LORNAY
ENVIRONMENTAL CONSULTING

FINAL
BASIC ASSESSMENT REPORT

PROPOSED RESIDENTIAL DEVELOPMENT ON ERF 1486 VERMONT

20 June 2025

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Western Cape Government
Environmental Affairs and Development Planning

FORM NO. BAR10/2019

BASIC ASSESSMENT REPORT

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

NOVEMBER 2019

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

GENERAL PROJECT DESCRIPTION

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

RESIDENTIAL DEVELOPMENT, ERF 1486, VERMONT, HERMANUS, CALEDON RD

EXECUTIVE SUMMARY

The development of 9 single residential erven, ranging from 600 m^2 to 350 m^2, 2 private internal roads and private open space of 7964 m^2, is proposed for Erf 1486, Vermont. The Erf is located within the urban area and surrounded by similar development types. The site is partially impacted and contains internal access road and a large building. There is a wetland on site and some areas of intact indigenous vegetation.

Environmental Sensitivities and Specialist Assessments

A Wetland screening was undertaken at the early stages of the process to inform the proposal and placement of erven on site. Following this screening, a natural Unchanneled Valley-Bottom (UVB) wetland was confirmed and delineated onsite. From this information, the Draft Basic Assessment and various alternatives evolved.

A first round of public participation took place in March 2023. Following comments received, additional specialist information was sourced, and a full Aquatic Impact Assessment and a Terrestrial Botanical Impact Assessment were undertaken to further assist in the evolution of the layout alternatives and application of the mitigation hierarchy.

The wetland was confirmed, and an updated assessment was undertaken during a site assessment by Gericke and van Zyl (Delta Ecology, 2023) on the 30th of May 2023. A full Aquatic Biodiversity Impact Assessment was undertaken as part of the 2023 Aquatic Assessment and is attached under **Appendix F2a** of the BAR. The wetland on site is part of a larger wetland system which links to the Vermont Salt Pan to the southeast and Paddavlei towards the west. A depression has been excavated towards the centre of the study area within the wetland boundaries, with an overflow pipe that crosses beneath Lynx Road and flows into the wetland on the far side thereby creating a hydrological link between the wetlands within the study site and the greater wetland system. An additional stormwater outlet is found in the southeast corner of the study area, which discharges runoff from the neighbouring housing development into the wetland. The remainder of the 1.5 ha study area is extensively disturbed and characterised by a mixture of alien and indigenous vegetation.

A Terrestrial Botanical Impact Assessment was conducted by Nick Helme in May 2023. This assessment found that approximately 70 % of the study area supports vegetation that is classified as Hangklip Sand Fynbos vegetation type. About 70 % of the site is also considered to be either seasonal or permanent wetland and at least two bird Species of Conservation Concern (SoCC) may use the site for foraging, and at least one plant SoCC may be present in low numbers, as indicated the Faunal specialist. No plant or animal SoCC were recorded on site during the survey. The Cape Dwarf Chameleon (*Bradypodion pumilum*) is listed as Vulnerable and may occur on site. A Faunal Impact Assessment was later added in August 2024.

Preferred Layout Alternative

The mitigation measures and recommendations made by the specialist team, have been applied and have resulted in the evolution of Alternative 3. Based on this, Alternative 3, is now the preferred and final layout alternative. The specialist team have provided comment on the new Preferred Alternative 3 and have confirmed that it effectively addresses the identified impacts by sufficiently considering the recommendations and mitigation measures in their impact assessment reports as well as the application of the Mitigation Hierarchy. Alternative 3 allows for the complete avoidance of the permanent wetland as well as the majority of the seasonal / temporary wetland through the reduction in number of erven and realignment of the internal road.

Service availability and infrastructure requirements

- → There is sufficient capacity in the existing water reticulation system to accommodate the proposed development and no network upgrades will be required.
- → There is sufficient hydraulic spare capacity in the existing small bore sewer reticulation system downstream of the proposed development to accommodate the proposed development.
- → Accommodation of the development on Erf 1486 on the existing small-bore system - The existing North-south section of the 110 mm diameter pipeline located in Kolgans and Malmok Roads, will be upgraded from the existing 110 mm pipe to a 160 mm diameter pipeline. This upgrade involves the excavation of existing and the

installation of the new line within the road and transformed road reserve. No new listed activities are applicable to this action. This was included in both the Basic Assessment and Freshwater Impact Assessment.

Summary of process to date

Two rounds of out of process public participation has been undertaken to date.

Public Participation Round One

The initial round of public participation was conducted from **22 March 2023 to 24 April 2023**. Two layout alternatives were presented for public comment:

- → Alternative 1 proposed the development of single residential erven ranging in size from 850 m² to 1100 m², without provision for a public open space. However, this layout results in the complete loss of the wetland area located on the site with the encroachment of the development into this area.
- → Alternative 2, the previously preferred layout, proposed 13 residential erven and internal roads. Whilst this layout considered specialist input and the wetland delineation, there was still unacceptable negative impacts and encroachment into permanent and seasonal wetland as well as areas of high ecological sensitivity as mapped in the Terrestrial Impact Assessment.

Public participation Round Two

The second round of public participation was conducted from **17 May 2024 to 17 June 2024.** During this process, three layout alternatives were presented: Alternative 1 (non-preferred), Alternative 2 (the previously preferred layout), and Alternative 4 (the newly proposed preferred layout). Alternative 3 was classified as the No Go option during round 2 of PPP. This round responded directly to concerns raised during the first round of public participation and incorporated the findings and recommendations of the additional specialist studies which were undertaken.

As part of this round, a full Aquatic Biodiversity Impact Assessment and Risk Matrix was conducted by Delta Ecology. In addition, a Faunal Specialist Assessment was commissioned to determine the impact of the proposed development on this theme. The preferred layout was developed in direct response to the feedback received during the first round of public participation, as well as from the specialist assessments, with the intention of reducing encroachment into the wetland and introducing appropriate environmental management interventions.

Comments received during PPP 2 highlighted the need to completely avoid the wetland area. There was also a recommendation for the implementation of a Stormwater Management Plan to address flood risks, given the presence of both permanent and seasonal wetlands on site and modifications and improvements in the broader catchment. In response to these concerns, the preferred layout alternative was revised to avoid all permanent wetland areas and mark areas of erven which fall within the seasonal wetland as No Development Zones – to be enforced via the Regulated Areas Management Plan (Appendix G2). The final preferred layout ensures that all seasonal / temporary wetlands on residential erven are marked as no development zone. The Regulated Areas Management Plan was compiled as an addendum to the EMPr, in order to highlight the areas that must be retained as no development areas and the mechanism for how this will be managed in perpetuity. In addition, the Wetland Offset was completed and the requirements relating to the sewer upgrade, was also included in the assessment.

The additional round of out of process PPP2 was provided as a result of the additional information provided by the specialist team, the evolution of a new Preferred alternative (Alternative 3) and the minor upgrade of existing sewer pipeline in Kolgans street which was identified as a requirement.

Current - June 2025

The NEMA Application form has now been submitted and the final round of In process public participation is herewith provided.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

DEPARTMENTAL DETAILS

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

MAPS

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

	photographs must be included. Please note that the above requirements must be duplicated for all alternative sites.
Biodiversity Overlay Map:	A map of the relevant biodiversity information and conditions must be provided as an overlay map on the property/site plan. The Map must be attached to this BAR as **Appendix D**.
Linear activities or development and multiple properties	GPS co-ordinates must be provided in degrees, minutes and seconds using the Hartebeeshoek 94 WGS84 co-ordinate system. Where numerous properties/sites are involved (linear activities) you must attach a list of the Farm Name(s)/Portion(s)/Erf number(s) to this BAR as an Appendix. For linear activities that are longer than 500m, please provide a map with the co-ordinates taken every 100m along the route to this BAR as **Appendix A3**.

ACRONYMS

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

ATTACHMENTS

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

The following checklist of attachments must be completed.

APPENDIX			**✓ (Tick) or x (cross)**
Appendix A:	**Maps**		
	Appendix A1:	**Locality Map**	**√**
	Appendix A2:	**Coastal Risk Zones as delineated in terms of ICMA for the Western Cape by the Department of Environmental Affairs and Development Planning**	
	Appendix A3:	**Map with the GPS co-ordinates for linear activities**	
Appendix B:	**Appendix B1:**	**Site development plan(s)**	**√**
	Appendix B2	**A map of appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffer areas;**	
Appendix C:	**Photographs**		**√**

Appendix D:	**Biodiversity overlay map**		**√**
Appendix :	**Permit(s) / license(s) / exemption notice, agreements, comments from State Department/Organs of state and service letters from the municipality.**		
	Appendix E:	**Proof of PPP**	
		Copy of comment from Cape Nature	SEE APPENDIX E
		Final Comment from BOCMA	SEE APPENDIX E
		Comment from the DEA: Oceans and Coast	N/A
		Comment from the DAFF	N/A
		Comment from WCG: DHS	N/A
		Comment from WCG: DoH	N/A
		Comment from DEA&DP: Pollution Management	N/A
		Comment from DEA&DP: Waste Management	N/A
		Comment from DEA&DP: Biodiversity	N/A
		Comment from the local authority	See Appendix E
		Comment from the District Municipality	Pending
	Appendix E21:	**Proof of land use rights**	N/A
	Appendix E22:	**Proof of public participation agreement for linear activities**	N/A
Appendix E:	**Public participation information: including a copy of the register of I&APs, the comments and responses Report, proof of notices, advertisements and any other public participation information as is required.**		**√**
Appendix F:	**Specialist Report(s)** **APPENDIX F1: ENVIROSWIFT Freshwater Screening** **APPENDIX F2a: Aquatic Biodiversity Impact Assessment** **APPENDIX F2b: Risk Assessment Matrix Report** **APPENDIX F3: Botanical Impact Assessment**		**√**

	APPENDIX F4: Botanical comment for Alternative 3 **APPENDIX F5: Heritage Western Cape Comment** **APPENDIX F6: GLS Service Report** **APPENDIX F7: Stormwater Management Plan** **APPENDIX F8: Wetland Offset, Rehabilitation and Management Plan** **APPENDIX F9: Terrestrial Animal Site Sensitivity Verification Report and Species Specialist Assessment Report**	
Appendix G:	**APPENDIX G1: EMPr** **APPENDIX G2: Regulated Areas Management Plan**	**√**
Appendix H:	**APP H1: Screening tool report** **APP H2: SSVR**	**√**
Appendix I:	**APP Ia Maintenance Management Plan** **APP Ib MMP Form**	**√**
Appendix J:	**The impact and risk assessment for each alternative**	See BAR below
Appendix K:	**Need and desirability for the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013)/DEA Integrated Environmental Management Guideline**	
Appendix…..	**Any other attachments must be included as subsequent appendices**	N/A

SECTION A: ADMINISTRATIVE DETAILS

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

Duplicate this section where there is more than one Proponent Name of Applicant/Proponent:	Elephant Ventures Africa cc	
Name of contact person for Applicant/Proponent (if other):	Craig Saunders	
Company/ Trading name/State Department/Organ of State:	Elephant Ventures Africa CC	
Company Registration Number:	1999/013536/23	
Postal address:	224 Cherrywood Street	
	Arabella Kleinmond	Postal code: 7195
Telephone:		Cell: 083 306 3770
E-mail:	babyjumbo@mweb.co.za	Fax: ( )
Company of EAP:	Lornay Environmental Consulting	
EAP name:	Michelle Naylor	
Postal address:	Unit 5/1 F, Hemel and Aarde Wine Village, Hermanus	
	Hermanus	Postal code: 7200
Telephone:	083 245 6556	Cell:
E-mail:	michelle@lornay.co.za	Fax: ( )
Qualifications:	Master of Science (Rhodes University)	
EAPASA registration no:	EAPASA. 2019/698,., SACNASP., IAIASA	
Duplicate this section where there is more than one landowner Name of landowner:	As above	
Name of contact person for landowner (if other):	-	
Postal address:	-	
	-	Postal code:-
Telephone:	-	Cell:-
E-mail:	-	Fax: -
Name of Person in control of the land:	As above	
Name of contact person for person in control of the land:	-	
Postal address:	-	
	-	Postal code:-
Telephone:	-	Cell:-
E-mail:	-	Fax: -

Duplicate this section where there is more than one Municipal Jurisdiction	Overstrand Municipality

Municipality in whose area of jurisdiction the proposed activity will fall:		
Contact person:	Penelope Aplon	
Postal address:	PO Box 20	
	Hermanus	Postal code: 7200
Telephone	028 313 8000	Cell:
E-mail:	paplon@overstrand.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.				

The proposed development site, Erf 1486, is located within the built-up suburb of Vermont, Hermanus, in the Western Cape. The site falls within the Overstrand Municipality's urban edge and is adjacent to existing residential infrastructure to the south. The property exhibits a mosaic of both transformed (brownfield) and relatively intact (greenfield) areas, making it best described as a partially transformed site.

According to the Botanical Impact Assessment (Helme, 2023), the site supports remnants of Critically Endangered Hangklip Sand Fynbos, with varying levels of ecological integrity. Approximately 50% of the site consists of a delineated Unchanneled Valley-Bottom (UVB) wetland, although portions of this system have been ecologically degraded by historical excavation and fill activities and the spread of alien species, such as *Cenchrus clandestinus* (kikuyu grass) and *Cortaderia selloana* (pampas grass). Despite this, the wetland remains functionally important and hydrologically connected to the Vermont Salt Pan to the southeast, forming part of a broader ecological support area (ESA2) identified in the Western Cape Biodiversity Spatial Plan.

The Faunal assessment (Venter, 2024) confirms the presence of various small mammals, amphibians, and bird species, as well as evidence of ecological connectivity between the Hoek van der Berg Private Nature Reserve to the west and the Vermont Salt Pan. Notably, the wetland corridor is an active route for ground-dwelling species. Although no Species of Conservation Concern (SCC) were recorded during the field survey, the site may provide occasional foraging habitat for threatened animal species such as the Black Harrier *(Circus maurus*) and the African Marsh Harrier (*Circus ranivorus*). Additionally, the Cape Dwarf Chameleon (*Bradypodion pumilum*), listed as Vulnerable, may inhabit the area.

Several previously disturbed areas on the property including the existing structures, access road, and southern edge exhibit characteristics typical of brownfield sites, with significant soil disturbance, alien vegetation, soil hardening and gardening activities evident. In contrast, other areas remain vegetated with native flora, and some wetland zones have shown signs of ecological recovery.

3.	**~~For Linear activities or developments~~**		
3.1.	~~Provide the Farm(s)/Farm Portion(s)/Erf number(s) for all routes:~~		
3.2.	~~Development footprint of the proposed development for all alternatives.~~	~~m²~~	
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.~~		
~~3.4.~~	~~Indicate how access to the proposed routes will be obtained for all alternatives.~~		
3.5.	~~SG Digit codes of the Farms/Farm Portions/Erf numbers for all alternatives~~		
3.6.	**~~Starting point co-ordinates for all alternatives~~**		
	~~Latitude (S)~~	~~º~~	~~‘~~ ~~“~~
	~~Longitude (E)~~	~~º~~	~~‘~~ ~~“~~
	~~Middle-point co-ordinates for all alternatives~~		
	~~Latitude (S)~~	~~º~~	~~‘~~ ~~“~~
	~~Longitude (E)~~	~~º~~	~~‘~~ ~~“~~
	~~End point co-ordinates for all alternatives~~		

	~~Latitude (S)~~	~~º~~	~~'~~	~~"~~
	~~Longitude (E)~~	~~º~~	~~'~~	~~"~~

~~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):	15079.9 m^2 (1.5 ha)
4.2.	Developed footprint of the existing facility and associated infrastructure (if applicable):	Existing building – 1800 m^2 Existing road – 106 m^2
4.3.	Development footprint of the proposed development and associated infrastructure size(s) for all alternatives: **Final Preferred Alternative (Alternative 3):**	**Table 1:** Development footprint of the proposed development and infrastructure size

Erf	Zoning	Land Use	% Seasonal Wetland on Residential Erven	Area
1	GR1	Single Residential	30%	600m^2
2	GR1	Single Residential	19%	600m^2
3	GR1	Single Residential	30%	600m^2
4	GR1	Single Residential	30%	600m^2
5	GR1	Single Residential	22%	600m^2
6	GR1	Single Residential	26%	764m^2
7	GR1	Town Housing	30%	450m^2
8	GR1	Town Housing	29%	420m^2
9	GR1	Town Housing	0%	350m^2
10	OS3	Private Road	N/A	607m^2
11	OS3	Private Road	N/A	1516m^2
12	OS3	Private Open Space	N/A	7964m^2
Total			**15%**	**15069m^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).

The proposed development on Erf 1486, Vermont, entails the establishment of a residential development comprising a total of 12 erven of mixed use. The final preferred design alternative, referred to as Alternative 3, has been refined through specialist input and public participation, resulting in a sustainable layout that balances residential needs with environmental considerations. This alternative involves the subdivision of the property into 9 residential erven, and 2 private roads, while designating a substantial portion of the site (wetland area) as open space for long term conservation.

The mitigation hierarchy has been applied during the impact assessment phase to minimize impacts on environmentally sensitive areas, specifically the wetland area, as informed by freshwater and botanical specialist studies, as well as comments received during the public participation process. The total development footprint will be restricted to 7105 m^2, with 7964 m^2 of the property preserved as open space through a conservation servitude.

Components of the development:

Residential erven

→ Consists of 9 residential erven.
→ Total Area: **±4984 m²**

Private Roads:

→ Two internal private roads will provide access to the residential erven and will be connected to Lynx Road.

→ Total Area: **±2123 m²**

- Erf 10: ~75m x 8m width including the road reserve (Approximately 607 m^2)
- Erf 11: ~180m x 8m width including the road reserve (Approximately 1373 m^2)

Open Space:

→ Total Area: **±7964 m²**

→ The designated open space includes the wetland area and surrounding buffer areas which will be retained to ensure ecological functioning and connectivity.

Associated Infrastructure:

Electricity Supply

Electrical services will be supplied via a connection to the existing municipal electricity network. The installation will be done in line with the requirements and specifications of the Overstrand Municipality.

Water Supply

Potable water will be sourced from the Preekstoel Water Treatment Plant, via an existing 200 mm diameter pipeline located along Lynx Avenue. A new connection point will be established, and internal reticulation infrastructure will be constructed in accordance with municipal engineering standards. The Overstrand Municipality has confirmed sufficient capacity to accommodate the additional demand from the development.

Sewer and Effluent Management

The proposed development will be connected to the municipal sewer system. Wastewater from all residential erven will be conveyed through:

- A existing sewer pipeline
- A specific section of the outfall sewer in Malmok Crescent and Kolgasn street, will be upgraded from 110 mm to 160 mm to accommodate the increased effluent load.

Stormwater Management

Given the site's proximity to a delineated wetland, a Stormwater Management Plan has been developed to manage surface runoff effectively and mitigate impacts on the downstream wetland system. The site forms part of a larger hydrological catchment where

runoff from Catchment Area 1 (CA1), located north of the R43, drains into Catchment Area 2 (CA2), which includes the development site and wetland.

Key Stormwater Control Measures Include:

- Installation of 2 × 900 mm diameter culvert pipes, or alternatively, a 1.3 m wide × 0.7 m high trapezoidal concrete-lined channel to manage upstream flow.

From this point, runoff from R43 culverts or trapezoidal lined channel will be directed through to the permeable paving and enhanced swale into the wetland (natural attenuation area of ±10,000 m²). To manage stormwater in the proposed development Low Impact Development (LID) measures will be implemented:

Permeable Paving System (South of Wetland)

Designed to reduce surface runoff and promote infiltration:

- Surface Storage Depth: 50 mm
- Pavement Thickness: 80 mm
- Base Course Height: 400 mm (43% void ratio)
- Permeability (clogged): 360 mm/hr
- Outlet: 160 mm uPVC pipe
- Storage Volume: 140 m³

Enhanced Swale System (North of Wetland)

A vegetated swale to filter pollutants and slow runoff:

- Surface Storage Depth: 400 mm
- Swale Storage Depth: 750 mm
- Surface Slope: 0.5%
- Void Ratio: 0.43
- Vegetative Cover: 75%
- Conductivity: 120 mm/hr
- Storage Volume: 81 m³

Table 2: A summary of the development footprint and infrastructure sizes is provided below.

