction must be sequenced so that installation of the pipeline can take place with the minimum possible delay. Disturbance/excavation of areas where the pipeline is to be installed must be undertaken only when final placement can follow immediately following the initial disturbance;
- A construction schedule must be developed and clearly defined so as to avoid multiple sites being exposed and unattended to at any moment in time. The completion date for each phase of development must be indicated and all clearing, excavation, and stabilisation operations must be completed before moving onto the next phase;
- Following backfilling of the trench, exposed unvegetated slopes must be stabilised with appropriate geotextiles (e.g. SoilSaver®) or vegetated with appropriate indigenous vegetation. Banks must be regraded to match existing slopes/contours; and
- Wooden stakes must be used to anchor erosion control mats as there is a high probability that metal stakes will be stolen.

Impact 3: Disturbance of Wetland Habitat caused by the Excavation of the Trench (Sewage Upgrade)

The pipeline is aligned through a small section of delineated wetland habitat. Construction of the pipeline though this habitat will result in physical disturbance of this habitat. There is no impact associated with the No-Go option.

Mitigation Measures:

- Construction within wetland seep areas must be confined to clearly demarcated areas so as to prevent unnecessary disturbance of wetland habitat outside of these areas;
- Where crossing through delineated wetland habitat is unavoidable, use less disruptive methods if these are feasible. For example, horizontal directional drilling (HDD) can be used to install the pipeline beneath the wetland, avoiding surface disturbance;
- Restrict construction activities to designated corridors and limit vehicle and equipment movement to reduce soil compaction and habitat damage;
- Revegetation of disturbed wetland areas must be actively encouraged. The pipeline route is currently well covered by indigenous wetland vegetation which could be used to revegetate the trench post-construction. It is recommended that when trenching, a top layer of vegetation in association with 20-30 cm of soil should be removed and set aside for replanting or covering the backfilled in trench;
- During excavation of the trench, topsoil and subsoil must be separated and, when backfilled, must be replaced in sequence (i.e. subsoil followed by topsoil); and
- Once construction has been completed, the trench must be backfilled and the original topography, soil structure, and hydrology must be restored as much as possible to ensure water can flow freely and the vegetation can re-establish.

Impact 4: Impact 4: Disturbance of Aquatic Habitat caused by the Excavation of the Bed & Banks (Stormwater Outlets)

Additional impacts associated with the construction phase involve the loss of additional habitat and biota as a result of disturbances (e.g. from construction vehicles and machinery) that occur outside of the areas designated for the installation of stormwater outlets. Given the current PES of the watercourses these impacts are not expected to be particularly severe if the appropriate mitigation measures are implemented. There is no impact associated with the No-Go option.

Mitigation Measures:

- Areas where instream construction activities will take place must be confined to clearly demarcated areas so as to prevent unnecessary disturbance of instream and riparian habitat outside of these areas; and
- A single point of access must be used to access each site.

Operational Phase:

Impact 5: Sewage Spills from Upgraded Bulk Sewer Pipeline.

While blockages and spills may still occur, increasing the diameter of the pipeline is likely to reduce the frequency of these events occurring. The No-Go scenario (smaller diameter pipe) will not result in any improvement.

Mitigation Measures:

- The pipeline must be inspected on a routine basis to ensure that is free of any blockages and debris and is operating according to design specifications.

Impact 6: Modification to Wetland Habitat Caused by Discharge of Stormwater Runoff.

The most serious impacts related to stormwater discharge relates to the input of high volumes of water at high velocity, which has already caused erosion of wetland seep habitat. Considering that all outlets currently discharge stormwater into the Meul River and associated wetland habitat, the intensity of impact has been assessed relative to the current scenario. In this respect the addition of energy dissipation structures designed to reduce the velocity of the water discharged which will help to prevent erosion problems and represents a positive impact. The No-Go scenario will result in

continued erosion of wetland seep habitat and deposition of high quantities of sediment into the river.

Mitigation Measures:

- The stormwater outlet structures must be inspected on a routine basis to ensure that is free of any blockages and debris and is operating according to design specifications;
- The bed and banks of the river must be routinely inspected (especially following heavy rainfall events) to ensure that the outlet structure is not causing unnecessary erosion of the bed and banks of the river. Any erosion observed must immediately be attended to through appointment of a suitably qualified aquatic specialist;
- All gabion structures must be inspected on a routine basis to ensure that the baskets are intact and that rocks have not displaced. Any faults must be immediately repaired; and
- Gabion structures must be lined with geotextiles to prevent the migration of fines that would otherwise undermine these structures.

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.		
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.		
3.4.	Explain how estuary management plans (if applicable) has influenced the proposed development.		
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.		

4. Biodiversity

4.1.	Were specialist studies conducted?	**YES**	NO
4.2.	Provide the name and/or company who conducted the specialist studies.		
Jamie Pote			
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.		

(Source: Terrestrial Biodiversity Compliance Statement and Assessment. Rosemoor Sewer Infrastructure. 23 March 2026; Terrestrial Biodiversity Assessment. Rosemoor Stormwater. 23 March 2026)

A screening of Systematic Planning Framework for the region has been undertaken (summarised in Table 7), that included the following features:

- National Environmental Screening Tool
- Critically Endangered, Endangered and Vulnerable Ecosystems
- Critical Biodiversity and Ecological Support Areas
- River and Wetland Freshwater Ecosystem Priority Areas (FEPAs) and buffers
- Protected Areas (and buffers) and National Protected Area Expansion Strategy areas (NPAES).
- Critical Habitat for listed endemic or protected species.

Table 7: Summary of Regional Planning Biodiversity features.

FEATURE	DESCRIPTION	IMPLICATIONS/COMMENT
National Environmental Screening Tool (Terrestrial Biodiversity)	Very High Terrestrial Biodiversity Low, Medium & High Plant & Animal Species sensitivities Very High Aquatic sensitivity	CBA 1 & 2, ESA 2, Critically Endangered ecosystem & SWSA Several Plant & Animal Species flagged by the

		screening tool. CBA 1, SWSA & Wetlands
National Vegetation Map (NVM, 2024)	Garden Route Granite Fynbos	Critically Endangered
Critically Endangered and Endangered Ecosystems (NBA 2022)	Garden Route Granite Fynbos	Assessment to determine risks.
Vulnerable Ecosystems (NBA)	None	N/A
Western Cape Biodiversity Spatial Plan (2023)	Critical Biodiversity Area 1 & 2 Ecological Support Area 1	Assessment to determine risks.
Protected Areas (SAPAD, 2025)	None	N/A
Protected Areas (WC BSP, 2025) NPAES (Draft 2018)	None None	N/A N/A
NPAES (2010)	None	N/A
Strategic Water Source Areas (SWSA)	Outeniqua SWSA	Impacts to site may have risks to downstream water sources. Refer to aquatic assessment.
Freshwater Ecosystem Priority Areas (FEPA's)	None	Refer to aquatic assessment.
Regional Hotspots & Regions of Endemism Important Bird Areas (IBA's)	Cape Floristic Region Hotspot None	Specific activity and site unlikely to pose any risk to broader biodiversity hotspot. N/A
Key Biodiversity Areas (KBA's)	None	N/A
Marine/Coastal areas	None	N/A
RAMSAR sites	None	N/A
Within 32 m of Watercourse	Sewer will be within 32m of watercourses	Refer also to aquatic assessment.
Within 100 m of River	None	N/A
Estuary	None	N/A
Within 500 m of Wetland	Valley Bottom Wetlands are associated with the watercourses in the area.	May have impacts to associated terrestrial flora and fauna. Refer to aquatic assessment.
Forest	None	N/A
Surrounding Land Uses	Surrounding land primarily used for urban dwellings.	Site and surrounding area are transformed and/or with scattered secondary vegetation elements.
Critical Habitat for listed endemic/ protected species	No specific populations of threatened species were identified within the footprint, and the affected footprint is largely disturbed or comprised of secondary vegetation. There are several red listed species in the su6rrounding area and vegetation units that	

	are known to have limited distributions, however none were recorded within the footprint.
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.

(Source: Terrestrial Biodiversity Compliance Statement and Assessment. Rosemoor Sewer Infrastructure. 23 March 2026; Terrestrial Biodiversity Assessment. Rosemoor Stormwater. 23 March 2026)

The Western Cape Biodiversity Spatial Plan (2023, Figure 29 and 30) indicates that most of the proposed Sewer pipeline footprints fall within transformed roads and road reserves, with predominantly the 250mm & 400 mm lines within areas designated CBA 1 & 2 and ESA 2, which are associated with the watercourses and surrounding vegetation that are undeveloped within the urban area.

The Biodiversity Spatial Plan indicates areas of land as well as aquatic features which must to be safeguarded in their natural state if biodiversity is to persist and ecosystems are to continue functioning. Land in this category is referred to as a Critical Biodiversity Area. CBAs incorporate:

I. areas that need to be safeguarded in order to meet national biodiversity thresholds.
II. areas required to ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem services; and/or
III. important locations for biodiversity features or rare species.

Ecological Support Areas (ESAs) are supporting zones required to prevent the degradation of Critical Biodiversity Areas and Protected Areas. An ESA may be an ecological process area that connects and therefore sustains Critical Biodiversity Areas or a terrestrial feature. None are present within the site or immediate vicinity. Defining criteria and recommended activities are summarised in Table 8 below.

Figure 29: Western Cape Biodiversity Spatial Plan (WCBSP, 2023) –The site does overlap with some designated CBA 1, CBA 2 and ESA 2 areas (Sewerage pipelines).

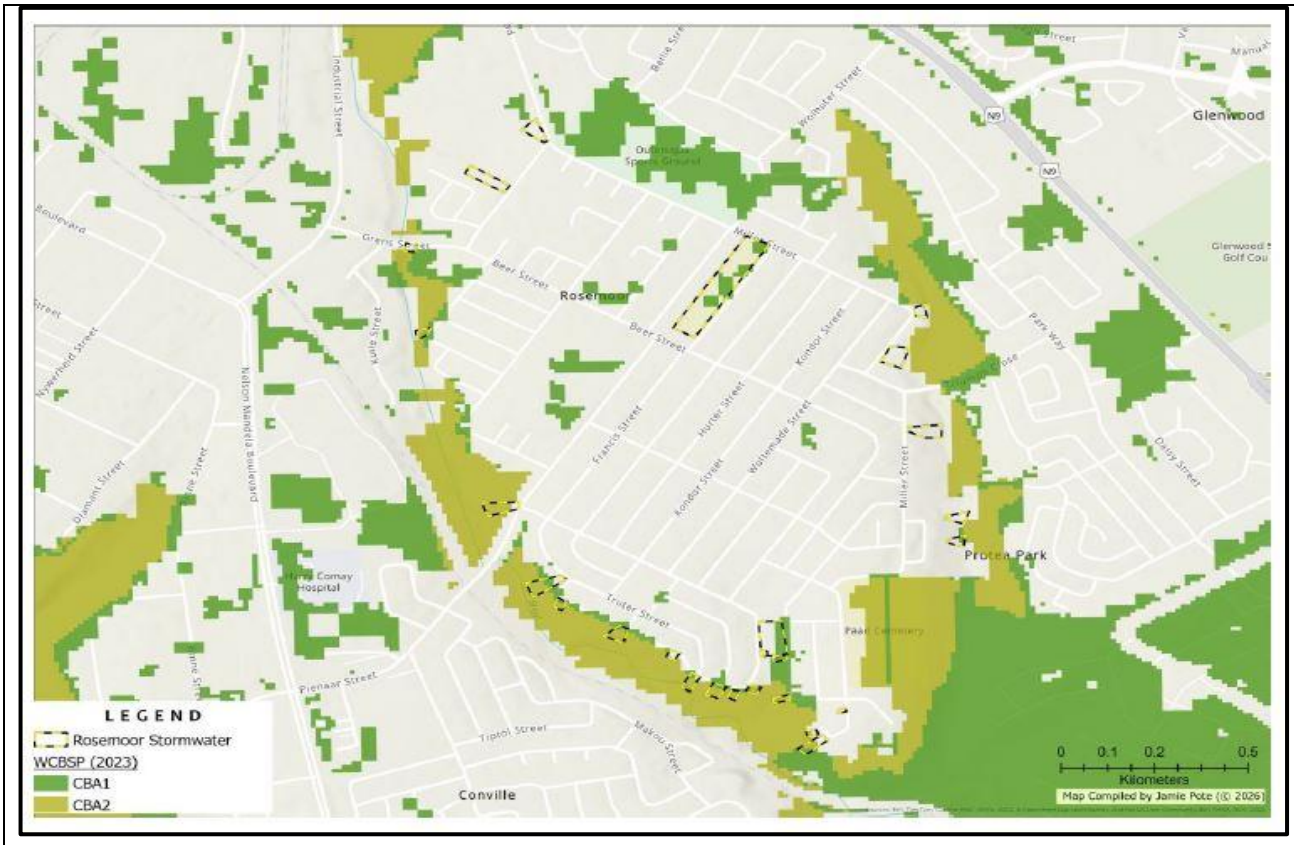


Figure 30: Western Cape Biodiversity Spatial Plan (WCBSP, 2023) –The site does overlap with some designated CBA 1, CBA 2 and ESA 2 areas (Stormwater outlets).

Table 8: Criteria defining Critical Biodiversity Areas (Source: WC BSP, 2023):

CBA MAP CATEGORY	DEFINING CRITERIA
Protected Areas (Not Present)	Areas that are proclaimed as protected areas under national or provincial legislation. Must be kept in a natural state, with a management plan focused on maintaining or improving the state of biodiversity. A benchmark for biodiversity.
Critical Biodiversity Areas 1 (CBA) (Present)	Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. Maintain in a natural or near natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.
Critical Biodiversity Areas 1 (CBA 2) (Present)	Areas in a degraded or secondary condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. Maintain in a functional, natural, or near-natural state, with no further loss of natural habitat. These areas should be rehabilitated.
Ecological Support Areas 1 (ESA 1) (Not Present)	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PA's or CBA's and are often vital for delivering ecosystem services. Restore and/or manage to minimise impact on ecological infrastructure functioning; especially soil and water-related services.
Other Natural Areas (ONA) (Present)	Areas that have not been identified as a priority in the current systematic biodiversity plan but retain most of their natural character and perform a range of biodiversity and ecological infrastructure functions. Although they have not been prioritised for biodiversity, they are still an important part of the natural ecosystem. Minimise habitat and species loss and ensure ecosystem

	functionality through strategic landscape planning. Offers flexibility in permissible land uses, but some authorisation may still be required for high-impact land uses.
No Natural Area Remaining (NNAR) (Present)	Areas that have been modified by human activity to the extent that they are no longer natural, and do not contribute to biodiversity targets. These areas may still provide limited biodiversity and ecological infrastructure functions, even if they are never prioritised for conservation action. Manage in a biodiversity-sensitive manner, aiming to maximise ecological functionality. Offers the most flexibility regarding potential land uses, but some authorisation may still be required for high impact land uses.