Erf	Zoning	Land Use	% Seasonal Wetland on Residential Erven	Area
1	GR1	Single Residential	30%	600m²
2	GR1	Single Residential	19%	600m²
3	GR1	Single Residential	30%	600m²
4	GR1	Single Residential	30%	600m²
5	GR1	Single Residential	22%	600m²
6	GR1	Single Residential	26%	764m²
7	GR1	Town Housing	30%	450m²
8	GR1	Town Housing	29%	420m²
9	GR1	Town Housing	0%	350m²
10	OS3	Private Road	N/A	607m²
11	OS3	Private Road	N/A	1516m²
12	OS3	Private Open Space	N/A	7964m²
Total			**15%**	**15069m²**

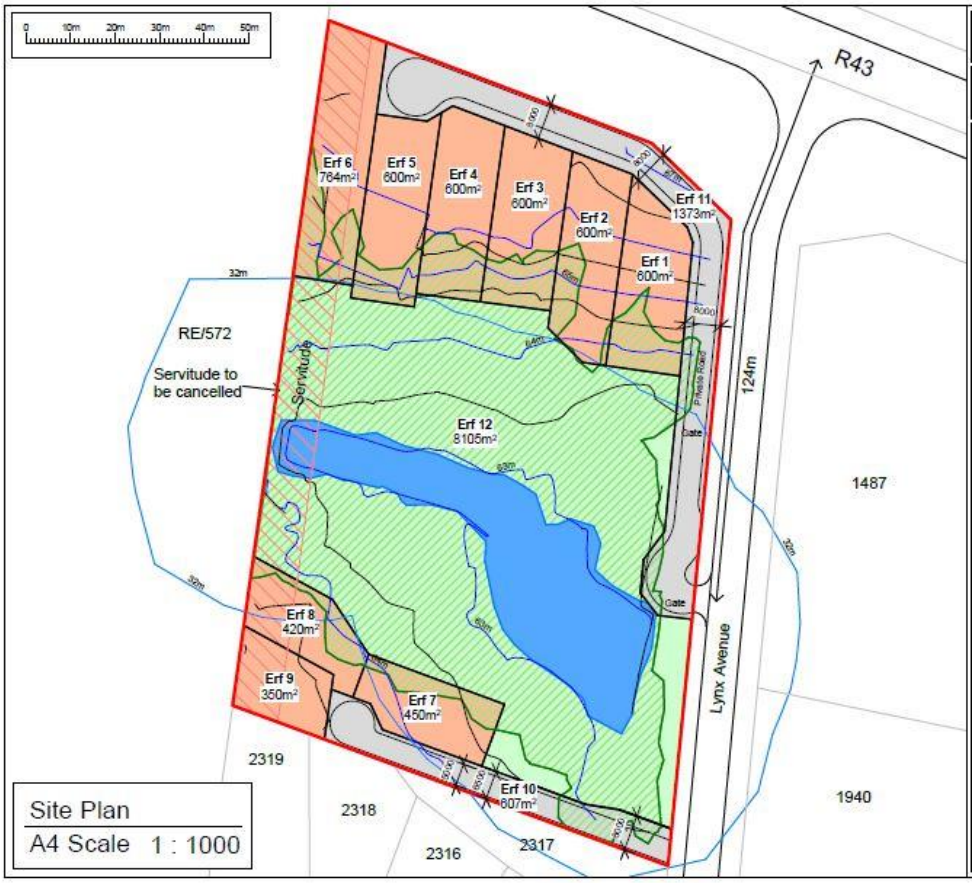

Figure 1: Site development plan for the proposed development

The above is the new preferred alternative (**Alternative 3**). The preferred layout alternative has been informed through freshwater specialist input and botanical input and the preferred alternative has evolved during the impact assessment phase where the mitigation hierarchy has been applied to avoid sensitive areas.

4.5.	Indicate how access to the proposed site(s) will be obtained for all alternatives.

Access is already existing off Lynx Road.

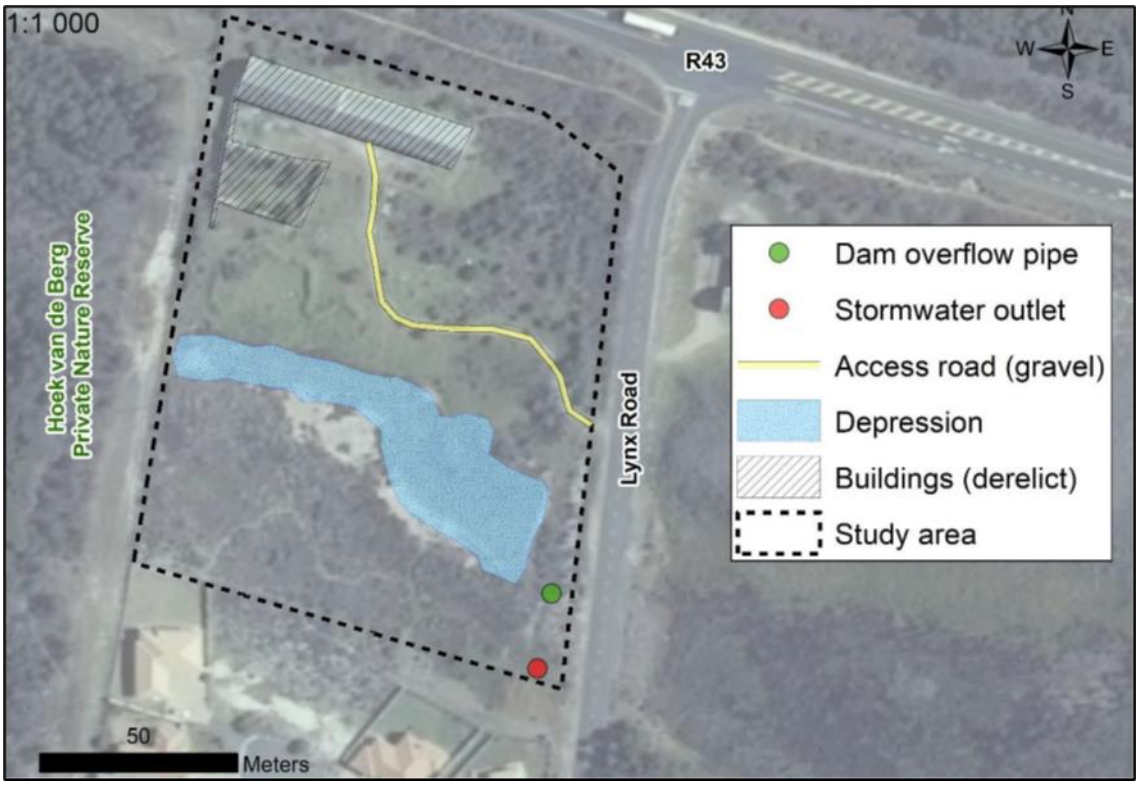

Figure 2: Location of the existing access road on the subject property.

4.6.	SG Digit code(s) of the proposed site(s) for all alternatives:	C	0	1	3	0	0	2	3	0	0	0	0	1	4	8	6	0	0	0	0	0

4.7.	Coordinates of the proposed site(s) for all alternatives:			
	Latitude (S)	34°	24‘	23.42“
	Longitude (E)	19°	8‘	52.57“

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 x

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 x
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. A Notice of Intent has been submitted to HWC, and it was confirmed that no further heritage impact assessment is required for the proposed development of erf 1486 Vermont. See HWC comment attached as **Appendix F**	YES	NO x
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. Freshwater Specialist was appointed and risk matrix completed also completed	YES x	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 X
The National Environmental Management Waste Act (Act No. 59 of 2008) ("NEM:WA")	YES	NO X
The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004 ("NEMBA").	YES	NO x
The National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) ("NEMPAA").	YES	NO X
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 X

3. Other legislation

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

4. Policies

Explain which policies were considered and how the proposed activity or development complies and responds to these policies.
WESTERN CAPE PROVINCIAL SPATIAL DEVELOPMENT FRAMEWORK, 2014 (PSDF) ***"3.3.4.2 SPATIAL IMPLICATIONS*** *The lack of integration, compaction and densification in urban areas in the Western Cape has serious negative consequences for municipal finances, for household livelihoods, for the environment, and the economy.* *The PSDF provides principles to guide municipalities towards more efficient and sustainable spatial growth patterns.*

In order to secure a more sustainable future for the Province it is important that settlement planning and infrastructure investment achieves:

i. higher densities
ii. a shift from a suburban to urban development model
iii. more compact settlement footprints to minimise environmental impacts, reduce the costs and time impacts of travel and enhance Provincial and Municipal financial sustainability in relation to the provision and maintenance of infrastructure, facilities and services.
iv. address apartheid spatial legacies by targeting investment in areas of high population concentration and socio-economic exclusion.

By prioritising a more compact urban form through investment and development decisions, settlements in the Western Cape can become more inclusionary, widening the range of opportunities for all."

The proposed development on Erf 1486, Vermont, aligns with these principles through the densification of land use within the urban edge, thereby contributing to spatial compaction. By clustering residential units into 9 erven, with only 7105 m² of the property developed, and preserving the remainder (7964 m²) as open space (wetland), the layout reflects an efficient land use pattern that supports sustainable development while avoiding urban sprawl. The integration of infrastructure within an already accessible urban edge supports sustainable service delivery.

" 3.3.6.2 SPATIAL IMPLICATIONS

Investment in housing needs to ensure optimal returns on investment, while at the same time promoting settlement restructuring and integration.

In order to create integrated and sustainable communities with access to social and economic opportunities throughout the Province, the housing focus is being shifted towards diversifying typologies delivered and aligning housing projects with economic opportunities, increasing the supply and management of affordable rental accommodation, and also addressing the formal and informal sectors in one market.

The PSDF places less emphasis on delivering completed houses, and more emphasis on incrementally developing human settlements in partnership with other government departments, communities and the private sector. The focus is on improving the quality of the public environment of settlements."

"PROVINCIAL SPATIAL POLICIES

POLICY S5: PROMOTE SUSTAINABLE, INTEGRATED AND INCLUSIVE HOUSING IN FORMAL AND INFORMAL MARKETS

The following policies must guide planning, project prioritisation, budgeting and performance management at a Provincial scale. These relate to housing delivery, planning and design, urban land markets and informality.

HOUSING PLANNING AND DESIGN

1. *Provide households with the residential environments, mobility and access to opportunities that support productive activities and reduce levels of exclusion from opportunity.*
2. *Increase densities of settlements and dwelling units in new housing projects.*
3. *Prioritise investment in community facilities, public infrastructure and public space, rather than an exclusive focus on housing or top structures.*

4. *Promote more mixed-income, mixed-use, inclusionary forms of development through incorporating various scales of economic opportunities within housing projects. "*

The proposal adheres to Policy S5 by:

- Locating development within an existing serviced urban area (Vermont), thereby ensuring access to transport routes, economic opportunities, and public services.
- Contributing to residential density in a controlled and environmentally sensitive manner, consistent with smart growth principles.
- Preserving the wetland as public open space (7964 m²), thereby enhancing ecological functionality and providing an amenity that strengthens liveability.
- Enabling inclusionary development through a range of unit types (standalone homes and grouped housing), suitable for varied income categories in alignment with broader settlement restructuring goals.

OVERSTRAND MUNICIPALITY SPATIAL DEVELOPMENT FRAMEWORK, 2020 (SDF)

VO 1*. The main urban, suburban and rural centres of the Overstrand's settlements continue to be the focal points of human activity and functions as social and economic hubs offering a variety of employment, retail, social and recreation opportunities and a range of community facilities:

i. Encourage mixed use and high-density residential development within and adjacent to urban, suburban and rural centres.
ii. Promote urban, suburban and rural centres as the primary commercial areas within settlements and suppress and limit commercial development outside of these centres.
iii. Encourage the development and transformation of urban and rural centres into people orientated as opposed to function and production orientated places
iv. Encourage and facilitate urban regeneration and restoration of under-utilised or decayed existing centres.

AO 4. The compact urban form and design of Overstrand's urban and rural settlements enables high levels of accessibility to key destinations such as employment, healthcare, education and recreation.

i. Judicious densification and intensification in urban areas should be actively promoted.
ii. Ensure effective integration between land-use and transportation planning and operations.

Hermanus

The total projected population of the Greater Hermanus amounted to 62 929 in 2019 based on a 5.2% projected growth per annum (Census 2001-2011). Based on the said projected growth, the town will consist of a population of 155 272 in 2031.

The town of Hermanus is for ease of reference and plan legibility, divided in three prominent areas, namely Hermanus West, Hermanus East and Hermanus Central (Refer Plans 30-32).

A survey in terms of the availability of vacant land was undertaken in 2019. A total of 1241 vacant residential erven were identified. A total amount of 92 343 additional people will need to be accommodated from 2019 to 2031, based on the aforementioned population total. Based on an average household size of 2.6 persons per household, this amounts to a total requirement of 35 517 additional dwelling units by 2031. The population figures have been influenced by the drastic population influx of 2018 and provision is made to accommodate similar influx peaks in the future.

The high-density residential suburb of Zwelihle is situated within Hermanus central. Zwelihle consisted of approximately 4261 informal settlements in 2018. According to (MPBS: Sept 2019), the future projected housing need, informed by the said amount of informal structures, will amount to 7 127 by 2021 and 11 234 by 2031. This relates to a required land area of approximately 356ha by 2021 and 562ha by 2031 based on a density of 20du/ha.

Hermanus West
Hermanus West consists of the area approximately 8km from the Hermanus CBD and includes the suburbs of Vermont, Onrus and Sandbaai.

Hermanus West is predominantly a residential area in nature with its spatial pattern / urban form dictated by the coastline to the south, the Onrus Mountains and the R43 to the north as well as the Onrus River that centrally bisects the area. The business areas within Hermanus West are typical small business nodes sparsely located within the neighbourhoods. The industrial area to the east of Hermanus and abutting Hermanus Central is prominent (Refer Hermanus Central).

The rocky and sandy shoreline, the coastal plateau and the Onus Mountains have brought about, over time, environmental and heritage landscapes that are of particular quality. These landscapes are integrated along biodiversity corridors which originate in the mountainous areas, include pockets of municipal protected biodiversity rich land, and terminate at the coastline. The land which is included in these corridors is mainly protected by draft EMOZ protecting both public and
municipal land (Refer Plan 30).

The central coastline of Hermanus West is also partially protected by the draft HPOZ, due to the presence of local heritage resources. In terms of services infrastructure provisions, the following should be noted:

- The R43 Provincial Road leading through Hermanus functions mostly at an acceptable service standard and has been upgraded in order to accommodate heavier traffic volumes. Internal roads function at acceptable levels of service.
- While the bulk water supply for Hermanus west is sufficient, additional sources are being investigated (i.e. new bore holes with treatment facilities). The water treatment works has relatively recently been upgraded. The water network servicing Onrus and Sandbaai is, however, in need of repair and upgrade. Additional bulk water sources are required in the interim. A recent feasibility study indicated seawater desalination to be the preferred option.
- The wastewater treatment work has sufficient capacity to service the area.
- Stormwater management infrastructure is moderate in terms of sufficiency and needs to be upgraded.
- The existing electricity supply and network adequately services the present demand of Hermanus West.
- Solid waste removal infrastructure and system are sufficiently provided for.

Overstrand Municipality Integrated Development Plan (2023/2024)

According to the Overstrand IDP 2023/2024, the Overstrand has a growing population that will increase the demand for housing, employment, service delivery and related infrastructure developments. The increased population growth will therefore place increased pressure on the municipal resources to develop new as well as maintain existing infrastructure. The ability to work from home has enabled households to move away from the economic hubs and settle in smaller towns such as Hermanus. This trend can be a valuable injection for the local economy as well as the municipality in terms of income generation, despite the increased demand for services (Source: Western Cape Provincial Treasury, MERO 2021 and SEP 2021).

Overstrand's 2023 projected forecast is 0.1 per cent economic growth, which is lower than both the District and Western Cape projection over the same period. In 2020, a total of 33 096 workers were employed in the Overstrand municipal area, contributing 27.4 per cent to Overberg District employment during the year. Between 2016 and 2020, the Overstrand municipal area experienced an average annual decline of 520 jobs. Estimates for 2021 indicate a further deterioration in Overstrand's employment, with a total of 1 475 jobs lost. Overall, the deterioration of the Overberg's labour market conditions in 2020 was due to the COVID-19 pandemic and the implantation of lockdown restrictions to contain its spread. Furthermore, restrictions in domestic and international travel greatly impacted activity in sectors related to tourism (Western Cape Provincial Treasury, MERO, 2022). Furthermore, load shedding in 2022 and 2023 are expected to further deteriorate employment prospects in the Overstrand municipal area. The estimated decline in employment opportunities is likely to result in a decline in household income, which in turn will continue to restrain municipal revenue and increase the demand for free basic services.

In alignment with the objectives outlined in the Overstrand IDP, the proposed development on Erf 1486, Vermont, seeks to contribute positively by providing new residential opportunities in a structured and environmentally sensitive manner. The development aims to accommodate a portion of the growing population through well-considered land use planning that supports sustainable densification without compromising environmental integrity. By doing so, the development helps meet the municipality's strategic goals of addressing housing demand, stimulating local economic activity, and contributing to long-term municipal sustainability through increased property rates and bulk infrastructure service contributions.

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	Description
EIA Guideline and Information Document Series, dated March 2013: Applied to various components in the basic assessment process.	The following Guidelines were considered throughout this Basic Assessment Process: • Guideline for the Review of Specialist Input in the EIA process (June 2005); • Guideline for Environmental Management Plans (June 2005). • Guideline on Alternatives (March 2013) • Guideline on Need and Desirability • Guideline on Public Participation Process
Western Cape Biodiversity Spatial Plan Handbook and Guidelines (2023)	This guideline informed the assessment of the biodiversity context of the site. It was used to identify areas designated as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). The site was identified to be situated within the Ecological Support Area.

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

Agriculture Theme – Medium Sensitivity

The site is located within the urban edge of Vermont and does not support active or high-potential agricultural land. As the development constitutes an urban infill project and is surrounded by existing residential uses, no agricultural specialist assessment is required. The project is therefore compliant with the Agricultural Protocol.

Animal Species Theme – High Sensitivity – Faunal Impact Assessment conducted in August 2024.

Aquatic Biodiversity Theme – Very High Sensitivity - An Aquatic Biodiversity Impact Assessment was conducted, confirming the presence of a transformed Unchanneled Valley-Bottom (UVB) wetland on site. The development layout has been amended (Alternative 3) to minimise encroachment, with only minor intrusion from internal roads. A Wetland Offset, Rehabilitation and Management Plan has been compiled and will be implemented alongside the establishment of a wetland conservation servitude. The medium risk identified for residual wetland loss is addressed through mitigation.

Archaeological and Cultural Heritage Impact Assessment – Low Sensitivity - Although the development is not extensive, potential impacts on archaeological and cultural heritage have been considered through submission of the NID to the Heritage Western Cape. Confirmation from the Heritage Western Cape (HWC) indicates that no additional heritage assessment is required. Mitigation measures are available in the EMP for implementation during construction if any finds are uncovered. No further actions required.

Civil Aviation Theme – High Sensitivity - The proposed development does not fall within any controlled civil aviation zones and is therefore not expected to interfere with aviation operations. No further assessment is required.

Defence Theme – Low Sensitivity - The subject property does not fall within any designated military or defence zones. As such, no conflict with national defence interests is anticipated and no further investigation is required.

Palaeontology Theme – Low Sensitivity - Consistent with the Archaeological and Cultural Heritage Impact Assessment, the proposed development's scale does not require additional assessment beyond potential mitigation measures during construction. Confirmation from the Heritage Western Cape (HWC) indicates that no additional heritage assessment is required. No further actions required.

Plant Species Theme – High Sensitivity - A Terrestrial Biodiversity Impact Assessment was undertaken by Nick Helme Botanical Surveys, acknowledging the transformation of parts of the site. This assessment also addresses plant species considerations adequately. The Botanical Specialist assessed the likelihood of Species of Conservation Concern (SoCC) and concluded that no such species were recorded on site, although one plant SoCC may occur in low numbers. The search and rescue operation for floral SoCC is recommended prior to construction.

Terrestrial Biodiversity Theme – Very High Sensitivity - The development occurs in one of the last remaining open erven in Vermont and aligns with surrounding development. A Terrestrial Biodiversity Impact Assessment was undertaken by Nick Helme Botanical Surveys (2023), in accordance with the Terrestrial Protocol. The assessment confirmed that approximately 70% of the site supports Hangklip Sand Fynbos, a threatened vegetation type. The preferred layout (Alternative 3) reflects the application of the mitigation hierarchy and includes a large open space area to support biodiversity corridors and faunal movement. The assessment also addresses plant and animal species sensitivity, and mitigation recommendations have been integrated into the design and EMPr.

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.
12	The development of dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or 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	The Low Impact Development (LID) infrastructure, including the Permeable Paving System and Enhanced Swale System, will be constructed within 32 metres of a permanent wetland (both north and south), for stormwater runoff. Additionally, internal access roads will encroach on a seasonal wetland, resulting in the loss of approximately 240 m² of seasonal wetland area.
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 (i) a watercourse;	The access roads will cross or encroach upon seasonal/temporal wetlands, requiring movement of material exceeding 10 m³. Furthermore, the rehabilitation of the wetland will involve removal of infill material.
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 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	More than 300 m² of indigenous vegetation (Hangklip Sandstone Fynbos) will be removed to accommodate the development

Note:

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

The upgrade of the existing municipal line in Kolgans / Malmok street, replace 110 mm to 160 mm - will not trigger any listed activities because:

- No upgrade to the WWTW capacity is required.
- Because the upgraded pipe will have a diameter of 0.15m and the peak flow from the development will be approximately 0.13lt/sec.
- The capacity of upgraded 160 mm diameter pipeline will be approximately 16 liter/sec

The proposed stormwater pipeline from the R43 to the wetland is less than 1000m in length and is only about 100m long, therefore this listed activity is not applicable.

~~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.

The proposed development on Erf 1486, Vermont, entails the establishment of a residential development comprising a total of 9 residential erven, 2 roads and an open space. The preferred design alternative, referred to as Alternative 3, has been refined through specialist input and public participation, resulting in a sustainable layout that balances residential needs with environmental considerations. This alternative involves the subdivision of the property into 9 residential erven, and 2 private roads and the designation of a substantial portion of the site (wetland area) as open space.

The mitigation hierarchy has been applied during the impact assessment phase to minimize impacts on environmentally sensitive areas, more especially the wetland area, as informed by freshwater and botanical specialist studies, as well as comments received during the public participation process. The total development footprint will be restricted to 7107 m², with 7964 m² of the property preserved as open space via Open Space 3 zoning.

Components of the development:

Residential erven

→ Total Area: **± 4984 m²**
→ Consists of single residential units

Private Roads:

→ Two internal private roads will provide access to the residential erven and will be connected to Lynx road.