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.

(Source: Terrestrial Biodiversity Compliance Statement and Assessment. Rosemoor Sewer Infrastructure. 23 March 2026; Terrestrial Biodiversity Assessment. Rosemoor Stormwater. 23 March 2026)

Present Ecological State:
In summary, the following general observations can be noted regarding the site:

- The area in and around the site is completely transformed and or degraded as a result of urban development and associated processes including dumping of refuse and garden waste and other pollution sources, with the occasional remnant scattered indigenous species. No elements of species typical to Garden Route Granite Fynbos were observed within vegetated areas along the watercourses
- Alien invasion and weeds are high to very high, comprising most of the vegetation along the watercourses and surrounding vegetated areas.
- Ecological processes are thus primarily significantly modified within the sewer servitude, as natural and indigenous vegetation elements are largely absent from within the site.
- Regarding the stormwater outlets, ecological processes are thus primarily significantly modified, as natural and indigenous vegetation elements are largely absent from within the site.
- Fauna species include mainly species typical of urbanised and transformed areas, perhaps having the occasional visit from less common species that typically occur in natural areas that are in transit through urban area or are acclimated to the urbanised environment.

Vegetation and Ecological Processes and Corridors:
Landscapes corridors are a combination of Critical Biodiversity Areas (areas required to meet conservation targets) and Ecological Support Areas that link habitats, as well as linking inland mountains to the coastline (and therefore beyond municipal boundaries). Rivers and their associated riparian or riverbank habitats often provide the basis for many of these large-scale (landscape level) ecological processes.

Critical Biodiversity Areas (CBA) are generally regarded as being critical for meeting conservation objectives for vegetation units in an optimal manner. Where a vegetation unit is not under threat (i.e. Least Concern status), there is some flexibility, ito alternatives; however, as conservation status increases (a vegetation unit is under threat due to high levels of transformation), alternative options to meet conservation targets are significantly reduced. CBA 1 areas are generally natural or near natural, whereas CBA 2 are degraded and/or transformed areas where restoration would be required and/or recommended.

Ecological Support Areas (ESA) are supporting zones or areas which must be safeguarded as they are needed to prevent degradation of Critical Biodiversity Areas and formal Protected Areas. Although many ESA's consist of natural veld, there are areas of land - partially or wholly transformed or degraded -that have been classified as ESA even though they are no longer in a natural state. Although these areas are heavily degraded or transformed, they still play an important role in supporting ecological processes. This is particularly the case with riparian areas, some key catchment areas, and key pieces of corridors. ESA 1 areas are generally natural or near natural, whereas ESA 2

are degraded and/or transformed areas where restoration would be required and/or recommended. An ESA that is vegetated but not natural or near natural can still serve to retain some connectivity and support ecological processes, but in a significantly reduced manner. For example, trees in an apple orchard will provide perches for some birds and grassy groundcover will still allow for movement of some small animals such as rodents and reptiles. Certain species are significantly more at risk, as they may not be able to adapt to a modified environment, whereas others may not be affected.

Sewage Pipelines:
While the site falls within a broader important ecologically connected area along the watercourses, the specific site is significantly transformed and surrounded by developed erven and paved roads. Remnant vegetation along watercourse is significantly degraded and transformed and thus provides limited 'natural' ecological value in its current state. It will serve limited connectivity support but does not and is not likely to support any substantial populations of at-risk species of conservation concern that are not adaptable to modified environments, nor provide ecological services and processes typically associated with the Critically Endangered Garden Route Granite Fynbos that occurs in the broader area. The watercourse corridors will however serve as broad level artificial habitat corridors for general movement faunal species around the broader area, but since no flora species typical of the unit are present, flora related ecological processes (such as pollination and seed dispersal) would be absent. The proposed activity, having a negligible footprint within significantly modified habitat, is thus unlikely to significantly impact or disturb these processes nor likely to alter current species composition from current baseline levels, as it will be a temporary activity and will likely return to a pre-construction state within two years.

Stormwater Outlets:
While the site falls within a broader important ecologically connected area along the watercourses, the specific site is significantly transformed and surrounded by developed erven and paved roads. Remnant vegetation along watercourse is significantly degraded and transformed and thus provides limited 'natural' ecological value in its current state. It will serve limited connectivity support but does not and is not likely to support any substantial populations of at-risk species of conservation concern that are not adaptable to modified environments, nor provide ecological services and processes typically associated with the Critically Endangered Garden Route Granite Fynbos that occurs in the broader area. The watercourse corridors will however serve as broad level artificial habitat corridors for general movement faunal species around the broader area, but since no flora species typical of the unit are present, flora related ecological processes (such as pollination and seed dispersal) would be absent. The proposed activity, having a negligible footprint within significantly modified habitat, is thus unlikely to significantly impact or disturb these processes nor likely to alter current species composition from current baseline levels.

Flora & Fauna:
No endemic and range restricted species were recorded to be present. Several species are known from the surrounding area, but unlikely to be affected by the proposed activity. The proposed activity, having a negligible footprint within significantly modified habitat, is thus unlikely to significantly impact any species population or current species composition from current baseline levels, as it will be a temporary activity and will likely return to a pre-construction state within two years.

Red Listed, Endemic and Protected Flora:
The site falls within the general distribution range of several endemic species and other species with a highly localised distribution, some of which are Critically Endangered, Endangered, Vulnerable or Rare. Some of these species are also only from a single or a few populations.

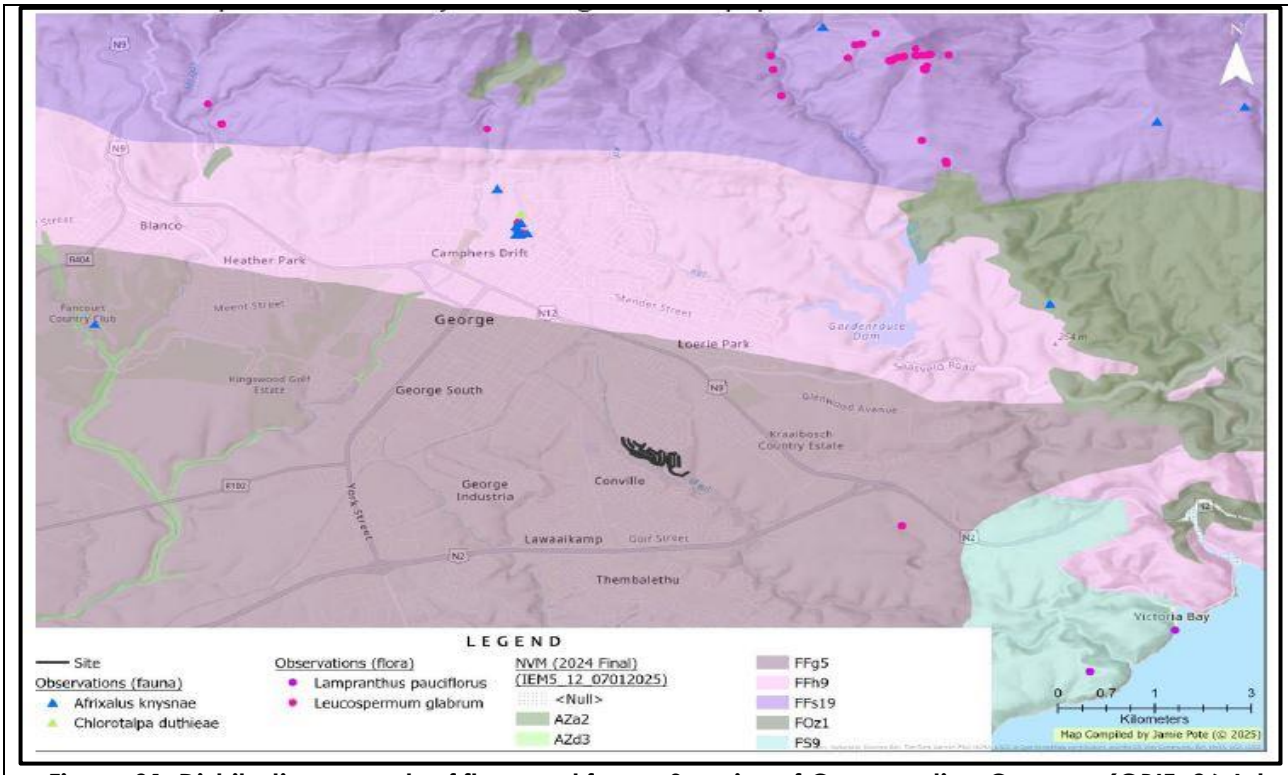


Figure 31: Distribution records of flora and fauna Species of Conservation Concern (GBIF, 26 July 2024) with known records in the vicinity of the site. NOTE some distribution records may have an offset for biosecurity purposes and/or accuracy errors but will non the less give an indication of general locality (Sewerage pipelines).

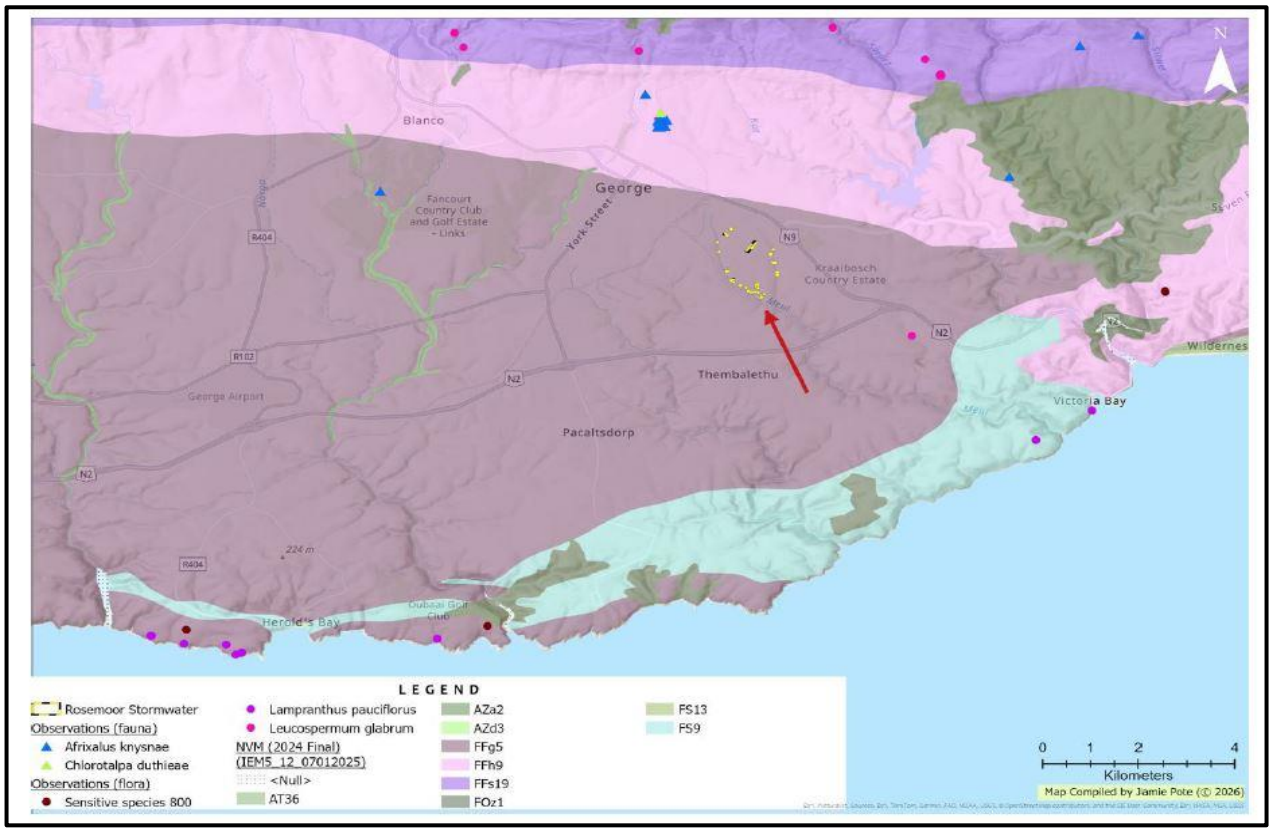


Figure 32: Distribution records of flora and fauna Species of Conservation Concern (GBIF, 26 July 2024) with known records in the vicinity of the site. NOTE some distribution records may have an offset for biosecurity purposes and/or accuracy errors but will non the less give an indication of general locality (Stormwater outlets).

Table 9: Flora Species of Special Concern.

SCIENTIFIC NAME	STATUS	COMMENT/PRESENCE
Diosma passerinoides	NEST (M), Vu	Total population size estimated to be <5 000 mature individuals, based on records of 18 out of 25 subpopulations where species is indicated to be rare, uncommon, or only a few plants present, and with survey data of seven subpopulations indicating that the largest subpopulation consists of no more than 500 mature individuals. These populations are declining due to a number of different threats such as invasive alien plants, habit degradation in the form grazing and habitat loss due to protea cultivation. Not recorded on site and no known localities in close proximity that suggest high likelihood of a local occurrence.
Lampranthus pauciflorus	NEST (M), En	EOO 1270 km², four known locations remain after most of this species' habitat has been transformed for coastal development. Habitat loss continues, especially around Plettenberg Bay, Mossel Bay and Knysna. Not recorded on site and no known localities in close proximity that suggest high likelihood of a local occurrence.
Leucospermum glabrum	NEST (M), En	Somewhat widespread distribution including a population in the northern areas of George. A restricted endemic with an extent of occurrence (EOO) ranging between 1620 and 1642 km², and an area of occupancy (AOO) of between 152 and 156 km². This species occurs as scattered small subpopulations with the total population not exceeding 2500 mature individuals, and each subpopulation having fewer than 250 plants. The mountains where this species occurs have been extensively surveyed. Road verges and significantly disturbed watercourses do not provide suitable habitat for this species. Not recorded on site, which is not typical of preferred habitat.
Sensitive species 1024	NEST (M), En	A range-restricted and very rare species known from four small, severely fragmented subpopulations. It has an extent of occurrence (EOO) of 971 km². The population consists of 2 500 mature individuals, and the largest subpopulation has less than 200 plants. Not recorded on site and no known localities in close proximity that suggest high likelihood of a local occurrence.
Sensitive species 1032	NEST (M), Vu	Somewhat widespread distribution including a population in the northern areas of George. Not recorded on site but found in surrounding area. Road verges and significantly disturbed watercourses do not provide suitable habitat for this species.
Sensitive species 500	NEST (M), En	Somewhat widespread distribution. Not recorded on site and no known localities in close proximity that suggest high likelihood of a local occurrence.
Sensitive species 800	NEST (M), Vu	Formerly a very common species, now remaining mostly as small, isolated subpopulations on fragments of natural vegetation within its lowland distribution range. Not recorded on site and no known localities in close proximity that suggest high likelihood of a local occurrence.

As per Table 9, no Endangered or Critically Endangered flora species were confirmed to be present nor are known to be present in the affected area. Most likely species that do occur in the broader surrounding area include Leucospermum glabrum & Sensitive species 1032, however none were observed on the site. The species Diosma passerinoides, Lampranthus pauciflorus, Sensitive species 1024, Sensitive species 500 & Sensitive species 800 have records in a much broader are and no records indicate a local presence.

Site observations by the specialist also confirmed none being present, also confirmed to not be the typical habitat for several of the species, hence the footprint does not provide suitable habitat for these species.

Red Listed and Protected Fauna

No Endangered or Critically fauna species were found to be present nor are known to be present in close proximity to the affected area or are likely to be directly affected by the proposed activity. The site falls within the general distribution range of a single faunal SCC as indicated in Table 10 below, however none are confirmed to be present. Since the project footprint is relatively small, is situated directly adjacent to urban and disturbed areas and also surrounded by extensive outlying areas of natural habitat, any disturbance or displacement associated with increased activity or habitat destruction as a direct result of the activity is unlikely to pose a significant negative impact faunal species and in particular the species of special concern.

Table 10: Fauna Species of Special Concern (SCC).

SCIENTIFIC NAME	COMMON NAME	STATUS	COMMENT/PRESENCE
Mammals			
Chlorotalpa duthieae	Duthies Golden Mole	NEST (M), Vu	Known form the broader area, no evidence of any Golden Moles on site, which is primarily a landscaped garden and largely surrounded by compacted material.
Sensitive species 8		NEST (M), Vu	Not recorded on site but records indicate a presence in the surrounding area. May be a transient visitor in developed areas, but not likely to be affected above baseline levels due to the proposed activity within a densely populated part of an urban area.
Birds			
Bradypterus sylvaticus	Knysna warbler	NEST (H)	Unlikely to be affected above baseline levels by the proposed activity in an already transformed footprint.
Circus ranivorus	African Marsh Harrier	NEST (H)	
Reptiles			
None			
Amphibians			
Afrixalus knysnae	Knysna Spiny Reed Frog	NEST (M), En	Unlikely to be present nor affected by the proposed temporary activity in a transformed footprint. While aquatic and other suitable habitat is in principle present, it is not deemed suitable due to the high levels of pollution in the watercourse and also the disturbed nature of the surrounding vegetation Not recorded.
Invertebrates			
Aneuryphymus montanus	Yellow-winged Agile Grasshopper	NEST (M), Vu	No records from vicinity and not recorded on site. Unlikely to be present nor affected by the proposed temporary activity in a transformed landscape. Not recorded.

Records indicate that the species Chlorotalpa duthieae, Sensitive species & Afrixalus knysnae have been recorded in the wider area, however none are likely to occur on the site. There is no evidence of any Golden Moles being present and while aquatic habitat is present, it is not deemed suitable due to the high levels of pollution in the watercourse and also the disturbed nature of the vegetation.

The birds Bradypterus sylvaticus & Circus ranivorus, as well as the insect Aneuryphymus montanus, while likely occurring in the surrounding area where natural vegetation is intact and more extensive, are unlikely to be affected by the proposed activity which will have a small and highly localised footprint. Improved sewer management is also likely to improve overall aquatic health after construction.
Site observations also confirmed none being present, also confirmed to not be the typical habitat for several of the species, hence the footprint does not provide suitable habitat for these species.

No fauna PNCO permits are anticipated to be required but are recommended as a precaution as small species such as lizards, geckos and snakes may be present in the rocky landscaped areas.

Alien Invasive Species:
Many exotic invasive and other weed species were noted within the site and surrounding area. Proliferation of weedy and exotic species often indicate disturbance especially during or after construction. A list of species is included in Table 11. During construction it is highly likely that species currently not on site could be introduced through the construction process. A weed management programme is recommended after construction to counter the weed proliferation that would be expected after construction.

Table 11: Alien (exotic) invasive and other weed species and status.

SCIENTIFIC NAME	COMMON NAME	FAMILY	STATUS[5]	PRESENCE
Acacia mearnsii	Black Wattle	Fabaceae	CARA 1b	Present, common
Acacia melanoxylon	Blackwood	Fabaceae	CARA 2	Present, common
Canna indica	Indian shot	Cannaceae	CARA 1b[6]	Present, common
Cenchrus clandestinus	Kikuyu grass	Poaceae	CARA 1b	Present, common
Cestrum (Pennisetum) laevigatum	*Inkberry*	Solanaceae	CARA 1b	Present, dominant.
Cirsium vulgare	Scotch thistle	Asteraceae	CARA 1b	Present, common
Cortaderia selloana	Pampas grass	Poaceae	CARA 1b	Present, common
Iris pseudacorus	Yellow flag	Iridaceae	CARA 1a	Present, occasional
Lantana camara	Lantana	Verbenaceae	CARA 1b	Present, occasional
Leptospermum scoparium	Australian myrtle (Tea tree)	Asteraceae	CARA 1b	Present, common
Melia azedarach	Syringa	Meliaceae	CARA 1b	Present, common
Phragmites australis	*Spanish Reed*	Poaceae	CARA 1b	Present, common.
Phytolacca americana	Pokeweed	Phytolaccaceae	CARA 2	Present, occasional
Ricinus communis	Castor Oil Plant	Euphorbiaceae	CARA 2	Present, common
Rubus cuneifolius	Bramble	Rosaceae	CARA 1b	Present, common
Sambucus nigra	European elder	Adoxaceae	CARA 1b	Present, common
Senna didymobotrya	Peanut butter Cassia	Fabaceae	CARA 1b	Present, occasional
Sesbania punicea	Sesbania	Fabaceae	CARA 1b	Present, occasional
Solanum mauritianum	Bugweed	Solanaceae	CARA 1b	Present, common
Solanum sisymbriifolium	Wild tomato	Solanaceae	CARA 1b	Present, occasional
Urtica urens	Nettle	Urticaceae	Weed	Present, occasional
Verbena bonariensis	Wild verbena	Verbenaceae	CARA 1b	Present, occasional
Vinca major	Greater periwinkle	Apocynaceae	CARA 1b	Present, occasional

Specific eradication and management procedures must be stipulated in the EMP as to the methods to be implemented to remove and control the various alien invasive species as they tend to require species specific techniques. A management plan should be incorporated into the EMP, and a detailed action plan compiled and implemented by the ECO. Please see Site Specific Alien Management Plan attached as Appendix F of the EMPr.

Terrestrial Vegetation Sensitivity Assessment:
An overall vulnerability assessment of proposed activity, incorporating key vegetation and ecological indicators was undertaken and includes the following key criteria:

- relative levels of intactness in terms of overall loss of indigenous vegetation cover.
- presence, diversity, and abundance of species of special concern (weighted in favour of local endemic species).
- extent of invasion (severity and overall ecological impact), as well as the degree to which successful rehabilitation could take place.

- overall degradation incorporating above factors.
- relative importance of the vegetation communities relative to regional conservation status - indicated as vulnerability of the area because of loss.

Habitat Sensitivity (Sewage Pipelines):

- All of the portions of sewer within the residential area (roads and road verges) and are designated a **VERY LOW SENSITIVITY**.
- **LOW SENSITIVITY** areas are vegetated but generally kikuyu grass and limited to a few sections where the sewer enters the vegetated area.
- Almost the entire vegetated area (i.e. the areas of the route that are adjacent to the watercourse but on the upper banks where little to no natural riverine vegetation persists are designated a **MODERATE SENSITIVITY**, where exotic and invasive species comprise most of the vegetation cover, but with some indigenous elements.
- **VERY HIGH SENSITIVITY** portions are designated where Watercourses and riparian vegetation, although primarily exotic species) is present. This is limited to a single area where a 'watercourse' crossing is present. The high sensitivity is given more for the sake of highlighting that additional precautions will be required during construction, being a watercourse, rather than elevated ecological sensitivity as the area is also highly modified. Since the primary objective is to improve sewerage management and improve capacity, the overall impact of the sewer pipelines is not significantly negative within the broader context of the site and surrounds.
- No **VERY HIGH SENSITIVITY** areas are identified but limited to the terrestrial environment and excludes aquatic processes, which is outside of the scope of this terrestrial assessment.

The nominal and temporary short-term impact will be far outweighed by the long benefits of improving sewer capacity and potentially reducing the risk of sewerage leaks in the future.

Habitat Sensitivity (Stormwater Outlets):

- Almost the entire vegetated and transformed area (i.e. the roads) are designated a **LOW SENSITIVITY**, where exotic and invasive species comprise most of the vegetation cover, the remainder being hardened surfaces (i.e. roads and sidewalks).
- **MODERATE SENSITIVITY** portions are designated where Watercourses and riparian vegetation, although primarily exotic species) is present, due to underlying ecological importance of watercourses. However, as a caveat, it should be noted that the watercourses are significantly modified. Since the primary objective is to better manage stormwater discharge in tot e watercourses, the overall impact of the stormwater discharge features is not significantly negative within the broader context of the site and surrounds.
- No **VERY HIGH SENSITIVITY** areas are identified but limited to the terrestrial environment and excludes aquatic processes, which is outside of the scope of this terrestrial assessment.

No-Go Areas:

No-go areas are not identified within the site. Caution to be exercised in proximity to planted Cycads.

Summary of Findings (Sewer Pipelines):

- The vegetation on site is generally highly modified, degraded, transformed and/or comprising vegetation cover with little evidence of remnant natural vegetation (Garden Route Granite Fynbos).
- No Sensitive plant or Animal species identified as per the National Environmental Screening Tool were found to be present or likely to be present. The general vegetation cover along the remnant watercourses is primarily comprised of kikuyu grass (non-indigenous) and a wide range of invasive and weed herbaceous, shrub and tree species.
- Although areas are designated CBA 1 and CBA 2, these designations do not have remnant Garden Route Granite Fynbos vegetation. In terms of species composition. While the vegetated areas may provide habitat for faunal species, these are mostly species that are adapted to an urbanised environment.
- All of the portions of sewer within the residential area (roads and road verges) and are designated a **VERY LOW SENSITIVITY.**
- **LOW SENSITIVITY** areas are vegetated but generally kikuyu grass and limited to a few sections where the sewer enters the vegetated area.

- Almost the entire vegetated area (i.e. the areas of the route that are adjacent to the watercourse but on the upper banks where little to no natural riverine vegetation persists are designated a **MODERATE SENSITIVITY**, where exotic and invasive species comprise most of the vegetation cover, but with some indigenous elements.
- **VERY HIGH SENSITIVITY** portions are designated where Watercourses and riparian vegetation, although primarily exotic species) is present. This is limited to a single area where a 'watercourse' crossing is present. The high sensitivity is given more for the sake of highlighting that additional precautions will b e required during construction, being a watercourse, rather than elevated ecological sensitivity as thee area is also highly modified. Since the primary objective is to improve sewerage management and improve capacity, the overall impact of the sewer pipelines is not significantly negative within the broader context of the site and surrounds.
- No **VERY HIGH SENSITIVITY** areas are identified but limited to the terrestrial environment and excludes aquatic processes, which is outside of the scope of this terrestrial assessment.
- No No-go areas are identified within the site footprint.
- No significant direct, indirect or cumulative impacts are anticipated.

Summary of Findings (Stormwater Outlets):

- The vegetation on site is generally highly modified, degraded, transformed and/or comprising vegetation cover with little evidence of remnant natural vegetation (Garden Route Granite Fynbos).
- No Sensitive plant or Animal species identified as per the National Environmental Screening Tool were found to be present or likely to be present. The general vegetation cover along the remnant watercourses is primarily comprised of kikuyu grass (non-indigenous) and a wide range of invasive and weed herbaceous, shrub and tree species.
- Although areas are designated CBA 1, CBA 2 and ESA 2, these designations do not have remnant Garden Route Granite Fynbos vegetation. In terms of species composition. While the vegetated areas may provide habitat for faunal species, these are mostly species that are adapted to an urbanised environment.
- Almost the entire vegetated and transformed area (i.e. the roads) are designated a **LOW SENSITIVITY**, where exotic and invasive species comprise most of the vegetation cover, the remainder being hardened surfaces (i.e. roads and sidewalks).
- **MODERATE SENSITIVITY** portions are designated where Watercourses and riparian vegetation, although primarily exotic species) is present, due to underlying ecological importance of watercourses. However, as a caveat, it should be noted that the watercourses are significantly modified. Since the primary objective is to better manage stormwater discharge in tot e watercourses, the overall impact of the stormwater discharge features is not significantly negative within the broader context of the site and surrounds.
- No **VERY HIGH SENSITIVITY** areas are identified but limited to the terrestrial environment and excludes aquatic processes, which is outside of the scope of this terrestrial assessment.
- No No-go areas are identified within the site footprint.
- No significant direct, indirect or cumulative impacts are anticipated.

Recommendations and Mitigation Measures by the Specialist:

- The proposed activity is unlikely to pose any significant risk to natural ecological processes, vegetarian or plant and animal species of conservation concern due to the limited footprint and significantly degraded and/or transformed nature of the site(s).
- No PNCO protected species were recorded within any of the proposed sewer pipeline footprints. PNCO (Provincial Nature Conservation Ordinance) permits are not likely to be required for any naturally occurring indigenous species.
- The proposed activity, having a negligible footprint within significantly modified habitat, is thus unlikely to significantly impact any ecological process, intact vegetation with an elevated conservation status or species above current baseline levels, as it will be a temporary activity and will likely return to a pre-construction state within two years.

Table 12 lists specific mitigation measures that must be implemented and adhered to. These must be considered to be conditions of authorisation.

Table 12: Specific Mitigation Measures and Recommendations.

IMPACT	MITIGATION MEASURES
Vegetation	• No clearing outside of development footprint to take place. • Areas surrounding the footprints should be revegetated on completion of construction.
Flora Species	• A flora search and rescue is unlikely to be required and no protected flora were found to be present within a natural context.
Alien Invasive Species	• A suitable weed management strategy to be implemented in and around the site post construction, which is likely to result in proliferation of weeds in disturbed areas on completion.
Erosion	• Suitable measures must be implemented where constructed on slopes to protected against erosion. • Areas must be rehabilitated, and a suitable indigenous grass seed mix planted where natural vegetation re-establishment does not occur.
Aquatic and Riparian processes	• Adequate measures to be implemented for erosion control in excavations during and after construction. • It is imperative that trenches near the watercourses (and the site as a while) are not left open for extended periods of time during construction. • Where possible, design of discharge points should accommodate measures to trap and reduce discharge of solid waste into watercourses (paper, plastic, etc), that would allow for easier ongoing cleanup.
Faunal Processes	• The habitats and microhabitats present on the project site are not unique and are widespread in the general area, hence the local impact associated with the footprint above current baseline levels would be of low significance if mitigation measures are adhered to.
Faunal Species	• Small mammals within the habitat on and around the affected area are generally mobile and likely to be transient to the area. Specific measures are made to reduce this risk. The risk of species of special concern is low, and it is unlikely that there will be any impact to populations of such species because of the activity. • A faunal search and rescue is unlikely to be required and no protected species are likely to be affected but is recommended as a precautionary measure.