→ Total Area: **± 2123 m²**

- Erf 10: 75m x 8m width including the road reserve (~607 m^2)
- Erf 11: 180m x 8m width including the road reserve (~1516 m^2)

Open Space:

→ Total Area: **± 7964 m²**

→ The designated open space includes the wetland area and surrounding buffer areas which will be retained to ensure ecological functioning and connectivity. This includes the permanent and temporary / seasonal wetland.

Associated Infrastructure:

Electricity Supply

Electrical services will be supplied via a connection to the municipal electricity network. The installation will be done in line with the requirements and specifications of the Overstrand Municipality.

Water Supply

Potable water will be sourced from the Preekstoel Water Treatment Plant, via a 200 mm diameter pipeline located along Lynx Avenue. A new connection point will be established, and internal reticulation infrastructure will be constructed in accordance with municipal engineering standards. The Overstrand Municipality has confirmed sufficient capacity to accommodate the additional demand from the development.

Sewer and Effluent Management

The proposed development will be connected to the municipal sewer system. A specific section of the existing outfall sewer in Malmok / Kolgans Crescent will be upgraded from 110 mm to 160 mm to accommodate the increased effluent load as part of the developers' bulk contributions, the remainder of the existing municipal line will remain as is.

Stormwater Management

Given the site's proximity to a delineated wetland, a comprehensive Stormwater Management Plan has been developed to manage surface runoff effectively and mitigate impacts on the downstream wetland system. The site forms part of a larger hydrological catchment where runoff from Catchment Area 1 (CA1), located north of the R43, drains into Catchment Area 2 (CA2), which includes the development site and wetland. One of these culverts discharge towards Erf 1486, Vermont and should be controlled to protect the properties from flooding. The specific culvert is indicated as follows with a red circle:

Figure 3a: Culvert Runoff to Erf 1486, Vermont

It is proposed that the stormwater runoff through the above 2 x 600mm diameter pipe culvert be controlled by the provision of a channel or lined channel through Erf 1486 at the following position (indicated with a red arrow below):

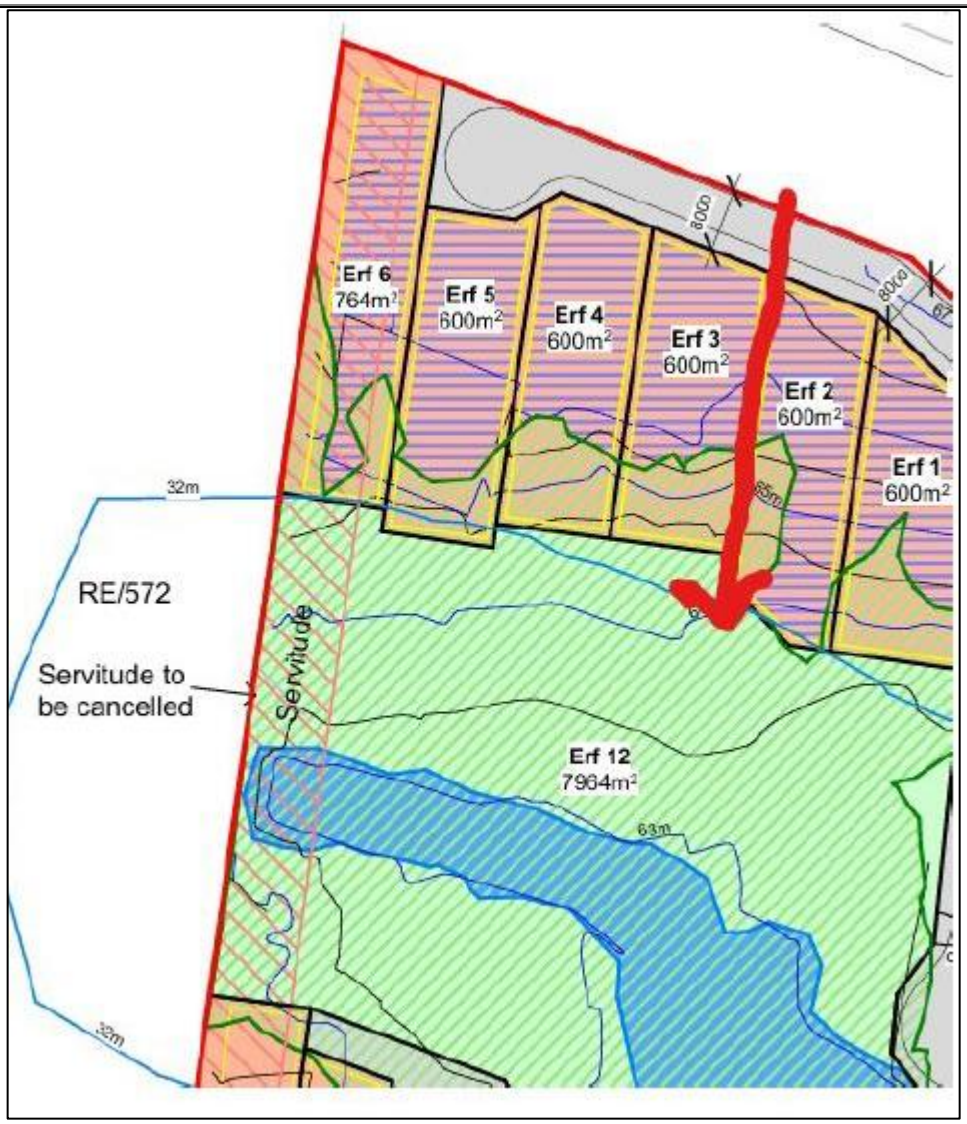

Figure 3b. Position of proposed stormwater control through development

The size of the pipe system or lined channel system is proposed to be as follows:

- 2 x 900 mm diameter pipes, OR
- 1.3 m(b) x 0.7m(h) trapezoidal channel with 1:1 side slope

From this point, runoff from R43 culverts or trapezoidal lined channel will be directed through to the permeable paving and enhanced swale into the wetland (natural attenuation area of ±10,000 m²). To manage stormwater in the proposed development Low Impact Development (LID) measures will be implemented:

Permeable Paving System (South of Wetland)

Designed to reduce surface runoff and promote infiltration:

- Surface Storage Depth: 50 mm
- Pavement Thickness: 80 mm
- Base Course Height: 400 mm (43% void ratio)
- Permeability (clogged): 360 mm/hr
- Outlet: 160 mm uPVC pipe

- Storage Volume: 140 m³

Enhanced Swale System (North of Wetland)

A vegetated swale to filter pollutants and slow runoff:

- Surface Storage Depth: 400 mm
- Swale Storage Depth: 750 mm
- Surface Slope: 0.5%
- Void Ratio: 0.43
- Vegetative Cover: 75%
- Conductivity: 120 mm/hr
- Storage Volume: 81 m³

Table 2: A summary of the development footprint and infrastructure sizes is provided below.

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Total			**15%**	**15069m²**

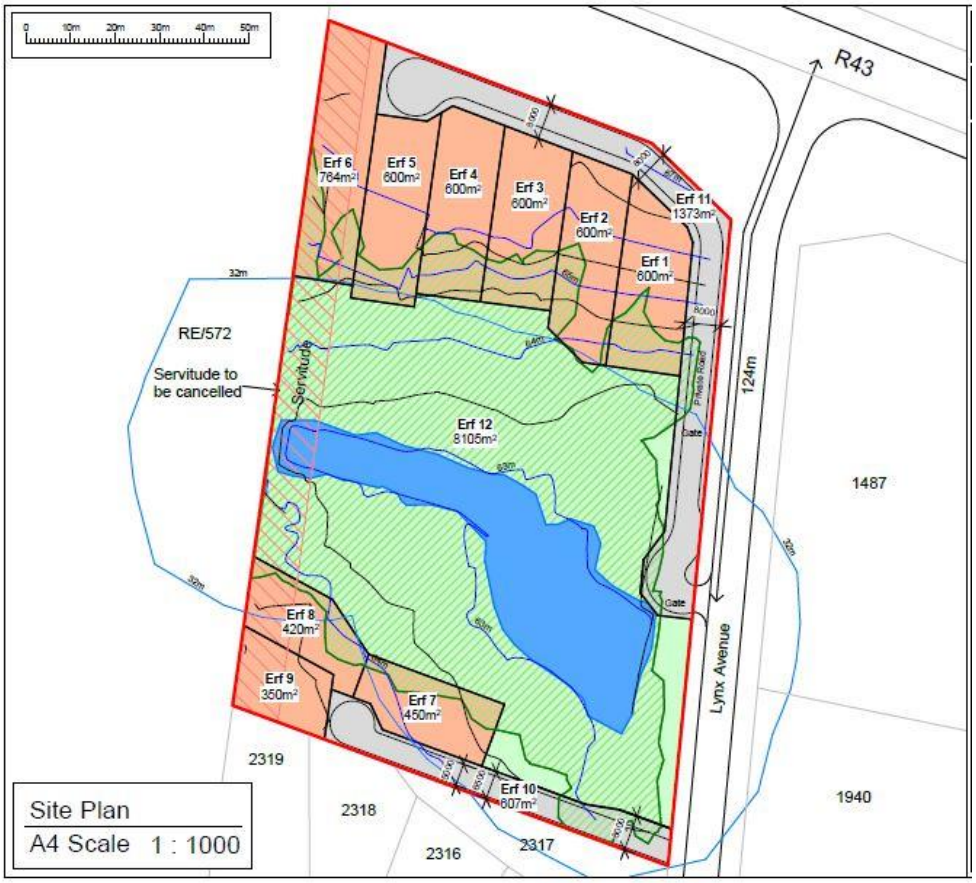


Figure 4: Site development plan for the proposed development

The above is the new preferred alternative (Alternative 3). The preferred layout alternative has been informed through Freshwater, Botanical and Faunal specialist input and the preferred alternative has evolved during the impact assessment phase where the mitigation hierarchy has been applied to avoid sensitive areas.

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 erf is zoned as Residential Zone 1 for Residential use. The subject property abuts a residential complex to the south and is in line with the land use rights of the property for residential development. The property will be subdivided to accommodate single residential erven, open space and roads / transport.

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.

N/A

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

The Western Cape Spatial Development Framework (WCSDF) emphasizes three spatial themes aimed at ensuring the sustainable use of spatial assets, opening up opportunities in the provincial space-economy, and developing integrated and sustainable settlements. The proposed development supports these objectives by:

- Utilizing existing spatial assets within the built-up residential suburb of Vermont for residential development.

- Creating opportunities for housing and infrastructure development in line with the province's economic and settlement objectives.
- Integrating sustainable development principles by rehabilitating wetland areas and managing vegetation disturbances in accordance with environmental sustainability goals.

The proposed development adheres to the investment strategies articulated in MSDFs by:

- Prioritizing investment in designated Priority Investment Areas within the municipality, such as the proposed development site on Lynx Avenue and R43.
- Addressing upgrading areas by improving infrastructure and urban environments to meet acceptable standards.
- Supporting restructuring or integration zones by promoting residential development and social housing initiatives, contributing to spatial justice and urban cohesion.
- Ensuring consolidation areas are adequately serviced and maintained to fulfill their functions effectively.
- Identifying medium to long-term growth areas for future development potential, aligning with municipal objectives for sustainable expansion.
- Considering spatial planning categories to guide appropriate development and protection measures, especially concerning biodiversity preservation.

4.2	The Integrated Development Plan of the local municipality.

The proposed development closely aligns with the Integrated Development Plan (IDP) of the Overstrand Local Municipality by prioritizing infill development, densification, and the creation of mixed-use nodes within the urban area of Vermont.

The development focuses on establishing the number of housing units per hectare within the built-up urban area of Vermont. By utilizing available land within existing urban boundaries, the project contributes to infill development objectives outlined in the IDP. This strategy helps accommodate population growth without necessitating significant land expansion, thus promoting a more compact and efficient urban form as advocated by the municipality.

By creating residential erven and providing housing opportunities within the built-up urban area, the development directly addresses the municipality's goal of meeting the housing needs of its residents. This aligns with the IDP's emphasis on developing vacant or underutilized land within existing urban areas to enhance housing accessibility and affordability.

The proposed development also supports the IDP's aim of reducing urban sprawl and the need for new infrastructure by concentrating development within established urban areas. By infilling gaps between existing buildings and redeveloping brownfield sites, the project contributes to creating a more compact and efficient urban form, thereby fostering sustainable urban growth.

4.3.	The Spatial Development Framework of the local municipality.

Extracted from Overstrand Municipality Spatial Development Framework (2020) *"The total projected population of the Greater Hermanus amounted to 62 929 in 2019 based on a 5.2% projected growth per annum (Census 2001-2011). Based on the said projected growth, the town will consist of a population of 155 272 in 2031. The town of Hermanus is for ease of reference and plan legibility, divided in three prominent areas, namely Hermanus West, Hermanus East and Hermanus Central. A survey in terms of the availability of vacant land was undertaken in 2019. A total of 1241 vacant residential erven were identified. A total amount of 92 343 additional people will need to be accommodated from 2019 to 2031, based on the aforementioned population total. Based on an average household size of 2.6 persons per household, this amounts to a total requirement of 35 517 additional dwelling units by 2031. The population figures*

have been influenced by the drastic population influx of 2018 and provision is made to accommodate similar influx peaks in the future.

Hermanus West is predominantly a residential area in nature with its spatial pattern /urban form dictated by the coastline to the south, the Onrus Mountains and the R43 to the north as well as the Onrus River that centrally bisects the area. The business areas within Hermanus West are typical small business nodes sparsely located within the neighbourhoods. The industrial area to the east of Hermanus and abutting Hermanus Central is prominent (Refer Hermanus Central). The rocky and sandy shoreline, the coastal plateau and the Onrus Mountains have brought about, over time, environmental and heritage landscapes that are of particular quality. These landscapes are integrated along biodiversity corridors which originate in the mountainous areas, include pockets of municipal protected biodiversity rich land, and terminate at the coastline. The land which is included in these corridors is mainly protected by draft EMOZ protecting both public and municipal land.

The central coastline of Hermanus West is also partially protected by the draft HPOZ, due to the presence of local heritage resources. In terms of services infrastructure provisions, the following should be noted:

- *The R43 Provincial Road leading through Hermanus functions mostly at an acceptable service standard and has been upgraded in order to accommodate heavier traffic volumes. Internal roads function at acceptable levels of service.*
- *While the bulk water supply for Hermanus west is sufficient, additional sources are being investigated (i.e. new bore holes with treatment facilities). The water treatment works has relatively recently been upgraded. The water network servicing Onrus and Sandbaai is, however, in need of repair and upgrade. Additional bulk water sources are required in the interim. A recent feasibility study indicated seawater desalination to be the preferred option.*
- *The wastewater treatment work has sufficient capacity to service the area.*
- *Stormwater management infrastructure is moderate in terms of sufficiency and needs to be upgraded.*
- *The existing electricity supply and network adequately services the present demand of Hermanus West.*
- *Solid waste removal infrastructure and system are sufficiently provided for*."

In this context, the proposed development is the type of infill development within the built-up suburb area of Vermont which contributes to addressing the housing demand in a strategic manner. While the proposed 9 residential erven may represent a fraction of the overall housing demand, it represents a proactive step towards addressing future challenges associated with population growth in the region.

The Spatial Development Framework advocates for environmentally aware development, investment in the area, and the management of remainder land for conservation. The proposed development adheres to these principles by integrating measures to mitigate environmental impacts, stimulating investment in the local area, and managing land for conservation purposes.

Furthermore, the development aligns with the vision for sustainable urban development by promoting infill development within the built-up urban area. This approach fosters denser, compact communities, maximizing land use efficiency and minimizing urban sprawl. By providing additional residential opportunities within existing urban boundaries, the development contributes to the overall well-being and resilience of the Overstrand region.

4.4.	The Environmental Management Framework applicable to the area.

The subject property, Erf 1486 in Vermont, is located in an ecologically sensitive area directly adjacent to the Hoek van der Berg Private Nature Reserve. It also forms part of a critical ecological linkage, identified as an Ecological Support Area (ESA2) in the Western Cape Biodiversity Spatial Plan, (2017). This ESA2 corridor plays a vital role in connecting the nature reserve to the Vermont Salt Pan to the east, supporting faunal movement and the functioning of local

wetland systems. According to the Draft Environmental Management Overlay Zones (EMOZs) adopted by the Overstrand Municipality, Erf 1486 falls within the Urban Conservation category (EMOZ Category D).

The proposed development has been aligned with the objectives of both the Environmental Management Framework (EMF) and the EMOZ Category D guidelines. The layout of the development has been refined through several iterations based on input from freshwater and botanical specialists. This includes careful consideration of the site's environmental sensitivities, particularly the presence of a natural unchanneled valley-bottom wetland and critically endangered Hangklip Sand Fynbos. The site, as highlighted by the faunal assessment, is likely to support species of conservation concern, including the Cape dwarf chameleon, and likely one plant species of conservation concern, although none were identified during the site survey.

To address these environmental constraints, the development incorporates several key mitigation and enhancement measures as well a complete avoidance of the permanent wetland. These include the preservation of approximately 7964 m² of open space corresponding with the delineated wetland, through an establishment of a formal wetland conservation servitude in this area. A Wetland Offset, Rehabilitation and Management Plan will be implemented to restore ecological function and improve wetland condition. Additionally, this "private open space" as included in the development layout will remain as a No-go area to maintain ecological connectivity across the site. This space is particularly important for facilitating the movement of ground-dwelling fauna between the adjacent nature reserve and the wetland system. Special attention is also being given to vulnerable species, such as the Cape dwarf chameleon, for which a search-and-rescue operation is planned prior to construction. Long-term management measures, such as alien vegetation control, revegetation, prevention of illegal dumping, and restriction of free-roaming pets, will also be enforced to protect the ecological integrity of the conserved areas.

Figure 5: The property is mapped as urban conservation EMOZ, Category D.

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

The comments received from relevant authorities and biodiversity specialists during the first round of pre-application public participation, conducted on 23 March 2023, significantly influenced the planning and refinement of the proposed development on Erf 1486, Vermont. The feedback led to revisions in the project layout, triggered additional specialist studies, and ensured that the development approach was better aligned with the area's environmental sensitivities.

The Department of Environmental Affairs and Development Planning (DEA&DP) raised critical concerns about insufficient detail in the draft Basic Assessment Report (BAR), particularly regarding wetland rehabilitation and compliance with national biodiversity reporting protocols. As a result, the activity description was revised to include information about the planned wetland rehabilitation and offset procedure. DEA&DP also requested that gaps in Biodiversity assessment be addressed through the inclusion of a Freshwater Impact Assessment, confirmation of peat presence, and evaluation of the impacts of vegetation loss, particularly concerning critically endangered vegetation types. These matters have been addressed in the subsequent revisions of the report.

Cape Nature provided detailed input regarding the biodiversity implications of the proposed development. They highlighted the presence of Hangklip Sand Fynbos classified as critically endangered on the site, as well as the importance of existing wetland systems. Cape Nature emphasized the need to explore alternative layouts that would better minimize impacts on these sensitive ecological features. Their input directly informed the refinement of the layout to reduce the development footprint within sensitive areas.

Whale Coast Conservation submitted comprehensive comments emphasizing the importance of accurate wetland delineation and assessing the full ecological role of the wetland within the broader ecosystem. They expressed concerns about cumulative impacts on the Vermont Salt Pan (located approximately 820 m east of the site), highlighted the inadequate treatment of climate change in the BAR, and called for more robust biodiversity assessments and mitigation strategies. These inputs were influential in motivating the inclusion of both a Freshwater Impact Assessment and a Botanical Impact Assessment in the revised BAR.

The Vermont Ratepayers' Association supported the protection of the wetland and proposed that the Environmental Management Programme (EMPr) be integrated into the constitution of the future Homeowners' Association to ensure long-term compliance. They suggested several site-specific measures, including stormwater management, environmentally sensitive construction methods, and pet control. Their recommendation for a Maintenance Management Plan to support wetland conservation was also taken into consideration.

The Breede-Olifants Catchment Management Agency (BOCMA) noted the absence of a Risk Matrix in the freshwater screening, which limited their ability to comment comprehensively. They emphasized the need for responsible water resource management and requested further engagement upon submission of the required documentation. Their feedback led to the compilation of a formal Risk Assessment matrix for the development.

Additional critical feedback came from individuals and local conservation bodies and representatives from the adjacent Hoek van der Berg Nature Reserve. These stakeholders voiced strong opposition to the proposed encroachment on seasonal wetlands and raised concerns about property placements within the 30-metre flood line. They called for additional specialist studies to understand the impact of adjacent alien vegetation clearing and the extent of the onsite wetland.

In conclusion, the collective input from biodiversity authorities, conservation bodies, and the public played a decisive role in reshaping the development proposal. In direct response to these comments, both an Aquatic/Freshwater Impact Assessment and a Botanical Impact Assessment, including a Risk Matrix, as well as a Faunal Impact Assessment,

were commissioned and incorporated into the planning process. These studies informed the evolution of the preferred development layout (Alternative 3), resulting in a plan which is more sensitive to ecological constraints and better aligned with sustainable land use practices.

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

The proposed development on Erf 1486, Vermont has been informed by and complies with the principles outlined in the Western Cape Biodiversity Spatial Plan (WCBSP), particularly the 2017 version. It is important to note that the project planning and initial specialist studies were undertaken prior to the promulgation of the 2023 BSP in December 2024 and therefore much of the development planning was based on the 2017 BSP.