	• No animals are to be harmed, trapped or killed during the course of operations other than where rescue is required and only undertaken by an expert.

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

The proposed development is not located within a protected area.

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

No Endangered or Critically fauna species were found to be present nor are known to be present in close proximity to the affected area or are likely to be directly affected by the proposed activity. The site falls within the general distribution range of a single faunal SCC as indicated in Table 13 below, however none are confirmed to be present. Since the project footprint is relatively small, is situated directly adjacent to urban and disturbed areas and also surrounded by extensive outlying areas of natural habitat, any disturbance or displacement associated with increased activity or habitat destruction as a direct result of the activity is unlikely to pose a significant negative impact faunal species and in particular the species of special concern.

Table 13: Fauna Species of Special Concern (SCC).

SCIENTIFIC NAME	COMMON NAME	STATUS	COMMENT/PRESENCE
Mammals			
Chlorotalpa duthieae	Duthies Golden Mole	NEST (M), Vu	Known form the broader area, no evidence of any Golden Moles on site, which is primarily a landscaped garden and largely surrounded by compacted material.
Sensitive species 8		NEST (M), Vu	Not recorded on site but records indicate a presence in the surrounding area. May be a transient visitor in developed areas, but not likely to be affected above baseline levels due to the proposed activity within a densely populated part of an urban area.
Birds			
Bradypterus sylvaticus	Knysna warbler	NEST (H)	Unlikely to be affected above baseline levels by the proposed activity in an already transformed footprint.
Circus ranivorus	African Marsh Harrier	NEST (H)	
Reptiles			
None			
Amphibians			
Afrixalus knysnae	Knysna Spiny Reed Frog	NEST (M), En	Unlikely to be present nor affected by the proposed temporary activity in a transformed footprint. While aquatic and other suitable habitat is in principle present, it is not deemed suitable due to the high levels of pollution in the watercourse and also the disturbed nature of the surrounding vegetation Not recorded.
Invertebrates			
Aneuryphymus montanus	Yellow-winged Agile Grasshopper	NEST (M), Vu	No records from vicinity and not recorded on site. Unlikely to be present nor affected by the proposed temporary activity in a transformed landscape. Not recorded.

Records indicate that the species Chlorotalpa duthieae, Sensitive species & Afrixalus knysnae have been recorded in the wider area, however none are likely to occur on the site. There is no evidence of any Golden Moles being present and while aquatic habitat is present, it is not deemed suitable due to the high levels of pollution in the watercourse and also the disturbed nature of the vegetation.

The birds Bradypterus sylvaticus & Circus ranivorus, as well as the insect Aneuryphymus montanus, while likely occurring in the surrounding area where natural vegetation is intact and more extensive, are unlikely to be affected by the proposed activity which will have a small and highly localised

footprint. Improved sewer management is also likely to improve overall aquatic health after construction.
Site observations also confirmed none being present, also confirmed to not be the typical habitat for several of the species, hence the footprint does not provide suitable habitat for these species.

No fauna PNCO permits are anticipated to be required but are recommended as a precaution as small species such as lizards, geckos and snakes may be present in the rocky landscaped areas.

5. Geographical Aspects

Explain whether any geographical aspects will be affected and how has this influenced the proposed activity or development.
No geographical aspects will be affected.

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.		
Jonathan Kaplan			
6.3.	Explain how areas that contain sensitive heritage resources have influenced the proposed development.		
A Notice of Intent to Develop was submitted to Heritage Western Cape. The matter was discussed at the Heritage Officers Meeting held on 16 February 2026. HWC has notified SES that there is no reason to believe that the proposed development for a sewerage pipeline approximately 1370m in length with varying diameters on Erf 8596, off Pienaar Street, George, will impact on heritage resources, no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required. When the additional works (sewerage by-pass and stormwater outlets) were included into the project scope, the appointed specialist Mr. Jonathan Kaplan was notified, and he indicated that the previous ROD still stands. HWC has been added to the I&AP List and will be provided the opportunity to comment on the proposal.			

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.
A Notice of Intent to Develop was submitted to Heritage Western Cape. A Notice of Intent to Develop was submitted to Heritage Western Cape. The matter was discussed at the Heritage Officers Meeting held on 16 February 2026. HWC has notified SES that there is no reason to believe that the proposed development for a sewerage pipeline approximately 1370m in length with varying diameters on Erf 8596, off Pienaar Street, George, will impact on heritage resources, no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required. When the additional works (sewerage by-pass and stormwater outlets) were included into the project scope, the appointed specialist Mr. Jonathan Kaplan was notified, and he indicated that the previous ROD still stands. HWC has been added to the I&AP List and will be provided the opportunity to comment on the proposal.

8. Socio/Economic Aspects

8.1.	Describe the existing social and economic characteristics of the community in the vicinity of the proposed site.
Broader Municipal Socio-Economic Profile (Census 2022-George): According to **Statistics South Africa: Census 2022**, George functions as a key regional service and economic hub within the Garden Route. Key social and economic characteristics relevant to the project include: • **Population growth:** George has experienced steady population growth over recent census periods, driven by in-migration linked to employment opportunities, lifestyle migration, and its role as a regional administrative and commercial centre. This growth places increasing pressure on bulk infrastructure such as sanitation networks.	

- **Household composition:** The municipality is characterised by predominantly formal households, with an increasing number of smaller households and nuclear family units, alongside extended family households in lower-income areas.
- **Employment profile:** Employment is largely concentrated in the tertiary sector, particularly community and social services, trade, tourism and hospitality, transport, and construction. Unemployment remains a challenge, especially among youth, but overall employment levels in George compare favourably with many other municipalities in the Western Cape.
- **Income levels:** Household incomes reflect a broad spread, with a substantial middle-income segment, alongside vulnerable low-income households reliant on social grants. Income inequality remains evident, spatially reflected across different suburbs.
- **Access to services:** Census 2022 data indicate high levels of access to basic services across George, including piped water, sanitation, and electricity, although infrastructure capacity upgrades are required to keep pace with population growth and urban densification.

Local Context: Rosemoor:
The proposed sewerage pipelines and stormwater outlets are located within the established urban suburb of Rosemoor, situated in the northern part of George, Western Cape. Rosemoor is predominantly a medium- to high-density residential area characterised by formal housing, municipal roads, established bulk services, and proximity to key social infrastructure such as schools, clinics, places of worship, public transport routes, and local retail facilities.

The area reflects a mixed socio-economic profile typical of many urban suburbs in George. Households range from lower- to middle-income groups, with a significant proportion of residents' dependent on formal employment in the services sector, retail, tourism, construction, manufacturing, and municipal or provincial government services. Informal and semi-formal economic activities (such as small home-based enterprises and casual labour) are also present, particularly in surrounding neighbourhoods.

Basic municipal services (including potable water supply, sanitation, electricity, refuse removal, and road access) are largely in place within Rosemoor. The proposed development is intended to upgrade and strengthen existing sewerage and stormwater infrastructure.

The social and economic characteristics of Rosemoor and the wider George municipal area indicate an established urban community that is directly reliant on the reliable functioning of municipal sewerage and stormwater infrastructure. The proposed pipelines and stormwater outlet upgrades support continued service delivery, public health protection, and socio-economic stability by accommodating current demand and anticipated future growth. Temporary construction-phase disturbances (such as traffic disruptions and noise) are expected to occur within an already urbanised setting and are unlikely to result in significant long-term social or economic impacts.

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

The proposed sewer upgrades are expected to cost R 7 048 043,50. The upgrades will increase the resilience and functioning of the Rosemoor sewerage and stormwater network which will benefit the Rosemoor community as a whole.

Local labour will be sourced for the construction phase.

Municipal Tender rules apply.

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

This proposal is going to address the needs of the community because the greater sewerage and stormwater network in Rosemoor will be improved, and the proposal will provide jobs to locals during the construction phase.

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.

Impacts will be temporary in nature and limited to the construction phase. Increasing the sewerage and stormwater network capacity and resilience will decrease future sewerage spills and flooding events in the Rosemoor community.

SECTION H: ALTERNATIVES, METHODOLOGY AND ASSESSMENT OF ALTERNATIVES

1. Details of the alternatives identified and considered

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

Provide a description of the preferred property and site alternative.

The existing and preferred site spans across 4 properties and 2 street parcels: RE/8662, RE8596, Erf 3645, RE/464, Street Parcel RE/23074 and Street Parcel RE/8581. The proposed site is situated towards the north of the town of George, in the Rosemoor suburb.

As the proposal is for the upgrading of an existing sewerage pipelines and stormwater outlets, no property or site alternatives exist.

Provide a description of any other property and site alternatives investigated.

No property or site alternatives are being investigated. The proposal is for the upgrade of existing sewerage pipelines and stormwater outlets.

Provide a motivation for the preferred property and site alternative including the outcome of the site selectin matrix.

The sewerage pipelines and stormwater outlets have been at this site for many years and connects to the existing sewerage and stormwater infrastructure. It will not make sense to move the whole site somewhere else, and this would require the construction of new sewerage and stormwater infrastructure such as pump stations as well.

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

Not Applicable.

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

The sewerage pipelines and stormwater outlets have been at this site for many years and connects to the existing sewerage and stormwater infrastructure. It will not make sense to move the whole site somewhere else, and this would require the construction of new sewerage and stormwater infrastructure such as pump stations as well.

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

Not Applicable.

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

Provide a description of the preferred activity alternative.

The proposed development entails the installation of a sewerage pipeline and stormwater oulets in Rosemoor, George.

Provide a description of any other activity alternatives investigated.

Not Applicable.

Provide a motivation for the preferred activity alternative.

Not Applicable.

Provide a detailed motivation if no activity alternatives exist.

The proposed development entails the installation of a sewerage pipeline and stormwater outlets in Rosemoor, George. No activity alternatives exist or where investigated.

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

Not Applicable.

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.

Not Applicable.

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

Not Applicable.

Provide a motivation for the preferred design or layout alternative.

Not Applicable.

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

Not Applicable.

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

Not Applicable.

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:

Not Applicable to this proposal.
Provide a description of any other technology alternatives investigated.
Not Applicable to this proposal.
Provide a motivation for the preferred technology alternative.
Not Applicable to this proposal.
Provide a detailed motivation if no alternatives exist.
Not Applicable to this proposal.
List the positive and negative impacts that the technology alternatives will have on the environment.
Not Applicable to this proposal.

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

Provide a description of the preferred operational alternative.
Not Applicable to this proposal.
Provide a description of any other operational alternatives investigated.
Not Applicable to this proposal.
Provide a motivation for the preferred operational alternative.
Not Applicable to this proposal.
Provide a detailed motivation if no alternatives exist.
Not Applicable to this proposal.
List the positive and negative impacts that the operational alternatives will have on the environment.
Not Applicable to this proposal.

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.
Sewerage infrastructure must be maintained and periodically upgraded to ensure functionality and prevent breakdowns. Stormwater infrastructure must be maintained and periodically upgraded to prevent flooding events and erosion to wetland habitat.

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.

Not Applicable.

1.8.	Provide a concluding statement indicating the preferred alternatives, including the preferred location of the activity.

The proposed development entails the installation of a bulk sewage pipeline, sewerage by-pass pipeline and 9 stormwater outlet structures in Rosemoor George. The existing and preferred site spans across 4 properties and 2 street parcels: RE/8662, RE8596, Erf 3645, RE/464, Street Parcel RE/23074 and Street Parcel RE/8581. The proposed site is situated towards the north of the town of George, in the Rosemoor suburb. No site or activity alternatives exist as explained above.

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).
10m disturbance corridor around the construction footprint will be allowed for excavator access, all areas past the disturbance corridor will be regarded as No-Go. Please see the Figures below for the No-Go maps that will be included in the EMPr.

Figure 33: No-Go Map.

Figure 34: No-Go Map – Bulk sewerage pipeline and stormwater outlets.

Figure 35: No-Go Map – Sewerage by-pass line.

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).

Determination of Extent (Scale):

Site specific	On site or within 100 m of the site boundary, but not beyond the property boundaries.
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 impacts will occur at some stage of the development. Plans must be drawn up to mitigate the activity before the activity commences.
Definite	The impact will take place regardless of any prevention plans.

Determination of Significance (without mitigation):

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

Determination of Significance (with mitigation):

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

Determination of Reversibility:

Completely Reversible	The impact is reversible with implementation of minor mitigation measures
Partly Reversible	The impact is partly reversible but more intense mitigation measures

Barely Reversible	The impact is unlikely to be reversed even with intense mitigation measures
Irreversible	The impact is irreversible, and no mitigation measures exist

Determination of Degree to which an Impact can be Mitigated:

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

Determination of Loss of Resources:

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

Determination of Cumulative Impact:

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

Determination of Consequence significance:

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

4. Assessment of each impact and risk identified for each alternative

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

CONSTRUCTION PHASE:

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Construction Phase		
Terrestrial Assessment Impact 1		
Potential impact and risk:	**Permanent or temporary loss of indigenous vegetation cover:** • **Permanent or temporary loss of indigenous vegetation cover because of site clearing. Site clearing before construction will result in the**	

	blanket clearing of vegetation within the affected footprint.	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and Short Term**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Definite**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	
Degree to which the impact can be avoided:	**Moderate**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- No clearing outside of development footprint to take place.
- Areas surrounding the footprints should be revegetated on completion of construction.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Construction Phase		
Terrestrial Assessment Impact 2		
Potential impact and risk:	**Loss of flora Species of Conservation Concern:** • **Loss of flora Species of Conservation Concern during pre-construction site clearing activities. Several Species of Conservation Concern are known from surrounding areas, which could be destroyed during site preparation, none of which were confirmed to be present.**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and Short Term**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation	**Low (-)**	

(e.g. Low, Medium, Medium-High, High, or Very-High)		
Degree to which the impact can be avoided:	**Moderate**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- A flora search and rescue is unlikely to be required and no protected flora were found to be present within a natural context.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Construction Phase		
Terrestrial Assessment Impact 3		
Potential impact and risk:	**Susceptibility of post construction disturbed areas to invasion by exotic and alien invasive species:** • **Susceptibility of post construction disturbed areas to invasion by exotic and alien invasive species and removal of exotic and alien invasive species during construction. Post construction disturbed areas having no vegetation cover are often susceptible to invasion by weedy and alien species, which can not only become invasive but also prevent natural flora from becoming established.**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and Medium**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Highly Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	
Degree to which the impact can be avoided:	**Moderate**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	

Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- A suitable weed management strategy to be implemented in and around the site post construction, which is likely to result in proliferation of weeds in disturbed areas on completion.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Construction Phase		
Terrestrial Assessment Impact 4		
Potential impact and risk:	**Susceptibility of some areas to erosion associated with slopes and proximity to watercourses:** • **Susceptibility of some areas to erosion because of construction related disturbances on slopes or in proximity to watercourses. Removal of vegetation cover and soil disturbance may result in some areas being susceptible to soil erosion after completion of the activity.**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and Medium**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	
Degree to which the impact can be avoided:	**Moderate**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- Suitable measures must be implemented where constructed on slopes to protected against erosion.
- Suitable measures must be implemented at all discharge points to protected against erosion.
- Areas must be rehabilitated, and a suitable indigenous grass seed mix planted where natural vegetation re-establishment does not occur.

Alternative:	Preferred Alternative	No-Go Alternative
Construction Phase		
Terrestrial Assessment Impact 5		
Potential impact and risk:	**Disturbances to ecological processes:** • **Disturbances to ecological processes: Activity may result in disturbances to ecological processes.**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and Short term**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	
Degree to which the impact can be avoided:	**High**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- A suitable weed management strategy to be implemented in and around the site post construction, which is likely to result in proliferation of weeds in disturbed areas on completion.

Alternative:	Preferred Alternative	No-Go Alternative
Construction Phase		
Terrestrial Assessment Impact 6		
Potential impact and risk:	**Aquatic and Riparian processes:** • **Aquatic and Riparian processes: None present/affected**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and very short term**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	

Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium (-)**	
Degree to which the impact can be avoided:	**Moderate**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**NO IMPACT**

Mitigation Measures:

- Adequate measures to be implemented for erosion control in excavations during and after construction.
- Adequate measures to be implemented for erosion and stormwater management and/or dispersion at stormwater discharge points.
- It is imperative that trenches near the watercourses (and the site as a while) are not left open for extended periods of time during construction.
- Where possible, design of discharge points should accommodate measures to trap and reduce discharge of solid waste into watercourses (paper, plastic, etc), that would allow for easier ongoing cleanup.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Construction Phase		
Terrestrial Assessment Impact 7		
Potential impact and risk:	**Loss of faunal Species of Conservation Concern:** • **Loss of faunal SCC due to construction activities: Activities associated with bush clearing, killing of perceived dangerous fauna, may lead to increased mortalities among faunal species.**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and very short term**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	
Degree to which the impact can be avoided:	**High**	
Degree to which the impact can be managed:	**High**	

Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- Small mammals within the habitat on and around the affected area are generally mobile and likely to be transient to the area. Specific measures are made to reduce this risk. The risk of species of special concern is low, and it is unlikely that there will be any impact to populations of such species because of the activity.
- A faunal search and rescue is unlikely to be required and no protected species are likely to be affected but is recommended as a precautionary measure.
- No animals are to be harmed, trapped or killed during the course of operations other than where rescue is required and only undertaken by an expert.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Construction Phase		
Terrestrial Assessment Impact 8		
Potential impact and risk:	**Loss of Faunal Processes:** • **Impacts to faunal processes because of the activity**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and very short term**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	
Degree to which the impact can be avoided:	**High**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- Small mammals within the habitat on and around the affected area are generally mobile and likely to be transient to the area. Specific measures are made to reduce this risk. The risk of species of special concern is low, and it is unlikely that there will be any impact to populations of such species because of the activity.
- The habitats and microhabitats present on the project site are not unique and are widespread in the general area, hence the local impact associated with the footprint above current baseline levels would be of low significance if mitigation measures are adhered to.
- A faunal search and rescue is unlikely to be required and no protected species are likely to be affected but is recommended as a precautionary measure.
- No animals are to be harmed, trapped or killed during the course of operations other than where rescue is required and only undertaken by an expert. .

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Construction Phase		
Terrestrial Assessment Impact 9		
Potential impact and risk:	**Loss of Faunal Habitat:** • **Loss of Faunal Habitat: Activity may result in the loss of habitat for faunal species, which could result in disturbance and displacement of faunal species.**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and very short term**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	
Degree to which the impact can be avoided:	**High**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- The habitats and microhabitats present on the project site are not unique and are widespread in the general area, hence the local impact associated with the footprint above current baseline levels would be of low significance if mitigation measures are adhered to. Faunal Species

- Small mammals within the habitat on and around the affected area are generally mobile and likely to be transient to the area. Specific measures are made to reduce this risk. The risk of species of special concern is low, and it is unlikely that there will be any impact to populations of such species because of the activity.
- A faunal search and rescue is unlikely to be required and no protected species are likely to be affected but is recommended as a precautionary measure.
- No animals are to be harmed, trapped or killed during the course of operations other than where rescue is required and only undertaken by an expert.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Construction Phase		
Aquatic Assessment Impact 1		
Potential impact and risk:	**Pollution of Wetland caused by Construction Activities: General construction impacts associated with vehicles, workers and storage of construction equipment and include the following:** • **Pollution of watercourses through leakage of fuels, oils, and other pollutants from vehicles and construction machinery, or from washing of equipment and vehicles;** • **The presence of construction workers on site will require the need for appropriate ablution facilities. Poor management of these facilities could potentially lead to sewage spills or leaks which could contaminate watercourses;** • **Storage of construction materials or the temporary lay-down of equipment within an area that drains in the direction of the watercourse;** • **Dumping of excavated material into the watercourse;** • **Poor management of waste generated during construction activities; and** • **Mixing of concrete or cement in or in close proximity to watercourses.**	
Nature of impact:	**Management of construction site and workers**	**NO IMPACT**
Extent and duration of impact:	**Site-Specific & Short Term**	
Consequence of impact or risk:	**Disturbance and pollution of wetland habitat**	
Probability of occurrence:	**Highly Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal Loss**	
Degree to which the impact can be reversed:	**Fully Reversible**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**Medium**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium (-)**	
Degree to which the impact can be avoided:	**High**	
Degree to which the impact can be managed:	**High**	

Degree to which the impact can be mitigated:	**High**	
Proposed mitigation:	**See below.**	
Residual impacts:	**Very Low**	
Cumulative impact post mitigation:	**Negligible**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Negligible**	**NO IMPACT**

Mitigation Measures:

- Excavators and all other machinery and vehicles must be checked for oil and fuel leaks daily. No machinery or vehicles with leaks are permitted to work in the wetland;
- Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, must be located on impervious bases and should have bunds around them (sized to contain 110 % of the tank capacity) to contain any possible spills;
- Chemical toilets should be provided on-site at 1 toilet per 10 persons;
- Waste from chemical toilets must be disposed of regularly (at least once a week) in a responsible manner by a registered waste contractor;
- Cement/concrete used in the construction must not be mixed on bare ground or within the delineated extent of the wetlands. An impermeable/bunded area must be established in such a way that cement slurry, runoff and cement water will be contained and will not flow into the surrounding environment or contaminate the soil;
- Workers must be properly instructed in the proper care of the environment, especially with respect to poaching, disturbance of nesting and roosting areas, disposal of human waste, garbage etc.;
- Construction areas to be inspected on a regular basis (at least weekly) by an appropriately qualified ECO for signs of disturbance, sedimentation and pollution during the construction phase. If signs of disturbance, sedimentation or pollution are noted, immediate action should be taken to remedy the situation and, if necessary, a freshwater ecologist should be consulted for advice on the most suitable remediation measures.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Construction Phase		
Aquatic Assessment Impact 2		
Potential impact and risk:	**Mobilisation of Sediment Caused by the Excavation of Trench:** • **Installation of a new bulk sewer pipeline will require the excavation of a trench along the edge of and through a small section of the wetland which will expose bare soil to environmental elements and could lead to erosion of the embankment during heavy rainfall events. This can result in increased instream turbidity and sedimentation of aquatic habitat (including wetland habitat). Given the current PES of the affected wetland these impacts are not expected to be particularly severe if the appropriate mitigation measures are implemented. There is no impact associated with the No-Go option.**	
Nature of impact:	**Excavation of embankment**	**NO IMPACT**
Extent and duration of impact:	**Site-Specific & Short Term**	
Consequence of impact or risk:	**Erosion and sedimentation of wetland habitat**	

Probability of occurrence:	**Highly Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal Loss**	
Degree to which the impact can be reversed:	**Fully Reversible**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**Medium**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium (-)**	
Degree to which the impact can be avoided:	**High**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**High**	
Proposed mitigation:	**See below.**	
Residual impacts:	**Very Low**	
Cumulative impact post mitigation:	**Negligible**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**NO IMPACT**

Mitigation Measures:

- Construction activities must be timed to coincide with low rainfall probability (dry season) to avoid erosion of exposed banks;
- A silt fence must be placed downslope of the trench, along the length of the pipeline alignment;
- No laydown areas, stockpiling of construction materials or excavated topsoil is permitted within delineated wetland areas;
- Construction must be sequenced so that installation of the pipeline can take place with the minimum possible delay. Disturbance/excavation of areas where the pipeline is to be installed must be undertaken only when final placement can follow immediately following the initial disturbance;
- A construction schedule must be developed and clearly defined so as to avoid multiple sites being exposed and unattended to at any moment in time. The completion date for each phase of development must be indicated and all clearing, excavation, and stabilisation operations must be completed before moving onto the next phase;
- Following backfilling of the trench, exposed unvegetated slopes must be stabilised with appropriate geotextiles (e.g. SoilSaver®) or vegetated with appropriate indigenous vegetation. Banks must be regraded to match existing slopes/contours; and
- Wooden stakes must be used to anchor erosion control mats as there is a high probability that metal stakes will be stolen.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Construction Phase		
Aquatic Assessment Impact 3		
Potential impact and risk:	**Disturbance of Wetland Habitat caused by the Excavation of the Trench (Sewerage Upgrade):** • **The pipeline is aligned through a small section of delineated wetland habitat. Construction of the pipeline though this habitat will result in physical disturbance of this habitat. There is no impact associated with the No-Go option.**	

Nature of impact:	**Excavation of delineated wetland habitat**	**NO IMPACT**
Extent and duration of impact:	**Site-Specific & Short Term**	
Consequence of impact or risk:	**Disturbance of wetland habitat**	
Probability of occurrence:	**Highly Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal Loss**	
Degree to which the impact can be reversed:	**Completely Reversible**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**Low**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High (-)**	
Degree to which the impact can be avoided:	**High**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be partly mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**Medium**	
Cumulative impact post mitigation:	**Low**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium (-)**	**NO IMPACT**

Mitigation Measures:

- Construction within wetland seep areas must be confined to clearly demarcated areas so as to prevent unnecessary disturbance of wetland habitat outside of these areas;
- Where crossing through delineated wetland habitat is unavoidable, use less disruptive methods if these are feasible. For example, horizontal directional drilling (HDD) can be used to install the pipeline beneath the wetland, avoiding surface disturbance;
- Restrict construction activities to designated corridors and limit vehicle and equipment movement to reduce soil compaction and habitat damage;
- Revegetation of disturbed wetland areas must be actively encouraged. The pipeline route is currently well covered by indigenous wetland vegetation which could be used to revegetate the trench post-construction. It is recommended that when trenching, a top layer of vegetation in association with 20-30 cm of soil should be removed and set aside for replanting or covering the backfilled in trench;
- During excavation of the trench, topsoil and subsoil must be separated and, when backfilled, must be replaced in sequence (i.e. subsoil followed by topsoil); and
- Once construction has been completed, the trench must be backfilled and the original topography, soil structure, and hydrology must be restored as much as possible to ensure water can flow freely and the vegetation can re-establish.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Construction Phase		
Aquatic Assessment Impact 4		
Potential impact and risk:	**Disturbance of Aquatic Habitat caused by the Excavation of the Bed & Banks (Stormwater Outlets):** • **Additional impacts associated with the construction phase involve the loss of additional habitat and biota as a result of**	

	disturbances (e.g. from construction vehicles and machinery) that occur outside of the areas designated for the installation of stormwater outlets. Given the current PES of the watercourses these impacts are not expected to be particularly severe if the appropriate mitigation measures are implemented. There is no impact associated with the No-Go option.	
Nature of impact:	**Excavation of banks**	**NO IMPACT**
Extent and duration of impact:	**Site-Specific & Short Term**	
Consequence of impact or risk:	**Disturbance of wetland habitat**	
Probability of occurrence:	**Highly Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal Loss**	
Degree to which the impact can be reversed:	**Fully Reversible**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**Medium**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium (-)**	
Degree to which the impact can be avoided:	**High**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**High**	
Proposed mitigation:	**See below.**	
Residual impacts:	**Very Low**	
Cumulative impact post mitigation:	**Negligible**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**NO IMPACT**

Mitigation Measures:

- Areas where instream construction activities will take place must be confined to clearly demarcated areas so as to prevent unnecessary disturbance of instream and riparian habitat outside of these areas; and
- A single point of access must be used to access each site.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Construction Phase		
Socio-economic Impact 1		
Potential impact and risk:	**Job creation:** • **Employment opportunities will be created during the construction phase of the project.** • **Approximately 100% of these opportunities will accrue to historically disadvantaged individuals from the surrounding communities.**	
Nature of impact:	**Positive**	**NO IMPACT**

Extent and duration of impact:	**Local – short term**	
Consequence of impact or risk:	**N/A**	
Probability of occurrence:	**Definite**	
Degree to which the impact may cause irreplaceable loss of resources:	**No loss**	
Degree to which the impact can be reversed:	**N/A**	
Indirect impacts:	**N/A**	
Cumulative impact prior to mitigation:	**Low (+)**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (+)**	
Degree to which the impact can be avoided:	**N/A**	
Degree to which the impact can be managed:	**N/A**	
Degree to which the impact can be mitigated:	**N/A**	
Proposed mitigation:	**SEE BELOW**	
Residual impacts:	**Negligible**	
Cumulative impact post mitigation:	**Low (+)**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (+)**	**NO IMPACT**

Mitigation Measures:

No mitigation required for this positive benefit. However, preference should be given to previously disadvantaged individuals from the local community when appointing contractors/ workers. All construction employees/ contractors must be appointed according to the relevant BBBEE and employment equity requirements of the Applicant.