According to the WCBSP (2017) and as mapped in the CapeNature Spatial Biodiversity Plan referenced in the Botanical Impact Assessment, the subject property is located within an Ecological Support Area 2 (ESA2). This zone forms a vital ecological linkage between the Hoek van die Berg Nature Reserve to the west and the Vermont Salt Pan to the east. As such, the site supports ecological process continuity, hydrological function, and biodiversity connectivity particularly for wetland-dependent and mobile fauna.

A natural Unchanneled Valley Bottom (UVB) wetland was identified and delineated on site by the freshwater specialist. Although the wetland is considered ecologically transformed due to historical infill and the presence of alien invasive vegetation, it retains functional hydrological and ecological value. Specialist assessments confirmed the presence of faunal and botanical diversity on site. While no Species of Conservation Concern (SoCC) were confirmed during the surveys, the presence of faunal species such as frogs and the Cape Dwarf Chameleon (*Bradypodion pumilum*) is considered likely to be present onsite based on indirect observations (e.g., frog calls and suitable habitat features).

The Western Cape Biodiversity Spatial Plan Handbook (2023) provides guidelines for land-use within mapped ESAs, highlighting that these areas may already have some form of development (cultivation, mining or even buildings and infrastructure) but should be providing ecosystem services. The handbook further highlights that, where possible the current land-uses should be withdrawn, and rehabilitation undertake, or where unavoidable, that development must be designed to retain ecological functionality and ensure that ecological corridors remain intact. The proposed development on Erf 1486, is in line with the above provision as the proposal also aims to avoid the wetland areas and reinstate the ecological corridor link from Hoek van der Berg to the Vermont Salt Pan through the implementation of the onsite Wetland Offset, Rehabilitation and Management Plan. Alternative 3 reduces the development footprint to ±7105 m², while preserving approximately ±7964 m² (58%) of the site as a conservation open space.

Furthermore, the Botanical Addendum (November 2023) supports the revised layout, stating that it represents a substantial improvement in ecological terms and reduces the project's impact from “unacceptable High negative” (under a previous layout) to an “acceptable Medium negative” under Alternative 3. In addition, a Wetland Offset, Rehabilitation and Management Plan will guide restoration and long-term management of the conservation area, aligning with the ESA objectives.

Note that the 2023 Biodiversity Spatial Plan (BSP) maps the property as a Critical Biodiversity Area (CBA1: Terrestrial). The Western Cape Biodiversity Spatial Plan Handbook and Guidelines (2023) indicates that such areas should be maintained in a natural or near-natural state with no further loss of habitat. It further highlights that only low-impact, biodiversity -sensitive land uses area appropriate. The development of Erf 1486 aims to achieve a low impact type development within the context of both the built up urban area of Vermont and within a site identified as sensitive.

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

N/A

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.

N/A

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

The proposed development will optimize vacant land available within the urban area by making efficient use of the available space on the erf in Vermont. As one of the last large erven in the area, the site presents a valuable opportunity to address the high demand for residential offerings in Vermont, Hermanus and the Overberg in general. By developing this vacant land, the proposed development will help meet the housing needs of the community while minimizing the need for further expansion into undeveloped areas. This approach aligns with principles of sustainable urban development by promoting infill development and densification within established urban boundaries. Overall, the proposed development optimizes vacant land within the urban area to provide much-needed housing options in response to high demand.

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

The erf is located within the built-up residential area of Vermont, services are already available in the vicinity. The proposal presents a continuation of residential development within the area.

GLS Consulting conducted the capacity analysis for the proposal and concluded the following:

The developer of Erf 1486 in Vermont may be liable for the payment of a Development Contribution (as calculated by the Overstrand Municipality) for bulk water and sewer infrastructure as per Council Policy. There is sufficient capacity in the existing water reticulation system to accommodate the proposed development, and no network upgrades will be required. There is sufficient hydraulic spare capacity in the existing small bore sewer reticulation system downstream of the proposed development to accommodate the proposed development.

Accommodation of the development on Erf 1486 on the existing small-bore system is however not supported in its current state, due to operational problems that are experienced with smaller diameter sewer systems, specifically frequent sewer blockages. The requirements to accommodate the proposed development in the existing sewer system are therefore link services item 1 and master plan item OHS11.12 to reinforce the existing Onrus Main PS sewer reticulation system**.** Mr Ricardo Andrew from the Overstrand Municipality has confirmed that the North-south section of the 110 mm diameter existing pipeline will need to be upgraded to a 160 mm diameter pipeline as indicated in yellow below. The upgrade will take place within the roads of Kolgans and Malmok, Vermont, only, therefore disturbance will be confined to the road and transformed road reserve only.

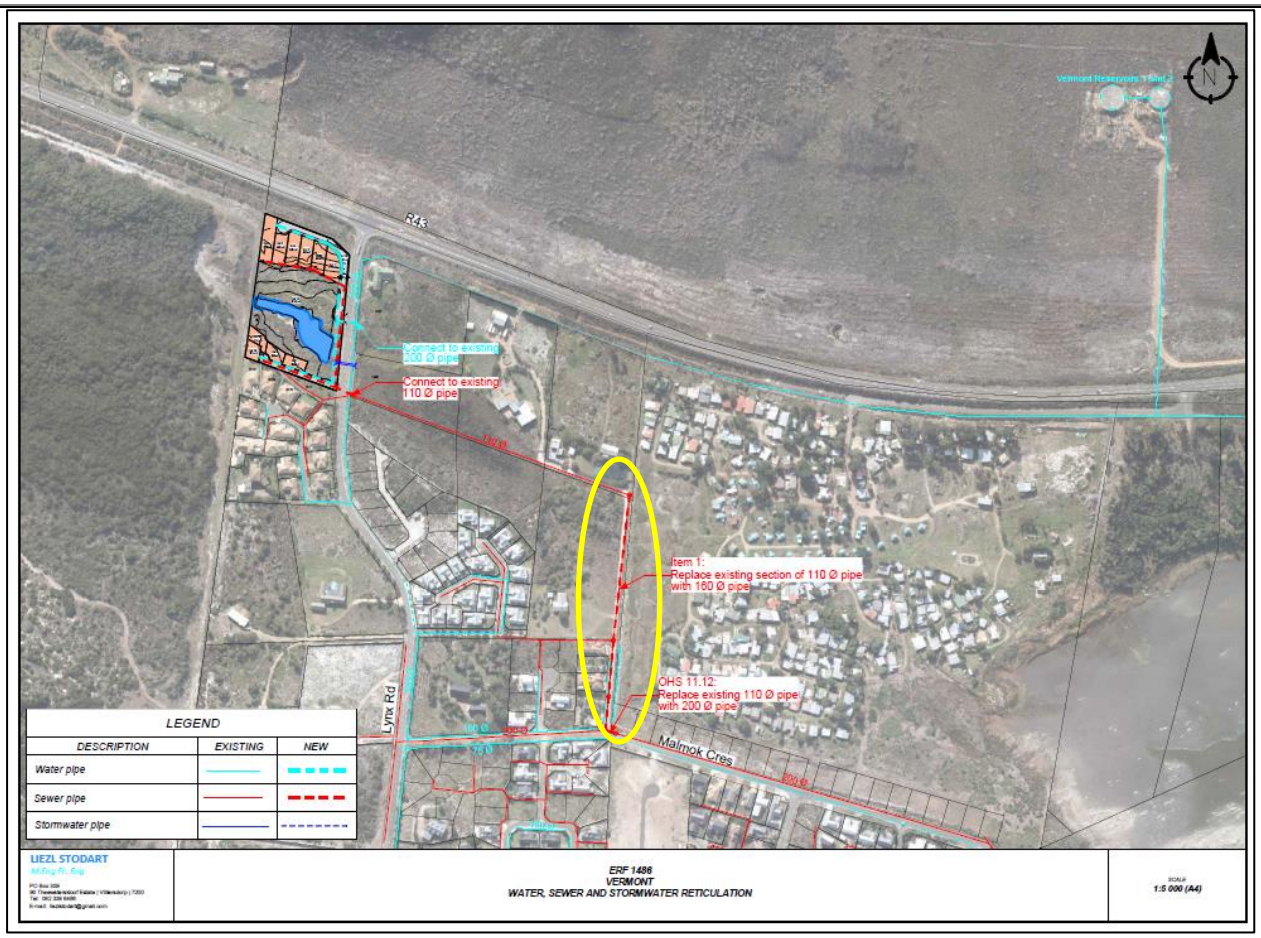


Figure 6: Showing upgrade required to accommodate the proposed development.

The upgrade will be done in existing roads and within the path of the existing line as follows:

Excavation:

Excavation equipment such as backhoes or excavators is used to dig a trench along the path of the existing sewer pipe. The road surface will need to be cut and broken up. The trench width will be in the order of 800 mm. The depth is not currently known, but typically it's in the order of 1.5 meters.

Removal of existing pipe:

Once the trench is dug, the existing sewer pipe is exposed and removed. This may involve cutting the pipe into manageable sections for removal. To maintain existing sewer flow, it may be necessary to install temporary structures and make use of pumps to bypass existing sewer flow.

Installation of new pipe:

The new larger 160 mm diameter pipe is installed in the trench on appropriate compacted bedding material and connected to the existing sewer system at existing manholes using appropriate connectors and sealing materials.

Backfilling:

Once the pipe is installed and connections secured, a bedding material is installed followed by backfill material and compacted. The pipe is tested (pressure and mirror). In the case where the pipe is installed in the road, the road layer works will need to be reinstated as well as the surface (asphalt, paving etc.).

Photos of where the existing line is located and where it needs to be upgraded. These sites are completely transformed and will constitute a normal like for like upgrade to increase the pipe diameter from 110 to 160 mm.

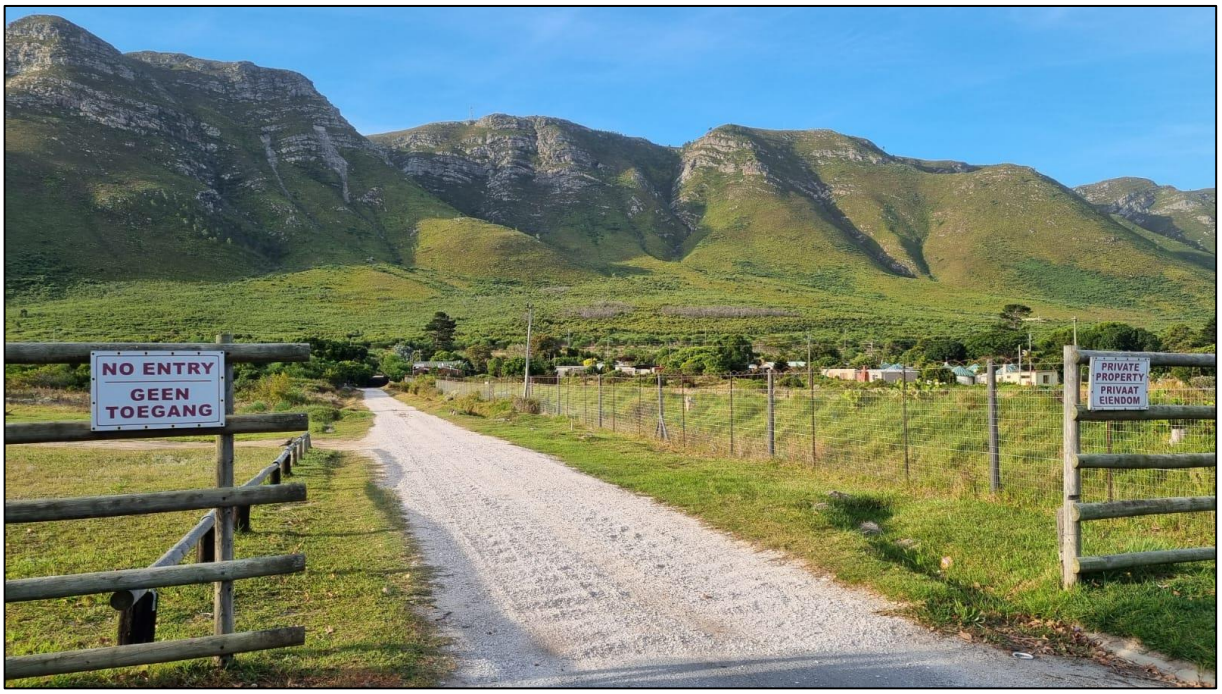


Figure 7.1-A. Northwards upgrade area

Figure 7.1-B Looking south along Kolgans Street – servitude in road

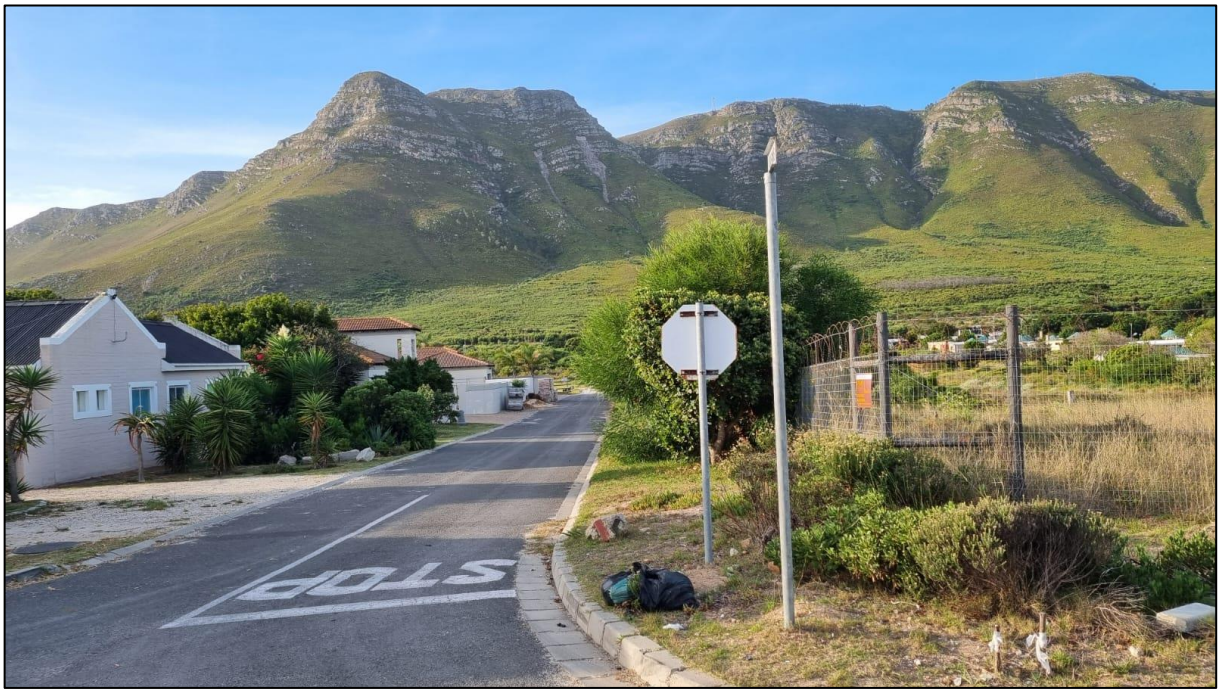


Figure 7.2-B. North wards along Kolgans – upgrade to take place in the road

Figure 7.3-A. Manhole on existing pipeline along Malmok

Figure 7.3-B - Manhole on existing pipeline along Kolgans – upgrade required.

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 F).

The erf will connect to existing services in the Vermont suburb at the cost of the developer. See **Appendix F for Service Reports:**

Associated infrastructure

Water services:

- The development will connect to the existing Vermont reservoir distribution zone via a 200mm diameter pipeline in Lynx Avenue.
- The existing Vermont reservoir network has sufficient capacity to accommodate the proposed development's water demand, calculated at an Annual Average Daily Demand (AADD) of 5.4 kL/d for 9 single residential units and a fire flow of 15 L/s at 7 m pressure.
- The bulk supply system from the Preekstoel Water Treatment Plant (WTP) to the Vermont reservoirs has sufficient capacity.
- There is adequate reservoir storage capacity in the existing Vermont reservoirs.
- No network upgrades are required for the water reticulation system, confirming that the existing infrastructure can fully support the proposed development.

Sewer Services:

- The existing 110 mm small bore sewer system from Erf 1486 to Malmok Street, and a small section of 110 mm sewer in Malmok Street, have sufficient hydraulic spare capacity to the peak sewage flow from the proposed development – with the size upgrade required in Kolgans and Malmok as described above.
- The Onrus Main PS and the downstream Hermanus Wastewater Treatment Plant (WWTP) have sufficient spare capacity to accommodate the sewage flow from the development.

The north south section on Kolgans and Malmok road will require upgrade as follows:

Excavation:

Excavation equipment such as backhoes or excavators is used to dig a trench along the path of the existing sewer pipe. Where the pipe is situated in a surfaced road, the surface will need to be cut and broken up and the unsuitable material spoiled. The trench width will be in the order of 800 mm. The depth is not currently known, but typically it's in the order of 1,5 meters.

Removal of existing pipe:

Once the trench is dug, the existing sewer pipe is exposed and removed. This may involve cutting the pipe into manageable sections for removal. To maintain existing sewer flow, it may be necessary to install temporary structures and make use of pumps to bypass existing sewer flow.

Installation of new pipe:

The new 160 mm diameter pipe is installed in the trench on appropriate compacted bedding material and connected to the existing sewer system at existing manholes using appropriate connectors and sealing materials.

Backfilling:

Once the pipe is installed and connections secured, a bedding material is installed followed by backfill material and compacted. The pipe is tested (pressure and mirror). In the case where the pipe is installed in the road, the road layer works will need to be reinstated as well as the surface (asphalt, paving etc.).

No vegetation will be disturbed or removed, and upgrade involves the upgrade from the existing 110 mm pipe to the 160 mm pipeline with the existing road surfaces of Kolgasn and Malmok Streets.

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 addition to the environmental considerations outlined above, the proposed development aligns with the Department of Environmental Affairs' Integrated Environmental Management Guideline on Need and Desirability, particularly regarding the need and desirability of the project.

Need:

- The proposed development addresses a significant demand for housing in the Hermanus, Vermont area. by creating 9 residential erven, the project directly responds to the need for additional housing units, thereby alleviating the housing shortage.
- With the urban population of Vermont steadily growing, there is an inherent need for expansion and the provision of housing options to accommodate the increasing number of residents.
- The development is tailored to meet the needs of first time home owners and single families, recognizing the diversity in household structures within the community.
- Construction activities and subsequent habitation of the residential erven stimulate economic growth. Job creation during the construction phase and potential expansion of local businesses due to increased population density contribute to the economic well-being of the community.
- Furthermore, the development will contribute to revitalizing the urban area, enhancing its attractiveness to both current residents and visitors. This enhancement aligns with the need to improve the quality of life in urban areas, ultimately benefiting the community as a whole.

Desirability:

- The proposed development enhances the desirability of the community by providing much needed housing options, improving the overall quality of life for residents in Vermont.
- By locating the development within an existing urban area, the project promotes urban infill, optimizing the utilization of available land within established communities in a sustainable manner.
- Placing residential units within the existing urban fabric improves access to amenities, public services, and transportation, enhancing the overall desirability of the location.
- Additionally, the creation of residential units fosters social connectivity, contributing to the formation of a cohesive and vibrant community where residents can benefit from shared spaces and community interactions.
- The development also includes the creation of open space, prioritizing the protection of aquatic and terrestrial ecosystems. This further enhances the desirability of the project by preserving valuable natural environments and promoting sustainable land use practices.

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.

N/A

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

Proof of public participation attached hereto, conducted in line with the NEMA requirements. Two rounds of out of process public participation have been conducted to date. An additional round of in process public participation is herewith provided.

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

DEA&DP CAPE NATURE OVERSTRAND MUNICIPALITY OVERBERG DISTRICT MUNICIPALITY BOCMA

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

N/A

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

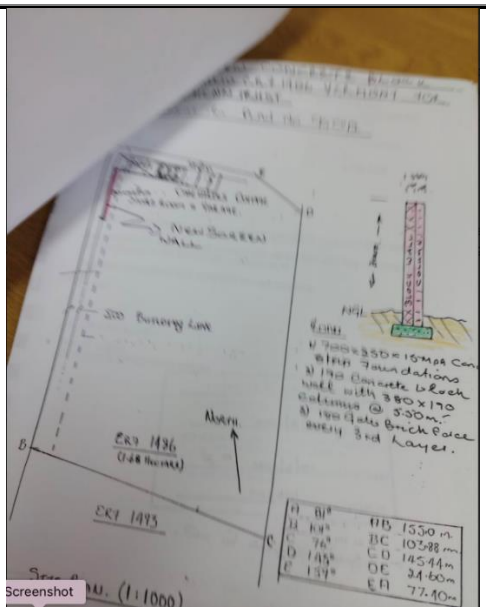
N/A

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.

One round of pre-application public participation has already been conducted on the pre-application Draft BAR. This round of public participation forms part of a voluntary and additional round of public participation on the pre-application draft BAR.

Name/ Organisation	Comments	Response
Public Participation 1		
Petro Steere	• Properties 1 to 7 lie in the seasonal wetland- not acceptable. • Assumes that the thin blue line on the diagram is the 30m floodline. As I understand it, no building within this line. Only erf 3,4,5,6 and 9 fall outside this line • Erf 9 to 13 are below 600sq m also not acceptable	• Comment regarding seasonal wetland is noted – the Alternative 3 – the new preferred alternative is now assessed and has been informed by specialist input. This alternative avoids sensitive areas to an acceptable impact level • Development within these areas require the applicant to undergo the Environmental Authorisation process, for decision can be taken by the competent authority. Note that the new preferred alternative, Alternative 3, now only contains 9 erven. Previously preferred alternative layout 2 has 15 residential erven and the access road crossed the wetland alongside Lynx Avenue. • The land use parameters are in line with the Overstrand Municipality bylaws and also require a approval process through the municipal town planning processes.
Mary Ann Verster *Hermanus Botanical Society*	• The BAR and Site Verification Report assert that the site is "highly transformed" and lacks indigenous vegetation. • However, this conclusion is made without conducting a formal Plant Species Assessment, which was flagged as a requirement in the Screening Tool Report (page 10). • Without a proper field-based flora assessment, the presence of rare, endangered, or endemic plant species (such as *Disa halackii*, recently discovered nearby) cannot be ruled out. This omission is seen as a critical flaw, compromising the integrity of the biodiversity assessment. • The preferred development proposal (Alternative 2) places all 12 residential units over areas identified as seasonal or temporary wetlands. • Erven 1 and 8 are 100% overlapped by wetland • Erven 2 and 7 show extensive overlap. • Erven 3–6 show minor but notable overlap. • The site plan likely underestimates the extent of wetland areas, due to: ○ Ongoing removal of Eucalyptus trees from the adjacent Hoek van die Berg Nature Reserve, expected	A Botanical Impact Assessment as well as a full Freshwater Impact Assessment has been conducted. The findings of these studies have led to the evolution of a fourth alternative, with a reduced number of erven, shifted away from sensitive areas on site. Alternative 3 is now the preferred alternative. A full Wetland Impact Assessment has been undertaken to inform the evolution of alternatives. The findings and recommendations from this study, as well as the Botanical Impact Assessment, has resulted in the evolution of the final preferred alternative which avoids all permanent and seasonal wetland.

	to significantly increase water flow into the wetland. ○ Climate change impacts, specifically more intense storm systems increasing runoff from surrounding mountains. • The only mitigation mentioned is rainwater harvesting schemes which is considered inadequate in light of the site's environmental sensitivity and hydrological context. • The development on these areas may result in serious ecological and infrastructure risks. • The Basic Assessment Report (BAR) refers to the long-term development and management of the wetland as a potential positive outcome of implementing the preferred development proposal (Alternative 2). • However, no specific details are provided regarding the proposed wetland management plan, including the methods, objectives, or the entity responsible for its implementation and long-term oversight. • As a result, it is not possible to assess the feasibility or likely effectiveness of the proposed wetland rehabilitation and management. • Additionally, the statement on page 32 of the BAR—"Development in close proximity to wetland may pose risks to the wetland, however the status quo is much worse. Opportunity for rehabilitation"—is unclear. The document does not explain what the current "status quo" entails or how rehabilitation will be practically achieved. • The Hermanus Botanical Society suggest that the points raised are serious limitations to the BAR and should be addressed before the EIA is accepted.	A Homeowners Associated will be in place and they will be responsible for the long-term conservation and management of the Wetland area. This will form part of the condition of approval, should it be granted. Onsite Wetland Offset and Rehabilitation has been included in the process. The BAR has been significantly updated in the final preferred layout.
Bernadette Osbourne – *(DEADP)*	• Clarification is required regarding the legal status of the existing buildings and road on the property prior to submission of the application for Environmental Authorisation.	The appointed Town Planning consulting on the project investigated the matter at the Overstrand Municipal offices and found that building plans for the existing store were approved in 1994. An amendment to the approved plan was submitted in 2002, to add a Single layer screening wall. The building was therefore constructed pre NEMA and the screening wall did not trigger any listed activities in terms of NEMA. See Appendix F.

	• The BAR indicates wetland rehabilitation will take place (page 23), but no details have been provided. A detailed description of this activity must be included. • The application must comply with the relevant protocols as published in Government Notice No. 320 (20 March 2020). • The Terrestrial Biodiversity protocol requirements have not been met. A compliance statement or full specialist assessment is required, depending on confirmed sensitivity. • The Freshwater Report does not meet protocol requirements. It must include ecological status, importance and sensitivity of each watercourse, and assess impacts of the proposed development. • A comprehensive Freshwater Impact Assessment Report must be included in the BAR. • Confirmation is needed on whether **peat** is present in the watercourse and whether it will be removed. This must be confirmed by the aquatic specialist. • The site contains Hangklip Sand Fynbos, which is classified as Critically Endangered. The loss of this vegetation must be clearly identified and assessed in the BAR. • Sections 4.1 to 4.3 have not been adequately addressed and must be revised to include detailed responses. • Written confirmation from Heritage Western Cape (HWC) must be obtained regarding the requirement for Landscape/Visual, Archaeological, Paleontological, and Cultural Heritage Impact Assessments. • The BAR incorrectly states that the National Water Act is not applicable, despite the presence of wetlands on site. This must be corrected, and input from the relevant water authority must be obtained. • If the applicant is not the landowner, landowner consent must be provided with the final application. • As Activity 19 of Listing Notice 1 is triggered, a Maintenance Management Plan should be incorporated into the EMPr to manage future maintenance activities. • Official comment from CapeNature must be obtained and included in the BAR.	 • The residential development will be gated and managed through a Homeowners Association. The Freshwater specialist will provide information relating to the rehabilitation and long-term management of the site. • These sections are now amended. Full Terrestrial Impact Assessment undertaken. A Freshwater Impact Assessment has now been undertaken in line with the requirements and is attached to the Draft BAR. In addition, a Botanical / Terrestrial Impact Assessment has also been undertaken, this report also speaks to the Animal / Terrestrial theme. The findings of these reports have resulted in the evolution of the new preferred layout being Alternative 3. The Aquatic Biodiversity Impact Assessment Report indicated that peat **is not present** on the site A full Botanical Impact Assessment has been undertaken; the impact assessment findings have resulted in the evolution of Alternative 3 – the new preferred alternative. Confirmation from Heritage Western Cape has been received and no further heritage assessment is required. See Appendix F.

	• Written confirmation is required from the Overstrand Municipality that adequate capacity exists for potable water, effluent, waste, and electricity supply for the development. • Participation Plan and the requirements of Regulation 41 of the NEMA EIA Regulations, 2014, and proof of compliance with all the steps undertaken must be included in the BAR	Noted. Amended accordingly, NWA is applicable and the Risk Matrix has been completed along with the Freshwater Impact Assessment. MMP compiled Included below. The Overstrand's Engineers have conducted the services report, as attached under Appendix F (GLS report). The upgrade of the Kolgans sewer pipeline is required and is described in the Basic Assessment Report • Participation Plan and the requirements of Regulation 41 of the NEMA EIA Regulations, 2014, and proof of compliance with all the steps undertaken must be included in the BAR
Rhett Smart – *Cape Nature*	• CapeNature has reported the omission of the wetland in the NBA mapping to SANBI. • No terrestrial biodiversity assessment was undertaken, despite the site's classification. • Justification that the proposed development aligns with surrounding development is not accepted as it does not address biodiversity concerns. • Given nearby endangered species (notably on Erf 1492), at minimum, a terrestrial biodiversity and plant species compliance statement is required. • The freshwater screening study functioned as a constraints analysis only. • A full freshwater ecology impact assessment must be conducted to assess the development's potential impacts. • Alternative 2 (with an open space buffer) is preferred over Alternative 1 but is still unacceptable, as several erven encroach on the delineated seasonal wetland. • The layout should be refined to fully avoid the wetland and incorporate specialist recommendations • No details provided regarding service provision (e.g. sewage, roads), which could significantly affect freshwater ecology. • Proper consideration of wastewater impacts and water flow is required. The mitigation hierarchy must be applied. • The BAR incorrectly states that the National Water Act does not apply. • Since the development is within a watercourse, authorisation under the National Water Act is required. • The EIA and Water Use Licence Application (WULA) processes must be synchronised. • CapeNature does not support the proposed development in its current form. • Support is conditional upon:	• A Full Wetland / Aquatic Impact Assessment has been undertaken and further refines the preferred alternative. • A Full Aquatic Impact Assessment as well as a Botanical Impact Assessment has been undertaken and has informed the evolution of Alternative 3 – which is now the preferred alternative. • A full Botanical Impact Assessment • A Freshwater Impact Assessment has been undertaken and has resulted in the evolution of Alternative 3 – the new preferred alternative

	• A revised layout that responds to identified environmental constraints. • Submission of a freshwater impact assessment. • Submission of a terrestrial biodiversity and plant species compliance statement.	• The new preferred alternative (Alternative 3) removes the access road which cut the link of the wetland between the Lynx Avenue and Erf 1486. • Amended – A full Freshwater Impact Assessment has been conducted as well as a Risk Matrix, this will enable the specialist to apply for the appropriate licences and / or General Authorisations in line with the requirements of the National Water Act.
Duncan Heard - *Vermont Ratepayers Association*	• The EMPr should be embedded in the constitution of the future Homeowners' Association (HoA) as a condition of Environmental Authorisation (EA). • The HoA must be responsible for implementing EA conditions during the operational phase. • The following ongoing management actions must be implemented to protect the wetland: o Prevent ecological degradation of the conserved wetland area. o Monitor water quality entering and leaving the wetland regularly to detect pollution. o Implement an eco-sensitive stormwater management system, including: ▪ Vegetated swales ▪ Polishing ponds • Use of raft foundations for all buildings. • Require permeable paving on all uncovered paved areas. • Enforce strict control over domestic pets to protect local wildlife. • Wetland Rehabilitation Considerations: o The core wetland includes a deep-water area caused by historic illegal excavation. o Future rehabilitation efforts (e.g. modifying wetland banks or alignment) may be necessary to improve wetland health. o A Maintenance Management Plan (MMP) is advised to allow for such activities without requiring additional EIAs in the future.	Noted These recommendations have been added to the Basic Assessment Report and EMP
Giorgio Lambardi	• The BAR claim that "only very limited areas will be developed" is misleading: o Approximately 65% of the site will be developed, and only 35% retained as open space. o The erf is not "largely transformed" as claimed, and is adjacent to a nature reserve, in a sensitive ecological area. • The required 30m buffer around wetlands is not provided. o Many of the proposed residential erven fall directly within the delineated seasonal wetland:	• A Freshwater Impact Assessment as well as a Botanical Impact Assessment have been undertaken and have resulted in the evolution of a new preferred Alternative – Alternative 3. The alternative sees a reduction in the number of erven, reduced encroachment into the erven, realignment of access roads to avoid the wetland area and sensitive botanical areas on site.

	○ Example: Erf 8 is 100% within the wetland; others range from 10% to 80% coverage. • No vegetation studies were conducted despite the site falling within Critical Biodiversity Areas and containing Endangered Hangklip Sand Fynbos. • A Plant Species Assessment and Animal Species Assessment were unjustifiably dismissed, rendering the BAR fatally flawed. • A wetland specialist should assess the: ○ Present Ecological State (PES) ○ Ecological Importance and Sensitivity (EIS) ○ Specific threats to wetland health	• A new preferred layout alternative has evolved in line with specialist impact assessment findings. A Terrestrial Biodiversity Impact has been undertaken. Completed as part of Freshwater Impact Assessment.
Dr Pat Miller Whale Coast Conservation	• Discrepancies exist between the site plan (dated 14 March 2019) and the BAR regarding the areas of subdivided erven, despite the total area aligning. • The BAR's claim that only "very limited areas" will be developed is misleading, as 65% of the site is proposed for development (single residential: 34%, town housing: 11%, private road: 20%), with only 35% retained as private open space (wetland area). • The BAR incorrectly states that internal access is mostly in place, omitting the existing gravel road from the site plan. • Misleading descriptions portray the site as within a "built-up residential suburb" despite its location at the north-western edge of Vermont, adjacent to a nature reserve, and as "largely transformed and impacted" despite minimal disturbance beyond a derelict building and gravel road. • Two design proposals (dated 14 March 2019) were generated, with Alternative 1 deemed environmentally unviable and Alternative 2 claimed to consider the wetland system but lacking detailed rehabilitation or management plans. • The BAR understates the impact on the seasonal/temporary wetland, with 12 residential stands encroaching on it to varying degrees, contrary to claims of minimal impact. • The BAR's cursory treatment of climate change ignores increased runoff from stronger storms, which will expand the seasonal wetland, affecting the proposed layout. • The Freshwater Screening Study (FSS) by EnviroSwift (2018) is outdated, relying on a 2006 study and a single-day site visit, failing to account for dynamic wetland boundaries influenced by surrounding conditions. • The FSS's restriction to Erf 1486's boundaries ignores the impact of alien invasive vegetation (AIV) clearance in the adjacent Hoek van der Berg Private Nature Reserve, which will significantly increase the wetland's extent due to reduced water consumption by	• The new layout design ensures that the developable erven are outside the identified seasonal/temporal zones, with the areas encroaching on the seasonal/temporal wetland areas will remain as a No-go conservation area. • In response to the specialist impact assessment reports, a further alternative has evolved. The alternative takes into account the findings of both the Freshwater Impact Assessment and Botanical Impact Assessment and sess a reduction in the number of erven proposed, reduction in enrichment into the wetland area, avoidance of sensitive botanical areas and a realignment of access routes in order to reduce the impact on biodiversity.

	eucalyptus trees (200–1000 liters/day per tree). • The FSS incorrectly asserts the wetland originates on Erf 1486, whereas it is part of a larger system originating at Paddavlei in Hawston, with historical seasonal overflows affecting wetland dynamics. • The central wetland depression is described as "excavated" without evidence, despite soil and vegetation indicators suggesting a natural feature. • The FSS underestimates the wetland's extent, likely to increase due to AIV clearance and planned rehabilitation of nearby Paradise Park, rendering the delineation unreliable. • The BAR dismisses the applicability of the National Water Act (NWA) and National Environmental Management Biodiversity Act (NEM:BA), despite the erf's location within a 500m wetland buffer and Critical Biodiversity Areas (CBAs). • The "no net loss" wetland policy and the need for an Environmental Authorisation due to disturbance within 32m of a watercourse are ignored. • No consideration is given to the 100-year floodline or increased runoff risks from climate change-induced storms. • The BAR falsely claims the site is "highly transformed" without a vegetation study, ignoring the presence of indigenous hydrophytic plants (e.g., Juncus kraussi, Cyperus textilisi) and the discovery of an endangered orchid (Disa halackii) on a nearby similar site. • The site, within Critically Endangered Southwest Sand Fynbos and an aquatic Ecological Support Area, is surrounded by CBAs and a nature reserve, and development will compromise ecological functioning. • The Vermont Pan, part of the larger wetland system, is already impacted by insensitive development, and this proposal will exacerbate water flow and habitat issues. • No corridor for flora and fauna movement is provided, despite claims, as the proposed open space will be under housing. • The wetland delineation is fatally flawed due to its reliance on a single-day assessment and failure to account for AIV clearance impacts, rendering the proposed layout void. • Dismissal of specialist studies and legislative requirements is unjustified and flimsy. • The BAR is poorly prepared, with inaccuracies, misinformation, and bias, suggesting a tick-box exercise rather than a rigorous assessment. • WCC suspects the proposal may seek approval to later demand wetland drainage, violating environmental protections. • WCC recommends rejecting the BAR and denying authorization for the development	• A full Freshwater Impact Assessment has been undertaken and has resulted in further refinement of the proposal and a new preferred alternative. • A Full Freshwater Impact Assessment has been undertaken for the proposal and has resulted in the evolution of a new preferred alternative. This alternative aims to allow for a continued link between the Vermont Salt Pan and Paddvlei but reducing and / or eliminating the number of encroaching erven and access routes • A full Freshwater Impact Assessment has been undertaken in line with both the NEMA and NWA requirements. • A Botanical Impact Assessment and a Freshwater Impact Assessment have been undertaken and have resulted in the evolution of the new preferred alternative, Alternative 3. • Rehabilitation and protection of sensitive areas on private land requires funding and management, the Home Owners Association will be tasked with the long term management of the wetland area, guided by specialist input and conditions of the Environmental Authorisation – should it be granted. As per the requirements of NEMA and NWA, a full Freshwater Impact Assessment has been undertaken and is attached in the revised BAR – the findings of

	due to its significant environmental risks and inadequate assessment.	this report has resulted in the evolution of a new preferred alternative The Botanical and Freshwater Impact Assessments have resulted in the evolution of a new preferred alternative – Alternative 3. As above, The BAR has been updated and amended in line with updated specialist input. The report has been revised and updated in line with the new Specialist impact assessment reports. An Additional pre-application public participation is provided for prior to the in-process public participation commences. This is to ensure that issues and concerns are adequately addressed before initiating the in-process applications
Michael Raimondo – *Director of UVA Properties*	• Fully Supports the comments raised by the Whale Coast Conservation and Vermont Conservation Trust. • Raised the concern regarding the clearance of alien vegetation along the R43 and in the adjacent property (Hoek van Der Berg Private Nature Reserve). • UVA Properties opposes any further development on Erf 1486, as it will adversely affect the wetland system, particularly given the anticipated expansion due to ongoing invasive plant removal.	• Noted • This is also noted • Noted.
Dennis Brandjes	• Properties 1 to 7 lie in the seasonal wetland. This is not acceptable. • Assume the thin blue line on the diagram is the 30m floodline. As we understand it, no building within this line. Only erf 3,4,5,6 and 9 fall outside this line. • Erf 9 to 13 are below 600sqm in size. This is not acceptable. • I failed to see the biodiversity report – as I believe that there is protected aquatic and other life forms dependant on the salt pan water mass.	• The newly conducted Botanical Impact Assessment and Freshwater Impact Assessment Reports have resulted in the evolution of the preferred alternative and the creation of a new preferred alternative being Alternative 3.
Samantha Hogg-Brandjes	• Opposed to the proposed development for the reasons related.	• Noted.
Fabion Smith – BOCMA	• The Freshwater Screening Study by EnviroSwift (dated 20 August 2018) does not include a Risk Matrix, which is essential for assessing the proposed development's impact on water resources. • Due to the absence of a Risk Matrix, BOCMA is unable to offer specific guidance or direction on the proposed development. • Almost the entire site/study area of Erf 1486 falls within 500 meters of a regulated area, as defined under relevant water resource management regulations, including the layout proposed in the preferred Alternative 2 (dated 14 March 2019 by Interactive Town and Regional Planning). • BOCMA advises that a Risk Matrix for the proposed development be submitted to enable a concise and precise assessment,	• A full Freshwater Impact Assessment and Risk Matrix is now included in the Basic Assessment Report

	after which specific feedback can be provided. • BOCMA notes the concerns raised by Cape Nature in their email dated 24 April 2023, indicating alignment with other stakeholders' apprehensions regarding the development.	
Public Participation 2		
Samantha Hog	• Opposes to the proposed development	• Noted.
Michael Raimando	• Requested information about the servitude • Highlighted that it is against the urban law to build 2m from the perimeter of the fence.	• Noted. No further actions required.
Rob Crank	• Telephone call received in support of the proposed development on Erf 1486 Vermont	• Noted. No further actions required.
Peter Hodgskin	• Requested a copy of the BAR	• Information sent, no further actions required.
Paul Pfister	• Not comfortable having his email address distributed in public.	• Noted.
Marleine Badenhorst	• Requested to be be informed about the development as a neighbour.	• Noted. No further actions required.
Denis Branjes	• Requested documentations	• Information sent, no further actions required.
Paul Verhoef and Janice Yvonne Verhoef	• Requested to be included in the I&AP list	• Registered as I&AP
Rulien Volschenk – *Overberg District Municipality*	• ODM supports the preferred layout as it promotes the protection of a wetland system	• Noted. No further actions required.
Paul Slabbert *PHS Consulting*	• Advised that the development should only be on the current development footprint and that the rest of the site should be restored as a functional ecological corridor. • A 2006 Freshwater Consulting Group (FCG) study for Overstrand Municipality delineated wetland boundaries and buffers, recommending a minimum 30m buffer to limit development and protect wetlands (Figure 2). • Provided comment that the Botanical Assessment report recommended that the future development inside the urban edge that is located along the slopes of the mountains should include provisions to ensure a natural delivery of water via natural drainages. Also added that this should be supported by the specialist investigation looking at both the impacts within the site as well as the impacts this might have on the identified wetlands in the larger area.	• It should be noted that the new layout design (Alternative 3) exclude development in areas that are situated outside the seasonal/temporal wetland areas. Therefore, the plan is to include the No-go area in the undevelopable areas. • Freshwater specialist response: "*The previous studies are noted.* *It is the specialist's recommendation that the single residential dwellings within the northern subdivided Erven should avoid the delineated wetland as far as possible, as per recommendations in the Aquatic Impact Assessment Report (Delta Ecology, 2023), and implement all listed mitigation measures in the report, including SW management and implementation of a Rehabilitation and Management Plan for the onsite wetland area. Vegetation which needs to be re-planted (if applicable) within each northern Erf (Figure 1) should be planted with indigenous vegetation, which would be considered an adequate buffer during operational phase considering the nature of development (single residential dwellings).*