SITE CLOSURE/REHABILITATION PHASE:

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Site Closure and Rehabilitation Phase		
Terrestrial Assessment Impact 1		
Potential impact and risk:	**Permanent or temporary loss of indigenous vegetation cover:** • **Permanent or temporary loss of indigenous vegetation cover because of site clearing. Site clearing before construction will result in the blanket clearing of vegetation within the affected footprint.**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and Short Term**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Definite**	

Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	
Degree to which the impact can be avoided:	**High**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- No clearing outside of development footprint to take place.
- Areas surrounding the footprints should be revegetated on completion of construction.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Site Closure and Rehabilitation Phase		
Terrestrial Assessment Impact 2		
Potential impact and risk:	**Loss of flora Species of Conservation Concern:** • **Loss of flora Species of Conservation Concern during pre-construction site clearing activities. Several Species of Conservation Concern are known from surrounding areas, which could be destroyed during site preparation, none of which were confirmed to be present.**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and Short Term**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	

Degree to which the impact can be avoided:	**High**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- A flora search and rescue is unlikely to be required and no protected flora were found to be present within a natural context.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Site Closure and Rehabilitation Phase		
Terrestrial Assessment Impact 3		
Potential impact and risk:	**Susceptibility of post construction disturbed areas to invasion by exotic and alien invasive species:** • **Susceptibility of post construction disturbed areas to invasion by exotic and alien invasive species and removal of exotic and alien invasive species during construction. Post construction disturbed areas having no vegetation cover are often susceptible to invasion by weedy and alien species, which can not only become invasive but also prevent natural flora from becoming established.**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and Medium**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Highly Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	
Degree to which the impact can be avoided:	**Moderate**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	

Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- A suitable weed management strategy to be implemented in and around the site post construction, which is likely to result in proliferation of weeds in disturbed areas on completion.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Site Closure and Rehabilitation Phase		
Terrestrial Assessment Impact 4		
Potential impact and risk:	**Susceptibility of some areas to erosion associated with slopes and proximity to watercourses:** • **Susceptibility of some areas to erosion because of construction related disturbances on slopes or in proximity to watercourses. Removal of vegetation cover and soil disturbance may result in some areas being susceptible to soil erosion after completion of the activity.**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and Medium**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	
Degree to which the impact can be avoided:	**Moderate**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- Suitable measures must be implemented where constructed on slopes to protected against erosion.
- Areas must be rehabilitated, and a suitable indigenous grass seed mix planted where natural vegetation re-establishment does not occur.

Alternative:	Preferred Alternative	No-Go Alternative
Site Closure and Rehabilitation Phase		
Terrestrial Assessment Impact 5		
Potential impact and risk:	**Disturbances to ecological processes:** • **Disturbances to ecological processes: Activity may result in disturbances to ecological processes.**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and Short term**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	
Degree to which the impact can be avoided:	**High**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- A suitable weed management strategy to be implemented in and around the site post construction, which is likely to result in proliferation of weeds in disturbed areas on completion.

Alternative:	Preferred Alternative	No-Go Alternative
Site Closure and Rehabilitation Phase		
Terrestrial Assessment Impact 6		
Potential impact and risk:	**Aquatic and Riparian processes:** • **Aquatic and Riparian processes: None present/affected**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and very short term**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	

Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium (-)**	
Degree to which the impact can be avoided:	**Moderate**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**NO IMPACT**

Mitigation Measures:

- Adequate measures to be implemented for erosion control in excavations during and after construction.
- Where possible, design of discharge points should accommodate measures to trap and reduce discharge of solid waste into watercourses (paper, plastic, etc), that would allow for easier ongoing cleanup.
- It is imperative that trenches near the watercourses (and the site as a while) are not left open for extended periods of time during construction.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Site Closure and Rehabilitation Phase		
Terrestrial Assessment Impact 7		
Potential impact and risk:	**Loss of faunal Species of Conservation Concern:** • **Loss of faunal SCC due to construction activities: Activities associated with bush clearing, killing of perceived dangerous fauna, may lead to increased mortalities among faunal species.**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and very short term**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	
Degree to which the impact can be avoided:	**High**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	

Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- Small mammals within the habitat on and around the affected area are generally mobile and likely to be transient to the area. Specific measures are made to reduce this risk. The risk of species of special concern is low, and it is unlikely that there will be any impact to populations of such species because of the activity.
- A faunal search and rescue is unlikely to be required and no protected species are likely to be affected but is recommended as a precautionary measure.
- No animals are to be harmed, trapped or killed during the course of operations other than where rescue is required and only undertaken by an expert.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Site Closure and Rehabilitation Phase		
Terrestrial Assessment Impact 8		
Potential impact and risk:	**Loss of Faunal Processes:** • **Impacts to faunal processes because of the activity**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and very short term**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	
Degree to which the impact can be avoided:	**High**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- Small mammals within the habitat on and around the affected area are generally mobile and likely to be transient to the area. Specific measures are made to reduce this risk. The risk of

species of special concern is low, and it is unlikely that there will be any impact to populations of such species because of the activity.

- A faunal search and rescue is unlikely to be required and no protected species are likely to be affected but is recommended as a precautionary measure.
- No animals are to be harmed, trapped or killed during the course of operations other than where rescue is required and only undertaken by an expert. .

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Site Closure and Rehabilitation Phase		
Terrestrial Assessment Impact 9		
Potential impact and risk:	**Loss of Faunal Habitat:** • **Loss of Faunal Habitat: Activity may result in the loss of habitat for faunal species, which could result in disturbance and displacement of faunal species.**	
Nature of impact:	**Negative**	**NO IMPACT**
Extent and duration of impact:	**Local and very short term**	
Consequence of impact or risk:	**Low**	
Probability of occurrence:	**Probable**	
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal loss of resource**	
Degree to which the impact can be reversed:	**High**	
Indirect impacts:	**None**	
Cumulative impact prior to mitigation:	**None**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	
Degree to which the impact can be avoided:	**High**	
Degree to which the impact can be managed:	**High**	
Degree to which the impact can be mitigated:	**Can be mitigated**	
Proposed mitigation:	**See below.**	
Residual impacts:	**None**	
Cumulative impact post mitigation:	**None**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Very Low (-)**	**NO IMPACT**

Mitigation Measures:

- The habitats and microhabitats present on the project site are not unique and are widespread in the general area, hence the local impact associated with the footprint above current baseline levels would be of low significance if mitigation measures are adhered to. Faunal Species
- Small mammals within the habitat on and around the affected area are generally mobile and likely to be transient to the area. Specific measures are made to reduce this risk. The risk of species of special concern is low, and it is unlikely that there will be any impact to populations of such species because of the activity.
- A faunal search and rescue is unlikely to be required and no protected species are likely to be affected but is recommended as a precautionary measure.

- No animals are to be harmed, trapped or killed during the course of operations other than where rescue is required and only undertaken by an expert.

OPERATIONAL PHASE:

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Operational Phase		
Aquatic Assessment Impact 5		
Potential impact and risk:	**Sewage spills from upgraded bulk sewer pipeline:** • **While blockages and spills may still occur, increasing the diameter of the pipeline is likely to reduce the frequency of these events occurring. The No-Go scenario (smaller diameter pipe) will not result in any improvement.**	
Nature of impact:	**Reduced blockages and associated sewage spills due to increased pipe diameter**	**Continued blockages and associated sewage spills**
Extent and duration of impact:	**Site-Specific & Long Term**	**Site-Specific & Long Term**
Consequence of impact or risk:	**Reduced pollution of wetland habitat**	**No reduction in pollution of wetland habitat**
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:	**Fully Reversible**	**Fully Reversible**
Indirect impacts:	**None**	**None**
Cumulative impact prior to mitigation:	**Low**	**Medium**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (+)**	**Moderate (-)**
Degree to which the impact can be avoided:	**High**	**High**
Degree to which the impact can be managed:	**High**	**High**
Degree to which the impact can be mitigated:	**High**	**High**
Proposed mitigation:	**See below.**	**None – No Go**
Residual impacts:	**Low**	**Moderate**
Cumulative impact post mitigation:	**Low**	**Moderate**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (+)**	**Moderate (-)**

Mitigation Measures:

- The pipeline must be inspected on a routine basis to ensure that is free of any blockages and debris and is operating according to design specifications.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Operational Phase		
Aquatic Assessment Impact 6		

Potential impact and risk:	**Modification to Wetland Habitat Caused by Discharge of Stormwater Runoff.:** • **The most serious impacts related to stormwater discharge relates to the input of high volumes of water at high velocity, which has already caused erosion of wetland seep habitat. Considering that all outlets currently discharge stormwater into the Meul River and associated wetland habitat, the intensity of impact has been assessed relative to the current scenario. In this respect the addition of energy dissipation structures designed to reduce the velocity of the water discharged which will help to prevent erosion problems and represents a positive impact. The No-Go scenario will result in continued erosion of wetland seep habitat and deposition of high quantities of sediment into the river.**	
Nature of impact:	**Discharge of stormwater into wetland habitat**	**Discharge of stormwater into wetland habitat**
Extent and duration of impact:	**Site-Specific & Long Term**	**Site-Specific & Long Term**
Consequence of impact or risk:	**Reduced erosion of wetland habitat**	**Erosion of wetland habitat**
Probability of occurrence:	**Highly Probable**	**Definite**
Degree to which the impact may cause irreplaceable loss of resources:	**Marginal Loss**	**Marginal Loss**
Degree to which the impact can be reversed:	**Fully Reversible**	**Fully Reversible**
Indirect impacts:	**None**	**None**
Cumulative impact prior to mitigation:	**Low**	**Medium**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (+)**	**Moderate (-)**
Degree to which the impact can be avoided:	**High**	**High**
Degree to which the impact can be managed:	**High**	**High**
Degree to which the impact can be mitigated:	**High**	**High**
Proposed mitigation:	**See below.**	**None – No Go**
Residual impacts:	**Low**	**Moderate**
Cumulative impact post mitigation:	**Low**	**Moderate**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low (+)**	**Moderate (-)**

Mitigation Measures:

- The stormwater outlet structures must be inspected on a routine basis to ensure that is free of any blockages and debris and is operating according to design specifications;
- The bed and banks of the river must be routinely inspected (especially following heavy rainfall events) to ensure that the outlet structure is not causing unnecessary erosion of the bed and banks of the river. Any erosion observed must immediately be attended to through appointment of a suitably qualified aquatic specialist;
- All gabion structures must be inspected on a routine basis to ensure that the baskets are intact and that rocks have not displaced. Any faults must be immediately repaired; and

- Gabion structures must be lined with geotextiles to prevent the migration of fines that would otherwise undermine these structures.

Alternative:	**Preferred Alternative**	**No-Go Alternative**
Operational Phase		
Socio-economic Impact 2		
Potential impact and risk:	**Improve efficiency and reliability of the municipal wastewater network:** • **improve the efficiency, reliability, and environmental compliance of the municipal wastewater network, which directly benefits local residents, businesses, and public facilities through enhanced sanitation services and protection of water quality in the Rosemoor community. This improvement reduces the risk of sewage leaks, odours, and contamination, contributing to a healthier and safer living environment.**	
Nature of impact:	**Positive**	**NO IMPACT**
Extent and duration of impact:	**Local – long term**	
Consequence of impact or risk:	**N/A**	
Probability of occurrence:	**Definite**	
Degree to which the impact may cause irreplaceable loss of resources:	**No loss**	
Degree to which the impact can be reversed:	**N/A**	
Indirect impacts:	**N/A**	
Cumulative impact prior to mitigation:	**Medium (+)**	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium (+)**	
Degree to which the impact can be avoided:	**N/A**	
Degree to which the impact can be managed:	**N/A**	
Degree to which the impact can be mitigated:	**N/A**	
Proposed mitigation:	**SEE BELOW**	
Residual impacts:	**Negligible**	
Cumulative impact post mitigation:	**Medium (+)**	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium (+)**	**NO IMPACT**

Mitigation Measures:

No mitigation required for this positive benefit.

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.

Table 14 below summarises the potential Impacts associated with the proposed development post mitigation. Please refer to the Section I (2) for the proposed mitigation measures to ensure the corresponding rating post mitigation.

Table 14: Summary of Impacts:

Impact	Preferred Alternative	No-Go Alternative
CONSTRUCTION PHASE		
PERMANENT OR TEMPORARY LOSS OF INDIGENOUS VEGETATION COVER	Very Low (-)	No Impact
LOSS OF FLORA SPECIES OF CONSERVATION CONCERN	Very Low (-)	No Impact
SUSCEPTIBILITY OF POST CONSTRUCTION DISTURBED AREAS TO INVASION BY EXOTIC AND ALIEN INVASIVE SPECIES	Very Low (-)	No Impact
SUSCEPTIBILITY OF SOME AREAS TO EROSION ASSOCIATED WITH SLOPES AND PROXIMITY TO WATERCOURSES	Very Low (-)	No Impact
DISTURBANCES TO ECOLOGICAL PROCESSES	Very Low (-)	No Impact
AQUATIC AND RIPARIAN PROCESSES	Low (-)	No Impact
LOSS OF FAUNAL SPECIES OF CONSERVATION CONCERN	Very Low (-)	No Impact
LOSS OF FAUNAL HABITAT	Very Low (-)	No Impact
LOSS OF FAUNAL PROCESSES	Very Low (-)	No Impact
POLLUTION OF WETLAND CAUSED BY CONSTRUCTION ACTIVITIES	Low (-)	No Impact
MOBILISATION OF SEDIMENT CAUSED BY THE EXCAVATION OF TRENCH	Low (-)	No Impact
DISTURBANCE OF WETLAND HABITAT CAUSED BY THE EXCAVATION OF THE TRENCH (SEWAGE UPGRADE)	Medium (-)	No Impact
DISTURBANCE OF AQUATIC HABITAT CAUSED BY THE EXCAVATION OF THE BED & BANKS (STORMWATER OUTLETS)	Low (-)	No Impact
JOB CREATION	Low (+)	No Impact
SITE CLOSURE/REHABILITATION PHASE		
PERMANENT OR TEMPORARY LOSS OF INDIGENOUS VEGETATION COVER	Very Low (-)	No Impact
LOSS OF FLORA SPECIES OF CONSERVATION CONCERN	Very Low (-)	No Impact
SUSCEPTIBILITY OF POST CONSTRUCTION DISTURBED AREAS TO INVASION BY EXOTIC AND ALIEN INVASIVE SPECIES	Very Low (-)	No Impact
SUSCEPTIBILITY OF SOME AREAS TO EROSION ASSOCIATED WITH SLOPES AND PROXIMITY TO WATERCOURSES	Very Low (-)	No Impact
DISTURBANCES TO ECOLOGICAL PROCESSES	Very Low (-)	No Impact
AQUATIC AND RIPARIAN PROCESSES	Low (-)	No Impact
LOSS OF FAUNAL SPECIES OF CONSERVATION CONCERN	Very Low (-)	No Impact
LOSS OF FAUNAL HABITAT	Very Low (-)	No Impact
LOSS OF FAUNAL PROCESSES	Very Low (-)	No Impact
OPERATIONAL PHASE		
SEWAGE SPILLS FROM UPGRADED BULK SEWER PIPELINE	Low (+)	Moderate (-)
MODIFICATION TO WETLAND HABITAT CAUSED BY DISCHARGE OF STORMWATER RUNOFF	Low (+)	High (-)
IMPROVE EFFICIENCY AND RELIABILITY OF THE MUNICIPAL WASTEWATER NETWORK	Medium (+)	No Impact

Specialist Report Conclusions:

Aquatic Assessment, Appendix G1:
Upgrades to the bulk sewage pipeline are likely to result in a Low Negative construction phase impact (assuming implementation of recommended mitigation measures). For the operational phase the increased diameter of the pipeline is likely to result in a reduction in the frequency of blockages and

spills, which is considered a positive impact relative to the No-Go scenario. Given the management objectives for SWSAs, it is important that the proposed upgrade is implemented with a view to improving the efficiency of bulk sewage reticulation. It is therefore recommended that authorisation for the upgrade of the bulk sewage pipeline in Rosemoor be granted.