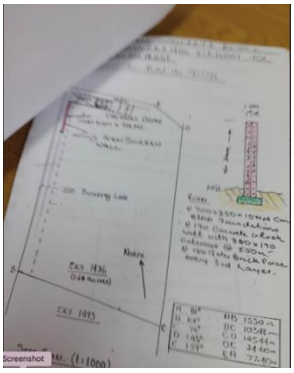
		The wetland area coinciding with the proposed southern Erven (to be zoned for town housing) (adjacent to current housing along the southern boundary) (Figure 1), will likely encroach on approximately 255 m2 of the seasonal wetland area. This is considered acceptable, considering the Rehabilitation, appropriate Management and Protection of the remnant onsite wetland as an Offset, by the Homeowners Association (HoA or similar).”
	• A 2008–2010 Basic Assessment process for a previous development application on Erf 1486 lapsed due to wetland extent restrictions, with FCG (2008) deeming the site unfit for development expansion beyond the existing footprint (Figure 3). • A 2012 FCG study for the approved Hoek van de Berg development (RE/572) confirmed Erf 1486’s wetland as part of an extensive Juncus cf. krausii valley-bottom wetland, linked to Paddavlei (Hawston) and Vermont Pan, fed by surface and subsurface flows (Figure 4). • The 2012 study noted alien vegetation (Acacia saligna, Eucalyptus spp.) reduced functional wetland area through droughting and shading, with remnant vegetation indicating a potential mixed restia/sedge/grass community. • The 2012 study recommended a groundwater study to assess aquifers, groundwater flow, and sub-catchment boundaries (e.g., Sub-catchment C1) to determine appropriate wetland setbacks and impacts (Figure 5).	• Freshwater specialist response: “*Previous studies and outcomes are noted.* *Flow on Erf 1486 was noted to be in a south easterly direction during the site assessment (Delta Ecology, 2023), flowing through the outlet beneath Lynx Road.”*
	• An August 2018 EnviroSwift study delineated the wetland on Erf 1486 based on saturated soils and hydrophytic vegetation, acknowledging the outdated 2006 delineation but not clarifying how southern housing developments altered the wetland (Figure 6).	• Freshwater specialist response: “*Wetland boundaries may vary with time, and it is noted that the housing development to the south (built 2007 – 2012) may have resulted in additional stormwater input within the Erf 1486. There is a SW outlet located in the southeastern corner of the Erf 1486, which discharges runoff from the southern housing development into the wetland on Erf 1486, as noted in Figure 2 of the EnviroSwift screening study in 2018. This, in combination with varying climate conditions from year to year could account for the slight increase in delineation extent during the 2023 assessment.”*
	• EnviroSwift concluded that development within the wetland would likely require a Water Use Licence Application (WULA) and wetland offset scheme (high risk), adjacent development would require a WULA (medium/high risk), and development with a buffer zone would have low/medium risk requiring registration or a WULA. • A November 2023 Delta Ecology study confirmed an Unchanneled Valley-Bottom (UVB) wetland, with the proposed layout minimizing overlap but still requiring a WULA and wetland offset/rehabilitation plan due to	• Freshwater specialist response: “*Delta Ecology (2023) reiterated the results of this screening assessment done by EnviroSwift in 2018. Due to the development within the wetland being of minimal extent (encroachment on approximately 255 - 500 m^2 of the seasonal wetland area); the Rating was determined to be of Medium Significance and would require a full WULA and a Wetland Offset, Rehabilitation, and Management Plan.”*

	moderate risk from limited wetland loss and degradation. • The Delta Ecology report concludes that the proposed layout has gone through alterations, however, wetland loss will fall within high Category	
	• Suggested that appropriately raft foundations may may significantly reduce the impact on subsurface flow and therefore reduce risk. • Rainwater harvesting schemes that may reduce runoff intensity and thereby mitigate the impact of catchment hardening • Stormwater polishing infrastructure such as artificial wetlands that may mitigate water quality impacts	• Freshwater specialist response: *"The Delta Ecology report (2018) has been updated to specify that an Aquatic Ecologist should be consulted during the design specifications of the Residential Dwellings and Town Housing unit on the site, and an ECO should be appointed during the Construction of the Town Housing development in the south. The stormwater management plan must take into account the recommendations from the aquatic specialist reports, both the EnviroSwift Screening (2018) and the Delta Ecology (2023), specifically relating to the design of SW outlets to minimize erosion and water quality*" impairment within the wetland." • Additionally to the above, it is important to note that raft foundations have been included in the report as recommendations.
	• The Delta Ecology report concluded that the proposed layout has been revised multiple times to minimize overlap with the delineated wetland. While wetland loss typically carries a high impact rating, the small extent of loss and the degraded condition of the wetland have reduced the overall significance of the impact. • The narrative of the studies conducted since 2006 and the next to erf 1486 stipulates that there is a critical ecological link corridor and that impacts on the large wetland area mut be considered. The surface and subsurface waterflow from the west to east passing through erf 1486 was noted.	• Freshwater specialist response: *"The most recent layout (Figure 1) has been amended to include a larger private open space area (conserved wetland area). The private access road now does not need to cross the wetland, as there will now be two access roads instead of one."* • *Freshwater Specialist response: "The comment is acknowledged, and it is recommended that changes in the wetland boundary should be monitored by the HoA. The recommendation to monitor the potential expansion in the onsite wetland boundary over time will be included in the Wetland Management Plan.* *However, as per the above comment, the change in flow regime to the wetland due to the proposed development will be minimal, and can be adequately mitigated.* *The scope of the recent studies (specifically EnviroSwift, 2018 and Delta Ecology, 2023), included assessment of the present state of the onsite wetland to be potentially impacted by the proposed development, and the impacts of the proposed development.* *Assessing activities, and the potential impacts thereof, undertaken on adjacent land was not the scope or aim of the Aquatic Impact Assessment Report (Delta Ecology, 2023)."*
	• Highlights that the report states that the wetland boundaries do vary with time clearly depicted in the change in delimitation over the years most probably due to manmade intervention like stormwater additions, further infilling after 2006, run-off from the	• Freshwater specialist response: *"The specialist agrees that there is potential need for a hydrological assessment to determine the impact of clearing AIS on Hoek van de Berg*

	mountains, floods and alien clearance. It is questioned how the wetland boundaries are likely to be change in future.	*Nature Reserve on the downstream wetland system.* *It is questioned whether the entity undertaking the AIPS clearing is not responsible for assessing potential impacts that may occur as a result of the clearing, such as increased flow to downstream land. There are many landowners downstream that could be affected if increased flow does occur, not only the property immediately downstream."*
	• Notes that there is alien clearing programme taking place in the Hoek van der Berg Nature Reserve, which included the clearance of the wetland area in the northeast corner of the nature reserve. They added that the tempo and volumes of water feed need to be considered after alien removal. • They made observations on RE/572 and noted that the water level in the wetland has drastically increased as per photo evidence below, due to the reduction of alien vegetation.	• Freshwater specialist response: *"The comment is acknowledged, and it is recommended that changes in the wetland boundary should be monitored by the HoA. The recommendation to monitor the potential expansion in the onsite wetland boundary over time will be included in the Wetland Management Plan."* • Freshwater specialist response: *"However, the scope of the recent studies (specifically EnviroSwift, 2018 and Delta Ecology, 2023), included assessment of the present state of the onsite wetland determined to be At-Risk of the proposed development, and subsequently the potential impacts of the proposed development on this wetland.*
	• Notes that the most recent wetland studies haven't considered the increase in wetland run-off and feed from RE/572 to the Vermont Pan due to the current alien clearing efforts. • Neither has the additional run-off from the mountains been considered where additional clearing of alien vegetation is taking place and directly north where landowners will be forced to clear aliens. • On the RE/572 site the wetland area already expanded as per photo 3, 4 & 5 below. This extend will have a direct impact on the wetland extent on erf 1486 and it's likely the site will become wetter in future. This coupled with climate change and extreme events occurring more frequently, more surface and sub-surface flow will originate from catchment C1. • The BAR has not considered the changing circumstances in particular the effect of alien clearance and climate change on the proposed development.	• *The Delta Ecology (2023) report's scope does not include assessing the potential impact of climate change, adjacent changes in land use, or any other potential catchment transformation that may occur in the future; and how (if applicable) the boundary of the wetland will change as a result of such changes. The report has been updated to include this exclusion in the Limitation Section 1.2. of the report (Delta Ecology, 2023)."* • A stormwater management plan was compiled and includes the calculations of the stormwater runoff before and after construction of Erf 1486. • Freshwater Specialist response: *"The comment is acknowledged, and changes in the wetland boundary should be monitored. The recommendation to monitor the potential expansion in the onsite wetland boundary over time will be included in the Wetland Management Plan.* *It is recommended that the HoA ensures that no private landowners' resort to interventions to drain or infill the remnant UVBW. The designs for houses on the residential Erven should take cognisance of the wetland's sensitivity and this should be enforced by the HoA through the Wetland Management Plan. The Delta Ecology (2023) report has been updated as necessary to include this mitigation measure."*
	• Advised that all residential erven be located outside the seasonal wetland to avoid development impacts on the ecosystem. Climate change is real and more water will flow through the system from west to east with erf 1486 fulfilling the role of a critical link	• Freshwater Specialist response: *A SWMP is recommended. However, it is the specialist's opinion that the proposed development will not have a substantial impact on the hydrology or*

	• Recommended that a geohydrological/hydrological/hydropedology study in conjunction with a stormwater master plan be conducted to inform the freshwater impact assessment in order to understand what the impacts of the increase in surface and subsurface water flow will have on the system and in specific the wetland on erf 1486. A development alternative should be presented and assessed as part of the process that avoid the CE vegetation and the seasonal wetland areas completely	*interflow dynamics of the onsite wetland and downstream system given the implementation of mitigation measures.* • *The Delta Ecology (2023) report's scope does not include assessing the potential impact of climate change, adjacent changes in land use, or any other potential catchment transformation that may occur in the future; and how the onsite wetland's surface and subsurface water flow may change as a result thereof. The report has been updated to include this exclusion in the Limitation Section 1.2. of the report (Delta Ecology, 2023).* • All the development areas are outside the seasonal wetland area and the areas encroaching on the seasonal wetland zones will not be developed and will only be protected through a conservation servitude and thus will remain as no-go areas. • *The scope of the recent studies (specifically EnviroSwift, 2018 and Delta Ecology, 2023), included assessment of the present state of the onsite wetland determined to be At-Risk of the proposed development, and subsequently the potential impacts of the proposed development on this wetland. There may potentially be a slight increase of flow due to the hardened surfaces as a result of the housing development. This is seen to be of "Low "significance" to the onsite wetland, given the implementation of mitigation measures such as implementing rainwater harvesting schemes that may reduce runoff intensity, and mitigate the potential impact of catchment hardening.* • *To ensure the implementation of recommendations in the Aquatic Impact Assessment Report (Delta Ecology, 2023), the report has been updated to specify that an Aquatic Ecologist must be consulted during the design of the onsite Residential Dwellings and Town Housing unit, and an Environmental Control Officer (ECO) should be appointed during the Construction of the Town Housing development in the south.* • *Freshwater specialist response: "The scope of the recent studies (specifically EnviroSwift, 2018 and Delta Ecology, 2023), included assessment of the present delineation and state of the onsite wetland determined to be At-Risk of the proposed development, and subsequently the potential impacts of the proposed development on this wetland.* • *The Delta Ecology (2023) report's scope does not include assessing the potential impact of climate change, adjacent changes in land use, or any other potential catchment transformation that may occur in the future; and how the onsite wetland's surface and subsurface water flow may change as a result thereof. The report has been updated to include this exclusion in the Limitation Section 1.2. of the report (Delta Ecology, 2023)."*

	• UVA does not support the development in its current format until the required additional studies are conducted.	• A stormwater management plan was compiled and it also addresses the amount of the stormwater flow from the R43 to the wetland area on site. The plan includes the Low Impact Development which would otherwise control the stormwater flow from the existing culverts and how this water will be channelled throughout the wetland without impacting the future residential areas on the property. • Noted.
Paul Pfister	• The "activities" referred to do not indicate the intentions of the proposed developer regarding the dwellings, outbuildings, entrance and exit routes et etcetera. • Given the following it was considered that there should be no additional development other than that of the existing footprint: • Consideration should be given to the fact that since the development application by the previous owner, the wetland area has extended substantially; • It is also essential that any development and Environmental Authorization (EA) of the proposed nature should form part of a Home-owner's Association (HOA) or Sectional Title constitution. In this way the significance of the wetland and the conservation thereof would be maintained;	• Noted. The description states that the proposed development is the establishment of residential development which will include the single residential dwellings and town housing. • Noted. • The conservation of the wetland area through an establishment of a conservation servitude in this area will be included as a condition of authorisation.
Denis Brandjes & Samantha Hogg-Brandjes	• Highlights from their previous comments below concerns have been addressed: o Properties 1 to 7 are situated in the seasonal wetland, which is deemed unacceptable. o Concerns are raised regarding buildings within the 30m floodline, with only erf 3, 4, 5, 6, and 9 falling outside this line. o Erven 9 to 13 are below 600sqm in size, which is considered unacceptable. o Request for the inclusion of a biodiversity report, highlighting potential protected aquatic life forms dependent on the salt pan water mass. • Notes that their concerns relate to the wetland and the fact that RE/572 through to erf 1486 has and is enlarging since the initial reports of March 2023 and sites inspections of mid-2023, based on their observations seasonal wetland floodline was apparent for some time after the floods. This relates specifically to your proposed development of Erf 7,8 & 9 of 'APP B3 Development Proposal Alternative Four Final Preferred'. If developed, these erven will severely impact and be impacted by the enlarging wetland.	• Noted. • The final preferred layout (Alternative 3) was specifically designed to avoid development within the permanent wetland area and to minimize intrusion into the seasonal/temporary wetland zones. While portions of Erven 7, 8, and 9 are located near the edge of the mapped seasonal wetland, development within these erven will be strictly confined to areas outside the delineated wetland boundary. Furthermore, these wetland-edge zones have been designated as no-go areas, meaning they will not be disturbed during construction or occupied by any built infrastructure. In addition, a Wetland Offset and Rehabilitation Management Plan has been developed to guide mitigation efforts, which includes the restoration of degraded wetland areas and measures to ensure long-

		term protection of the wetland's ecological function and connectivity, including with the Vermont Salt Pan. • Furthermore, a Stormwater Management Plan has been compiled and will be implemented to ensure that post-development runoff is appropriately managed. This plan is designed to mimic the natural hydrological regime, attenuate stormwater flow, and prevent any adverse impacts on the adjacent wetland areas, particularly during extreme rainfall events. The plan aligns with the principles of Low Impact Development (LID) and includes mitigation measures such as placement of Permeable Paving System as well as Enhanced swales, and controlled discharge points to protect downstream watercourses and the Vermont Salt Pan.
Bernadette Osborne *DEADP*	• Confirmation is required as to when the buildings and road were developed on the site. Furthermore, the width and length of the road and as well as the use and footprint of the existing buildings must be confirmed. Confirmation is also required whether the buildings were developed within or within 32m of a watercourse. • Clarity must be provided regarding the sewer pipe in Kolganns Street and whether the replacement of the pipeline will also trigger Activity 19 of Listing Notice 1. Additionally, a freshwater impact assessment must be updated to include impacts associated with the sewer pipeline. • It is noted that the activity description does not include details of the width and length of	• The appointed Town Planning consulting on the project investigated the matter at the Overstrand Municipal offices and found that building plans for the existing store were approved in 1994. An amendment to the approved plan was submitted in 2002, to add a Single layer screening wall. The building was therefore construction pre NEMA and the screening wall did not trigger any listed activities in terms of NEMA. See Appendix F.  • Refer to **Section E.10** of the BAR. An aquatic Biodiversity Impact Assessment was updated. • This was amended. The preferred layout alternative is now referred to as Alternative 3 (Preferred). • The proposed development includes two private roads of approximately 180m and 75m length , each with a width of 8 metres (inclusive of the

	the private roads. The applicability of Activity 24 of Listing Notice 1 and/or Activity 4 of Listing Notice 3 must be confirmed and the activity description must be updated to include the details of the road. • Written confirmation from the Overstrand Municipality is required that sufficient, spare, unallocated capacity is available for potable water supply, effluent management and waste management • Three layout alternatives and the no-go alternative is therefore considered. The preferred layout alternative should therefore be included as Layout Alternative 3 • Confirmation from the Department of Water and Sanitation ("DWS") / Breede-Olifants Catchment Management Agency ("BOCMA") must be obtained as to whether a general authorisation or a water use license application in terms of the National Water Act, 1998 (Act No. 36 of 1998) is required • Comment must also be obtained from BOCMA regarding the development within and within 32m of a watercourse. • Since Activity 19 of Listing Notice 1 is triggered, and future maintenance related work may be required, the Department recommends that a Maintenance Management Plan ("MMP") forms a component of the Environmental Management Programme ("EMPr"). • Comment must be obtained from CapeNature regarding the revised layout.	road reserve), situated entirely within an urban area. • GLS Report is attached. This has been amended. • A comment was received during public participation phase. A Water Use License is required. • Comment was received during the first round of public participation and will be notified during the In process public participation. • An MMP is incorporated into the EMP. • Cape Nature's comment is attached herein.
Penelope Aplon *Overstrand Municipality*	• The proposed site layout Alternative 3 is supported as it enables the least disturbance to the delineated wetland footprint on the development site. • It is recommended that the mitigation measures proposed in the Aquatic Biodiversity Impact Assessment, table 10 -2 Summary of impact/risk assessment results (with mitigation), should be implemented • If an EA is issued, the developer must inform the Environmental Management Section regarding the appointment of the onsite ECO, as per the Construction EMP and Operational EMP. • The applicant should give an indication of when a rehabilitation plan will be drawn up and implemented. • It is advised that the expertise of WCC be drawn upon for the search and rescue of chameleons on site.	• Noted. • Noted. • Noted. • The wetland Offset, rehabilitation and management plan was compiled and is attached. • Noted. Search and Rescue will be undertaken onsite prior to construction and this mitigation is included as a condition of authorisation
Rhett Smart *Cape Nature*	• No explanation is however provided for the change in the delineation of the extent of the wetland between the screening study and the impact assessment	• Freshwater specialist response: "Wetland boundaries may vary with time, and it is noted that the housing development to the south (built 2007 – 2012) may have resulted in additional stormwater input within the Erf 1486. There is a SW outlet located in the southeastern corner of the Erf 1486, which discharges runoff from the

		southern housing development into the wetland on Erf 1486, as noted in Figure 2 of the EnviroSwift screening study in 2018. This, in combination with varying climate conditions from year to year could account for the slight increase in delineation extent during the 2023 assessment.".
	• Further clarification is therefore required regarding the revised wetland delineation and should take into account the likely wetland extent once alien clearing on adjacent properties is complete	• *Freshwater specialist response: "The Delta Ecology (2023) report's scope does not include assessing the potential impact of climate change, adjacent changes in land use, or any other potential catchment transformation that may occur in the future; and how the boundary of the wetland will change as a result of such, should this occur. The report has been updated to include this exclusion in the Limitation Section 1.2. of the report.* *The scope of the recent studies (specifically EnviroSwift, 2018 and Delta Ecology, 2023), included assessment of the present delineation and state of the onsite wetland determined to be At-Risk of the proposed development, and subsequently the potential impacts of the proposed development on this wetland."* • Freshwater specialist response: "*Comment is noted, and the aquatic specialist report will be updated to include additional mitigation measures."*
	• Several impacts associated with the proposed development were identified in the aquatic biodiversity impact assessment for which the impact significance was identified as low-medium negative or less except for the loss of wetland habitat for which the impact was rated as medium negative. No mitigation measures were identified for this impact. • Recommended that group housing/townhouse complexes should only be considered on erven which have no encroachment into the wetlands.	• *Freshwater specialist response: "Comment is noted. Further investigation will be conducted of full avoidance of both the permanent and seasonal/ephemeral wetland for the residential erven;* All the developable areas will be outside of the seasonal and wetland areas, however, areas encroaching on the wetland will be regarded as a no-go area and this will be added as a condition of authorisation.
		• Freshwater specialist response: *"Comment is noted. Should the offset calculator show that the onsite offset is not adequate, the broader wetland system must be taken into account."* The mitigation hierarchy process was followed, based on the extent of the wetland onsite, it is not possible to avoid the avoid the loss of the wetland. However, the Wetland Offset, Rehabilitation Management Plan was compiled and will mitigate the impact and promote positive outcome for the rehabilitation of the open space area.
	• Motivation will need to be provided as to why it is not possible to avoid the loss of wetland why this is not feasible and a wetland offset must be implemented in accordance with the wetland offset best practice guideline • CapeNature recommends that a wetland offset plan is required in accordance with the wetland offset guideline. The wetland offset calculator must be used to determine the	• A wetland offset, rehabilitation and management plan was compiled and will be implemented on site. Additionally, a No-go Maintenance Management Plan is compiled and includes the management of the wetland area during construction and post-construction phase.

	offset requirements which may require actions on wetland off-site. In this regard we wish to recommend that the broader wetland system stretching westwards from Vermont Pan to beyond Erf 1486 must be taken into account. • Recommended that regardless of whether an offset is implemented or not, the management of the open space area needs to be addressed as part of the application, including management of alien invasive species, prevention of pollution of the wetland.	
Pat Miller *Whale Coast Conservation*	• The environmental context of erf 1486 has now changed. The most important changes are: o wetlands now have legal protection, o the adjacent property on the western boundary which is now a registered private nature reserve is removing all of its very many AIPs. o Climate change is no longer a future probability, but is affecting rainfall patterns in the area and will have a marked impact on the wetland • With regard to the first contextual change, it is unlikely that the OM would have been able to apportion the land encompassing the wetland system for sale should it have wished to do so now. The fact that it was able to do in the past and accept development that has harmed the wetland system does not mean that this pattern can or should continue. The extent of the wetland system and its manifestation on erf 1486 has naturally been affected by these harmful developments that have included infilling and drainage infrastructure.	• Freshwater specialist response: "*The most recent layout (Figure 1) has been amended to include a larger private open space area (conserved wetland area). The private access road now does not need to cross the wetland, as there will now be two access roads instead of one.* *It is the specialist's recommendation that the single residential dwellings within the northern subdivided Erven should avoid the delineated wetland as far as possible, as per recommendations in the Aquatic Impact Assessment Report (Delta Ecology, 2023), and implement all listed mitigation measures in the report, including SW management and implementation of a Rehabilitation and Management Plan for the onsite wetland area. Vegetation which needs to be re-planted (if applicable) within each northern Erf (Figure 1) should be planted with indigenous vegetation, which would be considered an adequate buffer during operational phase considering the nature of development (single residential dwellings).* *The wetland area coinciding with the proposed southern Erven (to be zoned for town housing) (adjacent to current housing along the southern boundary) (Figure 1), will likely encroach on approximately 255 m2 of the seasonal wetland area.* *Due to the encroachment within the wetland being of minimal extent (approximately 255 - 500 m2 of the seasonal wetland area); the Rating was determined to be of Medium Significance and would require a full WULA and a Wetland Offset, Rehabilitation, and Management Plan.* *This is considered acceptable from our perspective, considering the Rehabilitation, appropriate Management and Protection of the remnant onsite wetland as an Offset, managed by the Homeowners Association (HoA or similar). The wetland will need to be managed in such a way to ensure that it maintains an appropriate Ecological State, ideally an improved condition from its current state."* • *Freshwater specialist response: "The Delta Ecology (2023) report's scope does not include*

		assessing the potential impact of climate change, adjacent changes in land use, or any other potential catchment transformation that may occur in the future; and how the boundary of the wetland will change as a result of such, should this occur. The report has been updated to include this exclusion in the Limitation Section 1.2. of the report.
	• With regard to the second contextual change, work has continued apace on AIP removal from the property adjacent to the west. AIP removal close to the boundary with erf 1486 has resulted in the predicted re-emergence of a wide wetland area following the course of the larger wetland system. The area correlates with the area determined in the 2006 study, extending on the north to the R43 and thus would completely encompass erf 1486.	• *The scope of the recent studies (specifically EnviroSwift, 2018 and Delta Ecology, 2023), included assessment of the present delineation and state of the onsite wetland determined to be At-Risk of the proposed development, and subsequently the potential impacts of the proposed development on this wetland."*
	• Many AIPs on the adjacent property remain and are targeted for removal, thus this process of wetland re-establishment can be expected to continue. The predicted impact on the wetland on erf 1486 noted in WCC's previous comment has indeed materialised, and an increase in wetland area from the initial BAR comment to the present is already very evident.	• *Freshwater specialist response: "The Delta Ecology (2023) report's scope does not include assessing the potential impact of climate change, adjacent changes in land use, or any other potential catchment transformation that may occur in the future; and how the boundary of the wetland will change as a result of such, should this occur. The report has been updated to include this exclusion in the Limitation Section 1.2. of the report.*
	• With regard to the third contextual change, climate change predictions are that although the area will become drier, it will experience more frequent and more violent storms. The Overstrand is already experiencing the disruptive effects of these changing weather patterns, most recently (September 2023) with disastrous consequences for both public and private infrastructure. In this context, natural systems for dispersing this increased intermittent flow of water (both surface and sub-surface) become vitally important and their protection is essential.	• *The scope of the recent studies (specifically EnviroSwift, 2018 and Delta Ecology, 2023), included assessment of the present delineation and state of the onsite wetland determined to be At-Risk of the proposed development, and subsequently the potential impacts of the proposed development on this wetland."*
		• Freshwater specialist response: *"The Delta Ecology (2023) report's scope does not include assessing the potential impact of climate change, adjacent changes in land use, or any other potential catchment transformation that may occur in the future; and how the boundary of the wetland will change as a result of such, should this occur. The report has been updated to include this exclusion in the Limitation Section 1.2. of the report.*
	• The Aquatic Biodiversity report concluded that the impact of the proposed revised development layout would be minimal and that the limited area of loss of a degraded wetland reduces the significance of this impact. It confirms that a Water Use Licence will be required as well as an offset and is of the opinion that the rehabilitation of the remnant wetland on the site, as well as a rehabilitation and management plan for it, will suffice for this. However, WCC disputes this conclusion.	*The scope of the recent studies (specifically EnviroSwift, 2018 and Delta Ecology, 2023), included assessment of the present delineation and state of the onsite wetland determined to be At-Risk of the proposed development, and subsequently the potential impacts of the proposed development on this wetland."*
		• Freshwater specialist response: "*The scope of the recent studies (specifically EnviroSwift, 2018 and Delta Ecology, 2023), included assessment of the present state - and therefore present delineation of the onsite wetland - to be potentially impacted by the proposed development, and the impacts of the proposed development."*

		• Freshwater Specialist response: *"The scope of the Aquatic Impact Assessment deals with the proposed development at hand. Should there be additional Water Use activities proposed at a later stage by the developer, these would need to be assessed as and if necessary, by a separate application presumably."* • Freshwater specialist response: *"The scope of the recent studies (specifically EnviroSwift, 2018 and Delta Ecology, 2023), included assessment of the present state - and therefore present delineation of the onsite wetland - to be potentially impacted by the proposed development, and the impacts of the proposed development."*
	• It is highly probable that if permission is granted the developer will introduce drainage systems that will divert this flow away from the property.	
	• It must be borne in mind that the currently manifest boundaries of the wetland on site have been drastically affected by past interference in order to construct the now derelict buildings. This interference has naturally also affected and degraded the vegetation markers. The true extent of the wetland on site and the larger wetland system of which it is a part could only be determined were these to be removed and a few seasons allowed to pass for stabilisation before measuring. However, in the context of climate change and its inevitable effect on the water flow through the system, determining the boundaries with any level of accuracy will be challenging.	• The new preferred layout (Alternative 3) addresses the site specific features of concern in the project areas, including the existing ecological link, marked as an open space on the layout to allow ecosystem connectivity.
	• Minor changes have been made to the layout of the development and to some of the specialist studies undertaken for the original BAR. However, the proposal continues to assume that the context of the site will remain as it was when the necessary specialist studies were undertaken for the original BAR. WCC still contends that this is not the case.	

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 x
1.2.	Provide the name and or company who conducted the specialist study.		
N/A			
1.3.	Indicate above which aquifer your proposed development will be located and explain how this has influenced your proposed development.		
N/A			
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.		
N/A			

2. Surface water

2.1.	Was a specialist study conducted?	YES X	NO
2.2.	Provide the name and/or company who conducted the specialist study.		
Enviroswift and Delta Ecology			
2.3.	Explain how the presence of watercourse(s) and/or wetlands on the property(ies) has influenced your proposed development.		

Aquatic Biodiversity Impact Assessment:

The presence of a delineated Unchanneled Valley-Bottom (UVB) wetland on Erf 1486, Vermont has played a critical role in shaping the proposed development layout. This wetland, which is part of a broader 1.4 km-long natural system hydrologically connected to the Vermont Salt Pan, was delineated through assessments conducted by EnviroSwift (2018) and updated by Delta Ecology in 2023. It exhibits moderate Ecological Importance and Sensitivity (EIS) despite being in a largely modified Present Ecological State (Category D), due to historical disturbances such as excavation, vegetation clearing, and infilling.

The delineated wetland was assessed as having moderate value in terms of ecosystem services particularly sediment trapping, phosphate and toxicant assimilation, and carbon storage and was confirmed to still exhibit functioning hydromorphic soils. Vegetation within the property was identified to be extensively disturbed, with a mixture of indigenous species such as *Senecio halimifolius* and the wetland obligate *Juncus kraussi* alongside alien invasive species such as Kikuyu grass (*Cenchrus clandestinum*) and pampas grass (*Cortaderia selloana*). While the latter species is not wetland obligate, it is commonly found in wetlands where it grows particularly densely (van Outshoorn, 2014). An additional wetland obligate species, *Typha capensis*, was also found in isolated patches during the site assessment.

The hydrology was observed on the site with runoff from the neighbouring housing estate's stormwater system into the depression clearly visible. Terrestrial soils within the study area are dark grey, sandy and appear to be well drained. Soils that were sampled in wetter areas near the depression did not differ markedly from terrestrial soils, aside from

appearing darker and with a higher organic content than the terrestrial baseline. Mottling and gleying are not expected in this wetland. Mottling was however found in isolated patches on the southern periphery of the depression in brown soils that are likely the result of limited historical infilling.

The wetland was delineated at the outer boundary of the temporary zone . The presence of saturated, high carbon soils and isolated instances of mottling within the upper 500 mm of the soil was used in conjunction with the presence of hydrophytic vegetation to delineate the wetland. The excavated depression represented the permanent zone.

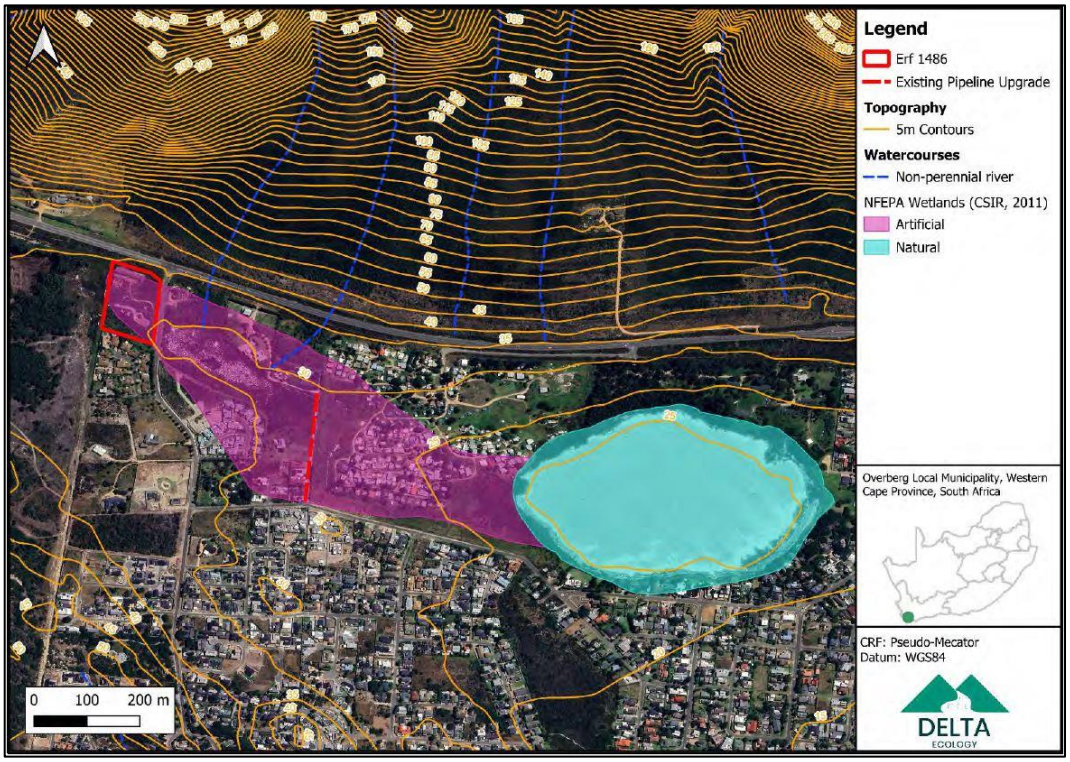


Figure 8: Overview of the hydrological connectivity from the subject property (red) to the Vermont Salt Pan (blue).

Photo 1: View of the existing building structures on the subject property.

Photo 2: Wetland obligate *Juncus kraussi* indicated by the arrow. This species, along with *Senecio halimifolius*, were used as primary indicators of the outer boundary of the wetland within the study area.

Photo 3: Dense clumps of alien invasive *Pennisetum clandestinum* along the edges of the depression within the study area, particularly where sediment dredged from the depression was dumped.

Photo 4: Additional wetland species *Typha capensis*, located in front of the derelict buildings onsite.

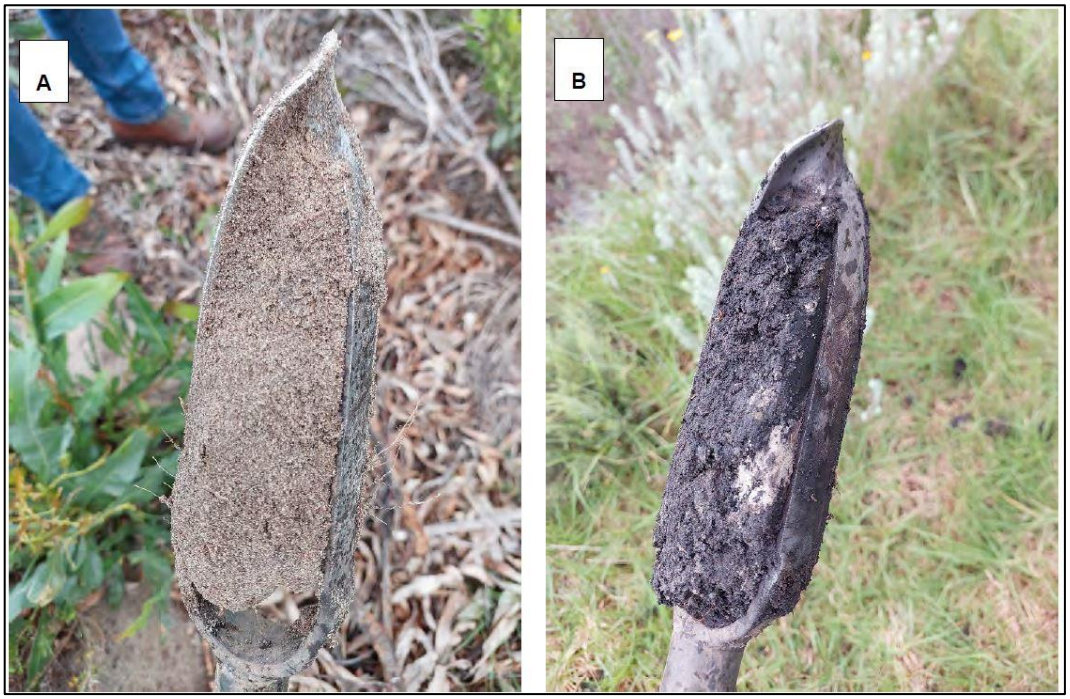


Photo 5: A) Near-surface soil sample, showing typical terrestrial soil conditions within the study area. Terrestrial soils within the study area are sandy, characterised by a uniform grey - brown colour, with no mottling, gleying or organic matter visible. B) Near-surface soil sample, taken within a wet area; darker chroma observed.

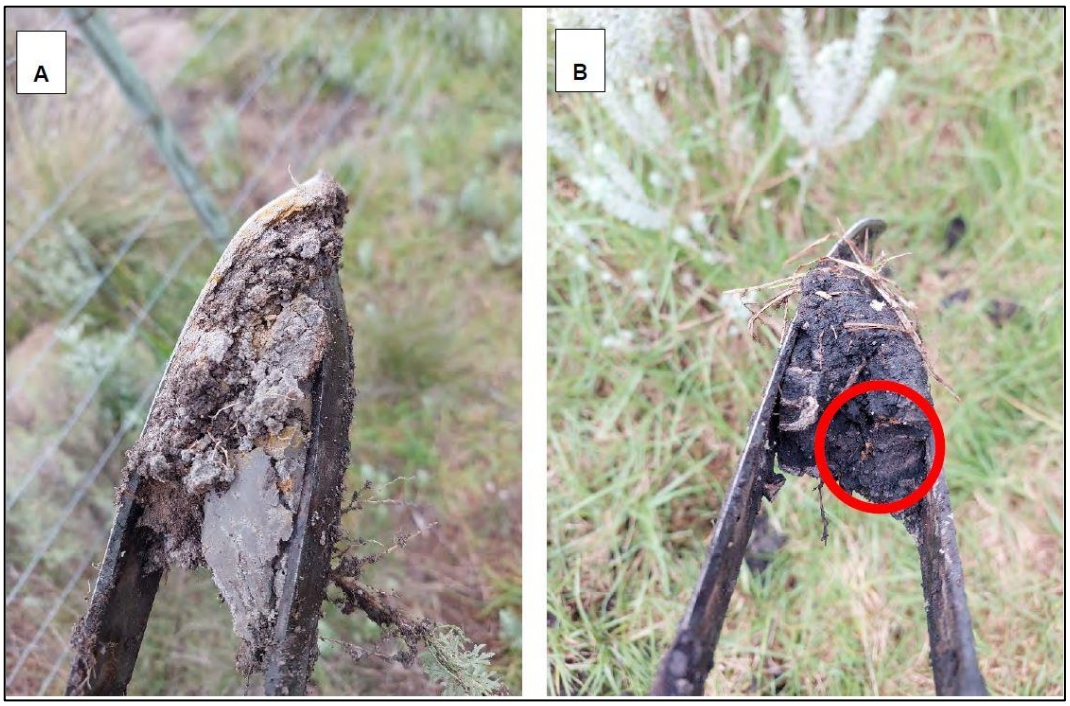


Photo 6: A) Soil taken from within a wet area. Rusty orange-coloured mottles are observed; alongside fill material and B) rusty orange mottle (red circle) observed in high carbon, dark soils from a wet area.

Pipeline upgrade

The existing pipeline to be upgraded is located along Kolgans Close and Malmok Road (**Figure 9**). The wetland area along the stretch of this road where the pipeline is to be upgraded, is critically degraded, i.e. relic or historical, due to infill from the road. Other notable impacts to the general UVBW in this vicinity include artificial channels, roads, residential dwellings, excavation, and culverts, which have altered natural flow regime, vegetation, water quality and geomorphology.

The vegetation within the functional UVB wetland downslope / adjacent to the road, consists of wetland obligate species *Juncus krausii, Cyperus textilis,* with wetland facultative *Senecio halimifolius and Zantedeschia Aethiopica* along the outer boundary of the functional wetland area.

Soils that were sampled in the UVB wetland did not differ markedly from terrestrial soils, aside from appearing darker and with a higher organic content than the terrestrial baseline.

Given that the Erf, and the proposed pipeline to be upgraded, are located more than 387 m away from the Vermont Salt Pan, no impacts to this wetland as a result of the project is expected. Therefore, the only watercourse deemed to be "At Risk" is the UVBW on Erf 1486.

Photo 7: *Zantedeschia Aethiopica* in the UVB wetland along the existing road.

Photo 8: Channel along the road, within the UVB wetland.

Photo 9: Channel within the UVB wetland.

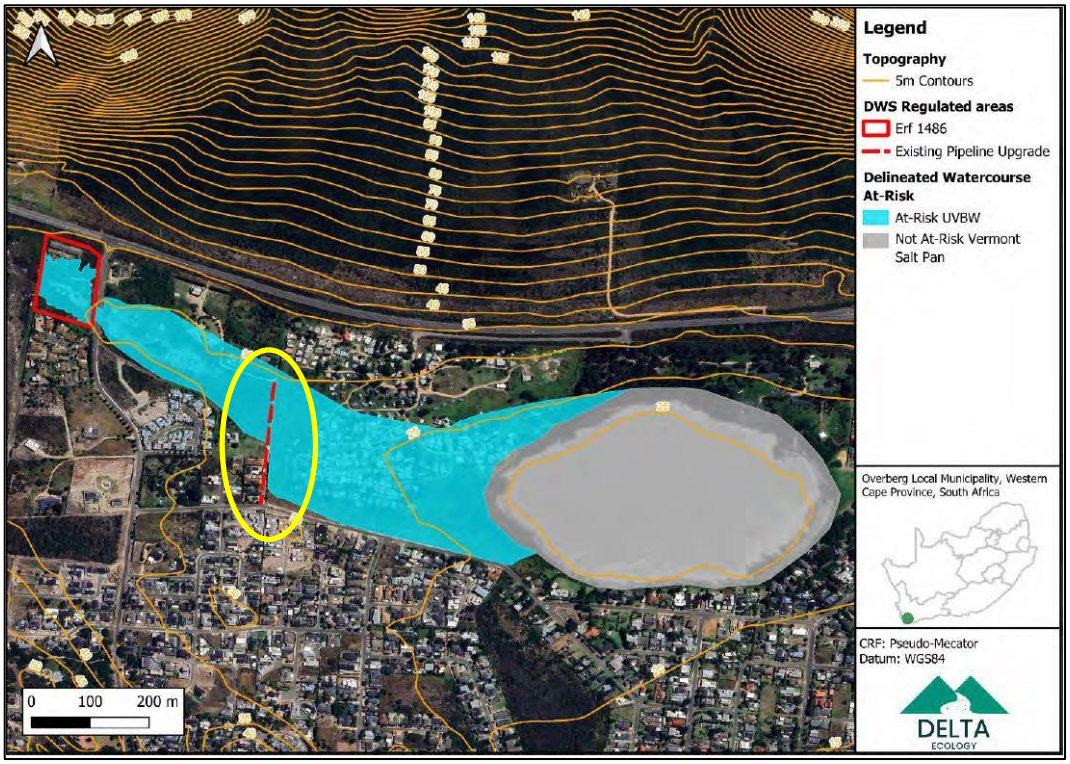


Figure 9: View of the area where pipeline upgrades will be required. Minor excavation is anticipated within the area indicated by the yellow circle.

Present Ecological State

The Macfarlane *et al*. (2020) WET-Health Version 2.0 assessment produced an overall Present Ecological State (PES) score within category D. This indicates that the wetland was in a largely modified condition at the time of the assessment. The key factors that influenced the scoring are summarised below.

Hydrology

- → The natural flow regime of the UVB Wetland (UVBW) has been altered as a result of disturbances such as the excavation to create the centre depressional area on the erf itself, historical vegetation clearing and infilling, and catchment hardening associated with the roads, dirt tracks, residential areas.
- → Although there is an overflow pipe that crosses beneath Lynx Road and flows into the wetland on the far side, the construction of Lynx Road, and excavation within the centre of the site, has created a dam within the centre of the UVBW.
- → The presence of nutrient rich laterite, in soils that are naturally nutrient poor, such as those on the proposed development area, are associated with the dominance of invasive species such as the dense clumps of Kikuyu grass (*Pennisetum clandestinum*) seen onsite, which leads to altered surface roughness and therefore altered flow regimes in the wetland.
- → The hydrology of the UVBW has been impacted by the presence of urban residential land use within the wetland itself, and in the wetland's immediate catchment area. Urban land use such as residential areas and tarred roads has resulted in flow diversion and catchment hardening which is associated with increased runoff and storm peak flows.
- → The wetland has been canalized, leading to concentration of flow, and likely the drying out of the wetland in various locations.