Lack of erosion protection at stormwater outlets that discharge relatively high up on slopes has caused extensive erosion gullies that extend into wetland habitat along the Meul River. Given the management objectives for SWSAs, it is important that the proposed upgrades are undertaken at all sites so as to alleviate erosion problems. Upgrades are likely to result in a Low Negative construction phase impact (assuming implementation of mitigation measures). For the operational phase the upgraded stormwater outlets will incorporate energy dissipation and erosion control structures which will result in improved mitigation of stormwater discharge into the Meul River system and can be considered a positive impact relative to the No-Go scenario, which will result in continued erosion of wetland habitat below the outlets. It is therefore recommended that authorisation for the upgrade of stormwater infrastructure in Rosemoor be granted. In terms of the NWA, the upgrades will require a General Authorisation.

Terrestrial Biodiversity Compliance Statement and Assessment, Appendix G2:

- The proposed activity is unlikely to pose any significant risk to natural ecological processes, vegetarian or plant and animal species of conservation concern due to the limited footprint and significantly degraded and/or transformed nature of the site(s).
- No PNCO protected species were recorded within any of the proposed sewer pipeline footprints. PNCO (Provincial Nature Conservation Ordinance) permits are not likely to be required for any naturally occurring indigenous species.
- The proposed activity, having a negligible footprint within significantly modified habitat, is thus unlikely to significantly impact any ecological process, intact vegetation with an elevated conservation status or species above current baseline levels, as it will be a temporary activity and will likely return to a pre-construction state within two years.

Terrestrial Biodiversity Assessment, Appendix G3:

- The proposed activity is unlikely to pose any significant risk to natural ecological processes, vegetarian or plant and animal species of conservation concern due to the limited footprint and significantly degraded and/or transformed nature of the site(s).
- No PNCO protected species were recorded within any of the proposed Stormwater outlet footprints. PNCO (Provincial Nature Conservation Ordinance) permits are not likely to be required for any naturally occurring indigenous species.

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

<u>Aquatic Assessment Mitigation Measures:</u>

Construction Phase:

Impact to Mitigate	Mitigation
Pollution of Wetland caused by Construction Activities: • Pollution of watercourses through leakage of fuels, oils, and other pollutants from vehicles and construction machinery, or from washing of equipment and vehicles; • The presence of construction workers on site will require the need for appropriate ablution facilities. Poor management of these facilities could potentially lead to sewage spills or leaks which could contaminate watercourses; • Storage of construction materials or the temporary lay-down of equipment within	• Excavators and all other machinery and vehicles must be checked for oil and fuel leaks daily. No machinery or vehicles with leaks are permitted to work in the wetland; • Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, must be located on impervious bases and should have bunds around them (sized to contain 110 % of the tank capacity) to contain any possible spills; • Chemical toilets should be provided on-site at 1 toilet per 10 persons;

an area that drains in the direction of the watercourse; • Dumping of excavated material into the watercourse; • Poor management of waste generated during construction activities; and • Mixing of concrete or cement in or in close proximity to watercourses.	• Waste from chemical toilets must be disposed of regularly (at least once a week) in a responsible manner by a registered waste contractor; • Cement/concrete used in the construction must not be mixed on bare ground or within the delineated extent of the wetlands. An impermeable/bunded area must be established in such a way that cement slurry, runoff and cement water will be contained and will not flow into the surrounding environment or contaminate the soil; • Workers must be properly instructed in the proper care of the environment, especially with respect to poaching, disturbance of nesting and roosting areas, disposal of human waste, garbage etc.; • Construction areas to be inspected on a regular basis (at least weekly) by an appropriately qualified ECO for signs of disturbance, sedimentation and pollution during the construction phase. If signs of disturbance, sedimentation or pollution are noted, immediate action should be taken to remedy the situation and, if necessary, a freshwater ecologist should be consulted for advice on the most suitable remediation measures.
Mobilisation of Sediment Caused by the Excavation of Trench: • Installation of a new bulk sewer pipeline will require the excavation of a trench along the edge of and through a small section of the wetland which will expose bare soil to environmental elements and could lead to erosion of the embankment during heavy rainfall events. This can result in increased instream turbidity and sedimentation of aquatic habitat (including wetland habitat). Given the current PES of the affected wetland these impacts are not expected to be particularly severe if the appropriate mitigation measures are implemented.	• Construction activities must be timed to coincide with low rainfall probability (dry season) to avoid erosion of exposed banks; • A silt fence must be placed downslope of the trench, along the length of the pipeline alignment; • No laydown areas, stockpiling of construction materials or excavated topsoil is permitted within delineated wetland areas; • Construction must be sequenced so that installation of the pipeline can take place with the minimum possible delay. Disturbance/excavation of areas where the pipeline is to be installed must be undertaken only when final placement can follow immediately following the initial disturbance; • A construction schedule must be developed and clearly defined so as to avoid multiple sites being exposed and unattended to at any moment in time. The completion date for each phase of development must be indicated and all clearing, excavation, and stabilisation operations must be completed before moving onto the next phase;

	• Following backfilling of the trench, exposed unvegetated slopes must be stabilised with appropriate geotextiles (e.g. SoilSaver®) or vegetated with appropriate indigenous vegetation. Banks must be regraded to match existing slopes/contours; and • Wooden stakes must be used to anchor erosion control mats as there is a high probability that metal stakes will be stolen.
Disturbance of Wetland Habitat caused by the Excavation of the Trench (Sewage Upgrade): • The pipeline is aligned through a small section of delineated wetland habitat. Construction of the pipeline though this habitat will result in physical disturbance of this habitat.	• Construction within wetland seep areas must be confined to clearly demarcated areas so as to prevent unnecessary disturbance of wetland habitat outside of these areas; • Where crossing through delineated wetland habitat is unavoidable, use less disruptive methods if these are feasible. For example, horizontal directional drilling (HDD) can be used to install the pipeline beneath the wetland, avoiding surface disturbance; • Restrict construction activities to designated corridors and limit vehicle and equipment movement to reduce soil compaction and habitat damage; • Revegetation of disturbed wetland areas must be actively encouraged. The pipeline route is currently well covered by indigenous wetland vegetation which could be used to revegetate the trench post-construction. It is recommended that when trenching, a top layer of vegetation in association with 20-30 cm of soil should be removed and set aside for replanting or covering the backfilled in trench; • During excavation of the trench, topsoil and subsoil must be separated and, when backfilled, must be replaced in sequence (i.e. subsoil followed by topsoil); and • Once construction has been completed, the trench must be backfilled and the original topography, soil structure, and hydrology must be restored as much as possible to ensure water can flow freely and the vegetation can re-establish.
Disturbance of Aquatic Habitat caused by the Excavation of the Bed & Banks (Stormwater Outlets): • Additional impacts associated with the construction phase involve the loss of additional habitat and biota as a result of disturbances (e.g. from construction vehicles and machinery) that occur outside of the areas designated for the	• Areas where instream construction activities will take place must be confined to clearly demarcated areas so as to prevent unnecessary disturbance of instream and riparian habitat outside of these areas; and • A single point of access must be used to access each site.

installation of stormwater outlets. Given the current PES of the watercourses these impacts are not expected to be particularly severe if the appropriate mitigation measures are implemented.	

Operational Phase:

Impact to Mitigate	Mitigation
Sewage spills from upgraded bulk sewer pipeline: • While blockages and spills may still occur, increasing the diameter of the pipeline is likely to reduce the frequency of these events occurring. The No-Go scenario (smaller diameter pipe) will not result in any improvement.	• The pipeline must be inspected on a routine basis to ensure that is free of any blockages and debris and is operating according to design specifications.
Modification to Wetland Habitat Caused by Discharge of Stormwater Runoff: • The most serious impacts related to stormwater discharge relates to the input of high volumes of water at high velocity, which has already caused erosion of wetland seep habitat. Considering that all outlets currently discharge stormwater into the Meul River and associated wetland habitat, the intensity of impact has been assessed relative to the current scenario. In this respect the addition of energy dissipation structures designed to reduce the velocity of the water discharged which will help to prevent erosion problems and represents a positive impact. The No-Go scenario will result in continued erosion of wetland seep habitat and deposition of high quantities of sediment into the river.	• The stormwater outlet structures must be inspected on a routine basis to ensure that is free of any blockages and debris and is operating according to design specifications; • The bed and banks of the river must be routinely inspected (especially following heavy rainfall events) to ensure that the outlet structure is not causing unnecessary erosion of the bed and banks of the river. Any erosion observed must immediately be attended to through appointment of a suitably qualified aquatic specialist; • All gabion structures must be inspected on a routine basis to ensure that the baskets are intact and that rocks have not displaced. Any faults must be immediately repaired; and • Gabion structures must be lined with geotextiles to prevent the migration of fines that would otherwise undermine these structures.

<u>Terrestrial Biodiversity Compliance Statement and Assessment Mitigation Measures:</u>

Construction Phase:

Impact to Mitigate	Mitigation
Permanent or temporary loss of indigenous vegetation cover: • Permanent or temporary loss of indigenous vegetation cover because of site clearing. Site clearing before construction will result in the blanket clearing of vegetation within the affected footprint.	• No clearing outside of development footprint to take place. • Areas surrounding the footprints should be revegetated on completion of construction.
Loss of flora Species of Conservation Concern: • Loss of flora Species of Conservation Concern during pre-construction site clearing activities. Several Species of Conservation Concern are known from surrounding areas, which could be	• A flora search and rescue is unlikely to be required and no protected flora were found to be present within a natural context.

destroyed during site preparation, none of which were confirmed to be present.	
Susceptibility of post construction disturbed areas to invasion by exotic and alien invasive species: • Susceptibility of post construction disturbed areas to invasion by exotic and alien invasive species and removal of exotic and alien invasive species during construction. Post construction disturbed areas having no vegetation cover are often susceptible to invasion by weedy and alien species, which can not only become invasive but also prevent natural flora from becoming established.	• A suitable weed management strategy to be implemented in and around the site post construction, which is likely to result in proliferation of weeds in disturbed areas on completion.
Susceptibility of some areas to erosion associated with slopes and proximity to watercourses: • Susceptibility of some areas to erosion because of construction related disturbances on slopes or in proximity to watercourses. Removal of vegetation cover and soil disturbance may result in some areas being susceptible to soil erosion after completion of the activity.	• Suitable measures must be implemented where constructed on slopes to protected against erosion. • Areas must be rehabilitated, and a suitable indigenous grass seed mix planted where natural vegetation re-establishment does not occur.
Disturbances to ecological processes: • Disturbances to ecological processes: Activity may result in disturbances to ecological processes.	• A suitable weed management strategy to be implemented in and around the site post construction, which is likely to result in proliferation of weeds in disturbed areas on completion.
Aquatic and Riparian processes: • Aquatic and Riparian processes: None present/affected	• Adequate measures to be implemented for erosion control in excavations during and after construction. • Where possible, design of discharge points should accommodate measures to trap and reduce discharge of solid waste into watercourses (paper, plastic, etc), that would allow for easier ongoing cleanup. • It is imperative that trenches near the watercourses (and the site as a while) are not left open for extended periods of time during construction.
Loss of faunal Species of Conservation Concern: • Loss of faunal SCC due to construction activities: Activities associated with bush clearing, killing of perceived dangerous fauna, may lead to increased mortalities among faunal species.	• Small mammals within the habitat on and around the affected area are generally mobile and likely to be transient to the area. Specific measures are made to reduce this risk. The risk of species of special concern is low, and it is unlikely that there will be any impact to populations of such species because of the activity. • A faunal search and rescue is unlikely to be required and no protected species are likely to be affected but is

	recommended as a precautionary measure. • No animals are to be harmed, trapped or killed during the course of operations other than where rescue is required and only undertaken by an expert.
Loss of Faunal Habitat: • Impacts to faunal processes because of the activity	• Small mammals within the habitat on and around the affected area are generally mobile and likely to be transient to the area. Specific measures are made to reduce this risk. The risk of species of special concern is low, and it is unlikely that there will be any impact to populations of such species because of the activity. • A faunal search and rescue is unlikely to be required and no protected species are likely to be affected but is recommended as a precautionary measure. • No animals are to be harmed, trapped or killed during the course of operations other than where rescue is required and only undertaken by an expert.
Loss of Faunal Processes: • Loss of Faunal Habitat: Activity may result in the loss of habitat for faunal species, which could result in disturbance and displacement of faunal species.	• The habitats and microhabitats present on the project site are not unique and are widespread in the general area, hence the local impact associated with the footprint above current baseline levels would be of low significance if mitigation measures are adhered to. Faunal Species

Site Closure / Rehabilitation Phase:

Impact to Mitigate	**Mitigation**
Permanent or temporary loss of indigenous vegetation cover: • Permanent or temporary loss of indigenous vegetation cover because of site clearing. Site clearing before construction will result in the blanket clearing of vegetation within the affected footprint.	• No clearing outside of development footprint to take place. • Areas surrounding the footprints should be revegetated on completion of construction.
Loss of flora Species of Conservation Concern: • Loss of flora Species of Conservation Concern during pre-construction site clearing activities. Several Species of Conservation Concern are known from surrounding areas, which could be destroyed during site preparation, none of which were confirmed to be present.	• A flora search and rescue is unlikely to be required and no protected flora were found to be present within a natural context.
Susceptibility of post construction disturbed areas to invasion by exotic and alien invasive species: • Susceptibility of post construction disturbed areas to invasion by exotic and	• A suitable weed management strategy to be implemented in and around the site post construction, which is likely to result in proliferation of weeds in disturbed areas on completion.

alien invasive species and removal of exotic and alien invasive species during construction. Post construction disturbed areas having no vegetation cover are often susceptible to invasion by weedy and alien species, which can not only become invasive but also prevent natural flora from becoming established.	
Susceptibility of some areas to erosion associated with slopes and proximity to watercourses: • Susceptibility of some areas to erosion because of construction related disturbances on slopes or in proximity to watercourses. Removal of vegetation cover and soil disturbance may result in some areas being susceptible to soil erosion after completion of the activity.	• Suitable measures must be implemented where constructed on slopes to protected against erosion. • Areas must be rehabilitated, and a suitable indigenous grass seed mix planted where natural vegetation re-establishment does not occur.
Disturbances to ecological processes: • Disturbances to ecological processes: Activity may result in disturbances to ecological processes.	• A suitable weed management strategy to be implemented in and around the site post construction, which is likely to result in proliferation of weeds in disturbed areas on completion.
Aquatic and Riparian processes: • Aquatic and Riparian processes: None present/affected	• Adequate measures to be implemented for erosion control in excavations during and after construction. • Where possible, design of discharge points should accommodate measures to trap and reduce discharge of solid waste into watercourses (paper, plastic, etc), that would allow for easier ongoing cleanup. • It is imperative that trenches near the watercourses (and the site as a while) are not left open for extended periods of time during construction.
Loss of faunal Species of Conservation Concern: • Loss of faunal SCC due to construction activities: Activities associated with bush clearing, killing of perceived dangerous fauna, may lead to increased mortalities among faunal species.	• Small mammals within the habitat on and around the affected area are generally mobile and likely to be transient to the area. Specific measures are made to reduce this risk. The risk of species of special concern is low, and it is unlikely that there will be any impact to populations of such species because of the activity. • A faunal search and rescue is unlikely to be required and no protected species are likely to be affected but is recommended as a precautionary measure. • No animals are to be harmed, trapped or killed during the course of operations other than where rescue is required and only undertaken by an expert.

Loss of Faunal Habitat: • Impacts to faunal processes because of the activity	• Small mammals within the habitat on and around the affected area are generally mobile and likely to be transient to the area. Specific measures are made to reduce this risk. The risk of species of special concern is low, and it is unlikely that there will be any impact to populations of such species because of the activity. • A faunal search and rescue is unlikely to be required and no protected species are likely to be affected but is recommended as a precautionary measure. • No animals are to be harmed, trapped or killed during the course of operations other than where rescue is required and only undertaken by an expert. .
Loss of Faunal Processes: • Loss of Faunal Habitat: Activity may result in the loss of habitat for faunal species, which could result in disturbance and displacement of faunal species.	• The habitats and microhabitats present on the project site are not unique and are widespread in the general area, hence the local impact associated with the footprint above current baseline levels would be of low significance if mitigation measures are adhered to. Faunal Species

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.
All of the impact management measures of the appointed specialists will be implemented.	
4.	Explain how the proposed development will impact the surrounding communities.
During the construction phase the surrounding community will be temporarily inconvenienced by the construction noise impacts and visual impacts associated with a construction site however this impact is temporary in nature. Labourers from the communities will be used as labourer during the construction phase.	
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.
No concerns regarding climate change were raised by the specialists.	
6.	Explain whether there are any conflicting recommendations between the specialists. If so, explain how these have been addressed and resolved.
There were no conflicting recommendations made between the specialists.	
7.	Explain how the findings and recommendations of the different specialist studies have been integrated to inform the most appropriate mitigation measures that should be implemented to manage the potential impacts of the proposed activity or development.
All of the recommendations and mitigations measures of the specialists have been incorporated into the EMPr.	
8.	Explain how the mitigation hierarchy has been applied to arrive at the best practicable environmental option.

1	AVOID IMPACTS	THE TEMPORARY IMPACTS TO THE BIOPHYSICAL ENVIRONMENT ARE UNAVOIDABLE
2	MINIMISE IMPACTS	THE IMPACTS WILL BE MINIMISED THROUGH THE IMPLEMENTATION OF THE MITIGATION MEASURES WITHIN THE EMPR
3	RECTIFY	THE DISTURBANCES CREATED BY THE CONSTRUCTION PHASE WILL BE REHABILITATED IN ACCORDANCE WITH THE EMPR
4	OFFSET	NONE NECESSARY

SECTION J: GENERAL

1. Environmental Impact Statement

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

Table 15 below summarises the potential Impacts associated with the proposed development post mitigation. Please refer to the Section I (2) for the proposed mitigation measures to ensure the corresponding rating post mitigation.

Table 15: Summary of Impacts:

Impact	Preferred Alternative	No-Go Alternative
CONSTRUCTION PHASE		
PERMANENT OR TEMPORARY LOSS OF INDIGENOUS VEGETATION COVER	Very Low (-)	No Impact
LOSS OF FLORA SPECIES OF CONSERVATION CONCERN	Very Low (-)	No Impact
SUSCEPTIBILITY OF POST CONSTRUCTION DISTURBED AREAS TO INVASION BY EXOTIC AND ALIEN INVASIVE SPECIES	Very Low (-)	No Impact
SUSCEPTIBILITY OF SOME AREAS TO EROSION ASSOCIATED WITH SLOPES AND PROXIMITY TO WATERCOURSES	Very Low (-)	No Impact
DISTURBANCES TO ECOLOGICAL PROCESSES	Very Low (-)	No Impact
AQUATIC AND RIPARIAN PROCESSES	Low (-)	No Impact
LOSS OF FAUNAL SPECIES OF CONSERVATION CONCERN	Very Low (-)	No Impact
LOSS OF FAUNAL HABITAT	Very Low (-)	No Impact
LOSS OF FAUNAL PROCESSES	Very Low (-)	No Impact
POLLUTION OF WETLAND CAUSED BY CONSTRUCTION ACTIVITIES	Low (-)	No Impact
MOBILISATION OF SEDIMENT CAUSED BY THE EXCAVATION OF TRENCH	Low (-)	No Impact
DISTURBANCE OF WETLAND HABITAT CAUSED BY THE EXCAVATION OF THE TRENCH (SEWAGE UPGRADE)	Medium (-)	No Impact
DISTURBANCE OF AQUATIC HABITAT CAUSED BY THE EXCAVATION OF THE BED & BANKS (STORMWATER OUTLETS)	Low (-)	No Impact
JOB CREATION	Low (+)	No Impact
SITE CLOSURE / REHABILITATION PHASE		
PERMANENT OR TEMPORARY LOSS OF INDIGENOUS VEGETATION COVER	Very Low (-)	No Impact
LOSS OF FLORA SPECIES OF CONSERVATION CONCERN	Very Low (-)	No Impact
SUSCEPTIBILITY OF POST CONSTRUCTION DISTURBED AREAS TO INVASION BY EXOTIC AND ALIEN INVASIVE SPECIES	Very Low (-)	No Impact
SUSCEPTIBILITY OF SOME AREAS TO EROSION ASSOCIATED WITH SLOPES AND PROXIMITY TO WATERCOURSES	Very Low (-)	No Impact
DISTURBANCES TO ECOLOGICAL PROCESSES	Very Low (-)	No Impact
AQUATIC AND RIPARIAN PROCESSES	Low (-)	No Impact
LOSS OF FAUNAL SPECIES OF CONSERVATION CONCERN	Very Low (-)	No Impact
LOSS OF FAUNAL HABITAT	Very Low (-)	No Impact
LOSS OF FAUNAL PROCESSES	Very Low (-)	No Impact
OPERATIONAL PHASE		
SEWAGE SPILLS FROM UPGRADED BULK SEWER PIPELINE	Low (+)	Moderate (-)
MODIFICATION TO WETLAND HABITAT CAUSED BY DISCHARGE OF STORMWATER RUNOFF	Low (+)	High (-)
IMPROVE EFFICIENCY AND RELIABILITY OF THE MUNICIPAL WASTEWATER NETWORK	Medium (+)	No Impact

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)

Please refer to 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.

POSITIVE

- Upgrading municipal infrastructure
- Reduce the chances of localized flooding
- Reduce the chances of localized sewerage spills
- Providing temporary job opportunities for community members

NEGATIVE

- Loss of vegetation
- Temporary inconvenience to residents due to construction

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

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

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

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

PRE-CONSTRUCTION PHASE	
IMPACT MANAGEMENT OBJECTIVES	**IMPACT MANAGEMENT OUTCOMES**
To appoint a suitably qualified and experienced Environmental Control Office	The conditions of Environmental Authorisation and the requirements of the EMPr are implemented and monitored during all phases of the development, which will promote sound environmental management on site.
To ensure the EMPr adheres to the requirements of the Environmental Authorisation and makes provision for the final detailed site layout	Good environmental management is promoted on site.
Identify and demarcate no-go areas, working areas and site facilities	Future construction activities will be restricted to within the designated areas & environmentally sensitive areas (no-go areas) will be protected from disturbance.
To set up and equip the site camp and associated site facilities in a manner that will promote good environmental management.	Site camp facilities do not impact significantly on environment. The equipment required to implement the provisions of the EMPr are provided on site.
Environmental Control Officer to conduct an inspection prior to the commencement of construction activities on site.	Good environmental management is promoted and enforced by the ECO during the full pre-construction and construction phases.

	Site facilities are appropriately located on site. Construction workers receive environmental awareness training before commencing work on site
CONSTRUCTION PHASE	
To limit the permanent or temporary loss of indigenous vegetation cover.	Loss of indigenous vegetation cover is limited.
To limit the loss of flora species of conservation concern.	Loss of flora species of conservation concern is limited.
To prevent the susceptibility of post construction disturbed areas to invasion by exotic and alien invasive species.	Post construction invasion by exotic and alien species is prevented.
To limit the susceptibility of some areas to erosion associated with slopes and proximity to watercourses.	Susceptibility of some areas to erosion associated with slopes and proximity to watercourses is prevented.
To limit the disturbances to ecological processes.	Disturbance to ecological processes is limited.
To limit the disturbance to aquatic and riparian processes.	Disturbance to aquatic and riparian processes is limited.
To prevent the loss of faunal Species of Conservation Concern.	Loss of faunal Species of Conservation Concern is prevented.
To limit the loss of faunal habitat.	Loss of faunal habitat is limited.
To limit the loss of faunal processes.	Loss of faunal processes is limited.
To limit the pollution of wetland caused by construction activities.	Pollution of wetland caused by construction activities is limited.
To limit the mobilisation of sediment caused by the excavation of trench.	Mobilisation of sediment caused by the excavation of the trench is limited.
To limit the disturbance of wetland habitat caused by the excavation of the trench (Sewage Pipeline).	Disturbance of wetland habitat caused by the excavation of the trench is limited.
To limit the disturbance of aquatic habitat caused by the excavation of the bed & banks (Stormwater Outlets)	Disturbance to aquatic habitat caused by the excavation of bed and banks is limited.
To create employment opportunities with potential for skills transfer, for members of the local community.	The local community benefits from the employment opportunities created during the construction phase.
SITE CLOSURE / REHABILITATION PHASE	
To rehabilitate all areas disturbed by construction activities in an environmentally sensitive manner.	The site is neat and tidy and all exposed surfaces are suitably covered/ stabilised.

	There is no construction-related waste or pollution remaining on site.
To limit the permanent or temporary loss of indigenous vegetation cover.	Loss of indigenous vegetation cover is limited.
To limit the loss of flora species of conservation concern.	Loss of flora species of conservation concern is limited.
To prevent the susceptibility of post construction disturbed areas to invasion by exotic and alien invasive species.	Post construction invasion by exotic and alien species is prevented.
To limit the susceptibility of some areas to erosion associated with slopes and proximity to watercourses	Susceptibility of some areas to erosion associated with slopes and proximity to watercourses is prevented.
To limit the disturbances to ecological processes.	Disturbance to ecological processes is limited.
To limit the disturbance to aquatic and riparian processes.	Disturbance to aquatic and riparian processes is limited.
To prevent the loss of faunal Species of Conservation Concern.	Loss of faunal Species of Conservation Concern is prevented.
To limit the loss of faunal habitat.	Loss of faunal habitat is limited.
To limit the loss of faunal processes	Loss of faunal processes is limited.
OPERATIONAL PHASE	
Possible blockages and spills from upgraded bulk sewer pipeline are prevented/reduced due to the increased pipe diameter	Possible blockages and spills are prevented.
Modification to wetland habitat caused by discharge of stormwater runoff is prevented/reduced due to the new energy dissipation structures (Stormwater Outlets).	The risk of modification to wetland habitat caused by discharge of stormwater runoff is prevented/reduced.
Improve efficiency and reliability of the municipal waste water network.	Efficiency and reliability of the municipal waste water network is improved.

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 EMPr must be implemented, this is however a standard condition of Environmental Authorisation.

All mitigation measures from the specialists have been incorporated into the EMPr and as such are conditional to the environmental authorisation.

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.

The proposed development (preferred and only alternative) should be authorised.

As seen in the body of this Basic Assessment Report, the negative impacts associated with the construction phase can be mitigated to that of a low significance. As the proposal is to upgrade a section of the existing sewerage pipeline the negative impacts associated with the proposal are far outweighed by the positive impact of maintaining and upgrading existing sewerage infrastructure.
Proposed Conditions of Authorisation:

- The EMPr must be implemented.

• An ECO must be appointed to monitor compliance with the EMPr

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

It is assumed that the proposed mitigation measures as listed in this report and the EMPr (Appendix H) will be implemented and adhered to as the significance of impacts ratings are conditional on implementation of the mitigation measures.

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.

Time required to undertake the activities:

1 year for tendering purposes
2 years construction and rehabilitation phase
2 years for follow up alien clearing and rehabilitation monitoring

Total proposed validity period of EA: **5 years**

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.
The project will not use water.

4. Waste

Explain what measures have been taken to reduce, reuse or recycle waste.
Not Applicable.

5. Energy Efficiency

8.1.	Explain what design measures have been taken to ensure that the development proposal will be energy efficient.
Not Applicable.	

SECTION K: DECLARATIONS

DECLARATION OF THE APPLICANT

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

I Johannes Franciscus Koegelenberg, ID number 7906085048081 ~~in my~~ 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;

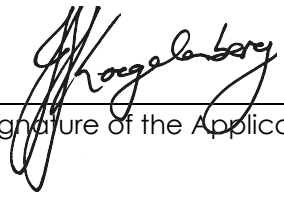
- I appointed the Environmental Assessment Practitioner ("EAP") (if not exempted from this requirement) which:
  - meets all the requirements in terms of Regulation 13 of the NEMA EIA Regulations; or
  - meets all the requirements other than the requirement to be independent in terms of Regulation 13 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.



2026/05/07

Signature of the Applicant: Date:

George Municipality

Name of company (if applicable):

DECLARATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

I Michael Jon Bennett, EAP Registration number 2021/3163 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;

Signature of the EAP: Date: 7 May 2026

Sharples Environmental Services cc

Name of company (if applicable):

DECLARATION OF THE REVIEW EAP

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

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

Signature of the EAP: Date:

Name of company (if applicable):

DECLARATION OF THE SPECIALIST

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

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

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

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

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

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

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

Signature of the EAP: Date:

Name of company (if applicable):

DECLARATION OF THE REVIEW SPECIALIST

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

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

Signature of the EAP: Date:

Name of company (if applicable):