→ Additionally, a stormwater outlet is in the southeast corner of the erf, which discharges runoff from the neighbouring housing development into the wetland. Additional stormwater outlets into the wetland are observed downstream of the erf.

Vegetation

→ While several communities of indigenous hydrophytic species were noted, there was moderate vegetation disturbance within the wetland area as a result of:
  - The excavation of the dam on the erf;
  - Large areas of the UVBW on the erf were brush cut during 2004, and downstream of the erf large areas were cleared during 2022;
  - Construction activities associated with the derelict houses on the erf, and downstream residential areas;
  - Dumping of rubble within the wetland area.

→ The vegetation present within the wetland is characterised by a mixture of alien and indigenous vegetation. Alien invasive species noted onsite include dense clumps of Kikuyu grass (*Cenchrus clandestinum*) and pampas grass (*Cortaderia selloana*).

→ No species of conservation concern were noted. According to the Botanist appointed for the proposed project, at least one plant SoCC (*Disa hallackii*) may be present in low numbers (Nick Helme Botanical Surveys, 2023).

Geomorphology

→ The geomorphology of the UVBW wetland was largely modified by the excavation of the depressional / dam area in the centre of the erf.

→ Additionally, historical vegetation clearing, infilling, and hardening across large areas of the wetland has resulted in extensive disturbance to its natural geomorphic state.

→ The wetland system extends from the study area in a south-easterly direction and ultimately augments the Vermont Salt Pan. The construction of Lynx Road, Kolgans Close Road, and numerous other roads, has seriously altered this portion of the UVBW's geomorphology.

Water Quality

The water quality within the UVB wetland has been disturbed because of the adjacent infilling and compaction of the southern portion of the Erf; along with large portions which have been infilled which has resulted in:

  - Leaching of toxicants and nutrients from the infilling materials such as hydroxyl ions from cement particles and nitrates from laterite.

→ The water quality within the wetland is likely to be impacted by the residential nature of the catchment.

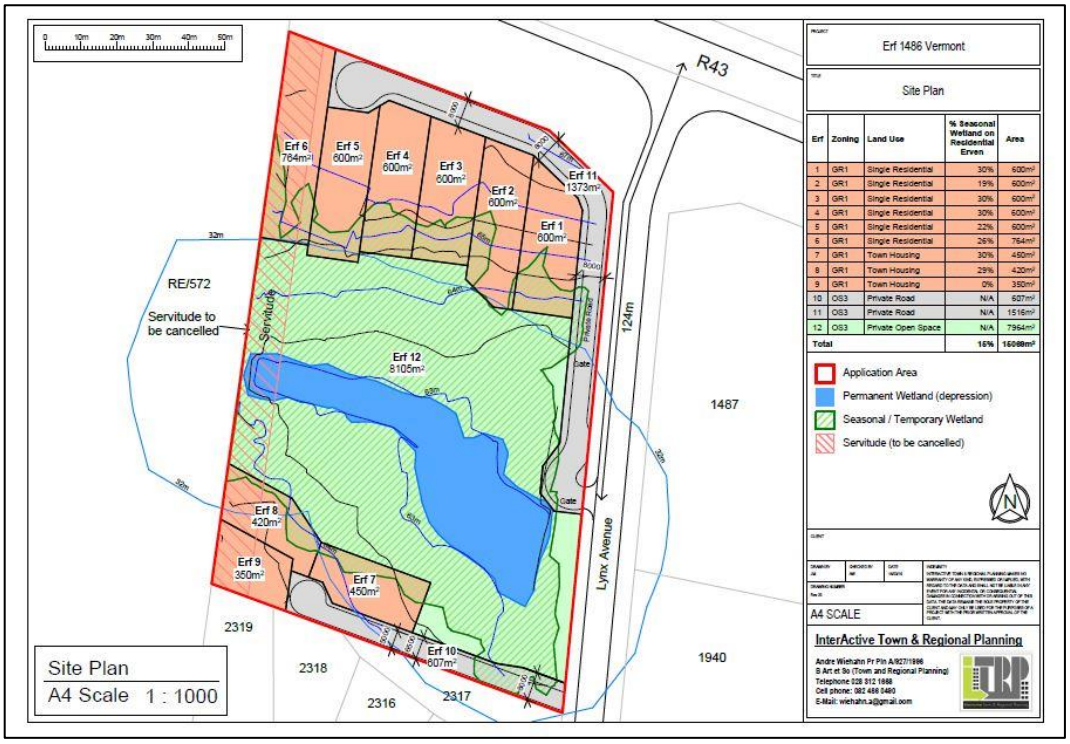
→ It is likely that runoff entering the wetland through the stormwater outlets is likely polluted by the surrounding catchment area for example, runoff from roads is likely to contain contaminants such as laterite, oil, fuel, rubber from car tires and other pollutants.

At the outset of the planning process, several site-specific sensitivities were identified that warranted avoidance. These included the ecological corridor linking the Hoek van der Berg Nature Reserve to the Vermont Salt Pan. An initial preferred layout during the first round of public participation attempted to avoid the permanent wetland, however, further site analysis revealed that some erven were still encroaching into the wetland zone. This would have compromised wetland functioning and faunal movement. In response, a revised site development plan, Alternative 3, has been formulated in direct response to specialist findings and concerns raised during the public participation process. These concerns primarily related to the functionality of the wetland and its hydrological connectivity with the adjacent Vermont Salt Pan. Under the revised layout, all proposed residential erven are located outside the delineated permanent

wetland area. While some portions of the erven extend slightly into the outer edge of the seasonal and temporary wetland zones, these portions will be designated as no-go areas and will be excluded from any development activities.

The layout of the access roads under Alternative 3 will result in a minor loss of approximately 0,024 ha (3 %) of the 0,90-ha wetland, this is significantly reduced compared to the previous alternatives and is considered acceptable by the freshwater specialist, provided that mitigation measures and a comprehensive Wetland Offset and Rehabilitation Management Plan are implemented. The maintenance of an ecological link along the entire system, remains an important consideration. In the final preferred layout, all of the permanent wetland as well as the seasonal wetland areas are excluded from development.

Figure 10: Location of infrastructure and landmarks within and adjacent to the study area.



Erf	Zoning	Land Use	% Seasonal Wetland on Residential Erven	Area
1	GR1	Single Residential	30%	600m²
2	GR1	Single Residential	19%	600m²
3	GR1	Single Residential	30%	600m²
4	GR1	Single Residential	30%	600m²
5	GR1	Single Residential	22%	600m²
6	GR1	Single Residential	26%	764m²
7	GR1	Town Housing	30%	450m²
8	GR1	Town Housing	29%	420m²
9	GR1	Town Housing	0%	350m²
10	OS3	Private Road	N/A	807m²
11	OS3	Private Road	N/A	1516m²
12	OS3	Private Open Space	N/A	7964m²
Total			16%	16080m²

Figure 11: Amended layout Alternative 3

The potential impacts to the UVBW as a result of the proposed development are listed below:

Construction Phase

- → Areas of the onsite UVBW will be lost (i.e. complete loss in flow regime, water quality, vegetation, and geomorphic structure) as a result of the private road construction (Minor loss of approximately 0,024 ha (3 %) of the 0,90-ha wetland).
- → Habitat disturbance within the UVBW may occur due to the construction of residential housing and the upgrade of the sewer pipeline.
- → Alteration of the flow regime of the UVBW during construction of the residential housing.
- → Water quality impairment due to increased sediment input, potential spillage, or release of potentially contaminated runoff into the UVBW during construction of the residential housing and the upgrade of the sewer pipeline.

Operational Phase

- → Habitat disturbance due to the use of the wetland as a public open space (likely); and any maintenance associated with the sewer pipeline.
- → Alteration of the flow regime of the UVBW once the housing development is complete, due to potential flow diversion / increase in storm flows – stormwater management plan includes freshwater recommended mitigation measures.
- → Water quality impairment due to the release of potentially contaminated stormwater (hydrocarbons) into the UVBW; and potential leakage associated with the sewer pipeline and maintenance thereof.

→ **Stormwater Management Plan**

The proposed development of Erf 1486, Vermont, is significantly shaped by the presence of an Unchanneled Valley-Bottom (UVB) wetland situated centrally within the property, which is hydrologically connected to the Vermont Salt Pan. This wetland, identified and delineated through assessments by EnviroSwift (2018) and Delta Ecology (2023), exhibits a modified Present Ecological State (PES category D) due to historical disturbances but retains moderate Ecological Importance and Sensitivity (EIS) and provides valuable ecosystem services. Its location within a Strategic Water Source Area (SWSA) and a 500m regulated wetland buffer zone classifies the site as having "Very High" aquatic sensitivity under the National Environmental Management Act (NEMA). Consequently, the development planning process has prioritized minimizing ecological impacts while ensuring compliance with environmental regulations, as detailed in the comprehensive Stormwater Management Plan prepared by DECA Consulting Engineers.

The Stormwater Management Plan was developed to address the site-specific hydrological dynamics influenced by the wetland and its surrounding catchment. The site, characterized by a flat gradient draining eastward toward the Vermont Salt Pan, is part of a larger catchment with steep mountainous terrain to the north (Catchment Area 1, CA1) and the development site to the south of the R43 (Catchment Area 2, CA2). Hydrological assessments, utilizing the Alternative Rational Method for peak flow runoff calculations and PCSWMM for a 24-hour SA Type 1 SCS storm, revealed minimal differences between pre- and post-development runoff for both CA1 and CA2, as shown in **Tables 3**-**4** below. However, runoff from CA1 discharges through culverts under the R43 into CA2 and the wetland's natural attenuation area (approximately 10,000 m^2), slightly increasing peak flows at the Lynx Avenue culvert post-development (**Table 4**). Water level increases in the wetland remain minimal, with a maximum post-development rise of 0.69 m for a 100-year storm event (**Table 5**). These findings underscore the need for robust stormwater management to mitigate potential impacts on the wetland's hydrological and ecological functions.

To address these challenges, the development layout (Alternative 3) was designed to avoid the permanent wetland zone, restricting unavoidable encroachment to 0.024 ha of the wetland area (3% of this zone), primarily affected by the proposed access roads. The majority of the wetland is designated as Private Open Space, with strict no-go restrictions during construction and post-construction phase of the development to preserve its ecological integrity. The Stormwater Management Plan incorporates Low Impact Development (LID) measures, including permeable paving systems to the south of the wetland and an enhanced swale system to the north, to control the quantity and rate of runoff. These systems, detailed in Tables 9 and 10 of the Stormwater Management Plan reduce post-development runoff to pre-development levels and maintain wetland water levels. Additionally, they achieve the City of Cape Town's stormwater quality requirements, reducing Total Suspended Solids (SS) by 80% and Total Phosphorus (TP) by 45% for a 1/2-year storm event, as outlined in Section 5.7 of the Stormwater Management Plan. The permeable paving system, with a storage capacity of 140 m^3, and the enhanced swale, with 81 m^3, facilitate infiltration and pollutant removal, enhancing runoff quality.

Further mitigating flood risks, the plan proposes controlling stormwater runoff from a 2 x 600 mm diameter culvert under the R43 road through a 1.3m (b) x 0.7m (h) lined channel or 2 x 900 mm diameter pipes within Erf 1486, ensuring safe discharge without flooding the development (**Figure 13-14**). Properties will be elevated at least 1.0 m above the wetland level to protect against inundation. Regular inspection and maintenance schedules for the permeable paving and swale systems are indicated in Tables 13 and 14 of the Stormwater management plan to ensure long-term functionality, preventing sediment buildup and maintaining infiltration capacity. Additionally, A Wetland Offset, Rehabilitation, and Management Plan also complements these measures, aligning with the Department of Water and Sanitation's "no net loss" policy to rehabilitate and enhance the remaining wetland areas.

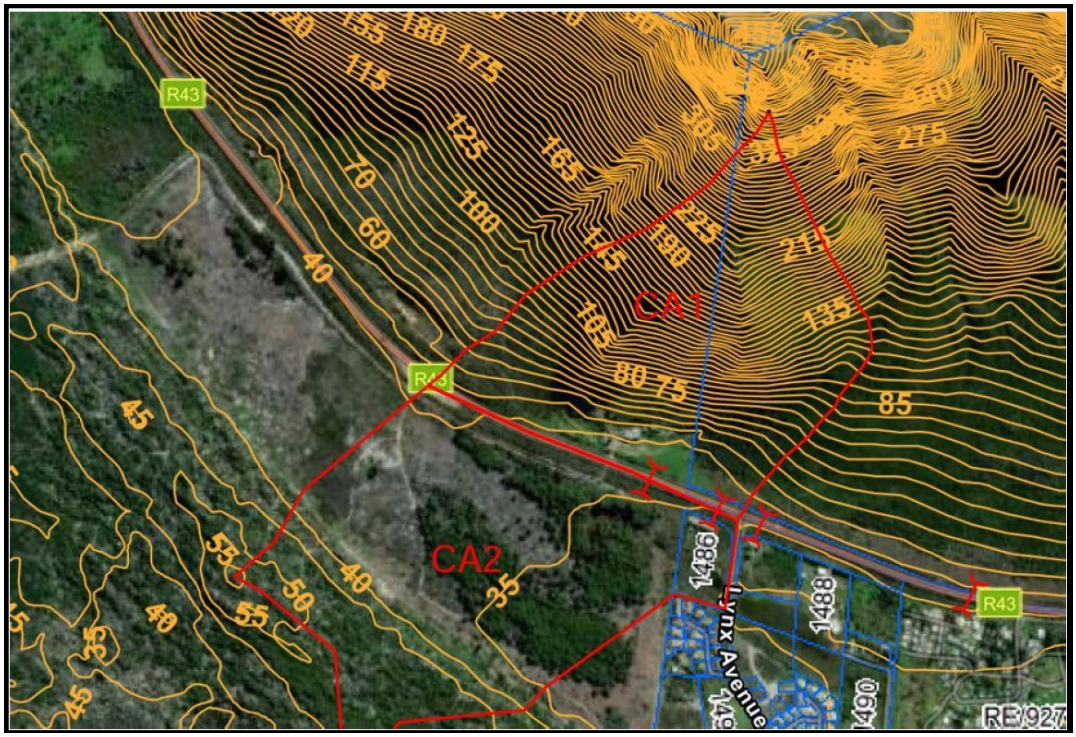


Figure 12: Catchment area of site for development.

Table 3: Pre- and Post development Runoff -CA1

Return period	Pre-development (m^3/s)	Post-development (m^3/s)
Q2	1.72	1.72
Q5	2.55	2.55
Q10	3.19	3.19
Q20	3.89	3.89
Q50	4.93	4.93
Q100	5.82	5.82

Table 4: Pre- and Post development Runoff -CA2.

Return Period	Pre-development (m^3/s)	Post-development (m^3/s)
Q2	0.29	0.29
Q5	0.41	0.41
Q10	0.51	0.50
Q20	0.61	0.60
Q50	0.76	0.75
Q100	0.89	0.88

The catchment area North of the R43 (CA1) discharge through the R43 via various culverts along the road, which discharge to the catchment area South of the R43 (CA2). Both catchment areas discharge into a natural attenuation facility, which forms part of the wetland area. It was accepted that the attenuation area provides approximately 10 000m^2 in area. Should this natural attenuation area be taken into consideration, the peak flow runoff for the various recurrence interval storm events that discharge through the existing 2 x 750mm x 0.5mm box culvert in Lynx Avenue are as follows:

Table 5. Pre- and Post development Runoff – Culvert at Lynx Avenue.

Return Period	Pre-development (m^3/s)	Post-development (m^3/s)
Q2	0.669	0.727
Q5	1.071	1.106
Q10	1.420	1.467
Q20	1.831	1.892
Q50	2.491	2.575
Q100	3.107	3.211

The maximum depth that the water rises in the wetland area during the various recurrence interval storm events are as follows:

Table 6: Pre- and Post development water level in attenuation area.

Return Period	**Pre-development (m)**	**Post-development (m)**
Q2	0.29	0.29
Q5	0.38	0.38
Q10	0.44	0.45
Q20	0.51	0.52
Q50	0.60	0.61
Q100	0.67	0.69

Figure 13: Drawing 2 – Culverts along R43 and discharge through Linx Avenue.

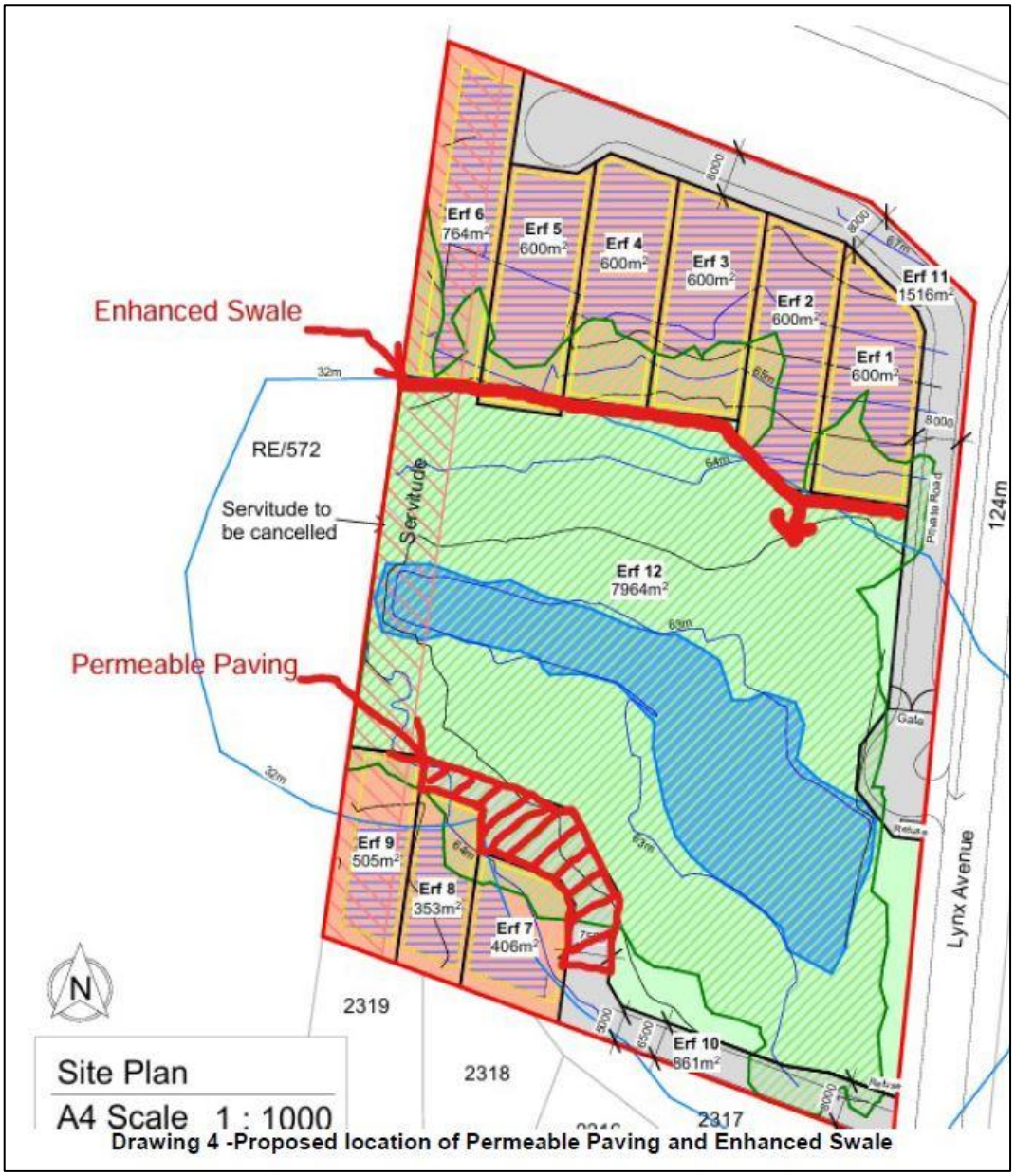


Figure 14: Proposed location of Permeable Paving and Enhanced Swale.

Permeable paving for section south of wetland:

The permeable paving system is proposed on the southern section of the site to allow water flow to infiltrate on this section and to reduce water quantity runoff from the development area. The components area is indicated in **Table 7** and **Figure 15** below:

Table 7: Criteria of Permeable Paving System.

ITEM	VALUE	COMMENT
SURFACE		
Storage Depth	50mm	Kerb height
Vegetation Fraction	0	No Vegetation growth
Manning n	0.03	
Surface Slope	0.5%	
PAVEMENT		
Thickness	80mm	
Void Ratio	0.12	10% voids in paving
Impervious Surface	0	Total surface as permeable paving
Permeability	360mm/hour	For clogged paving system
Clogging Factor	0	Taken into consideration above
STORAGE		
Height	400mm	Base course depth
Void Ratio	0.43	30% voids in base course
Conductivity	120mm/h	Conductivity of in-situ material
Clogging Factor	0	Taken into consideration above
UNDERDRAIN		
Drain Coefficient	1.667mm/hour	
Drain Exponent	0.5	Conduit
Drain Offset	0	Invert of Base course

The road structure is proposed to be as follows:

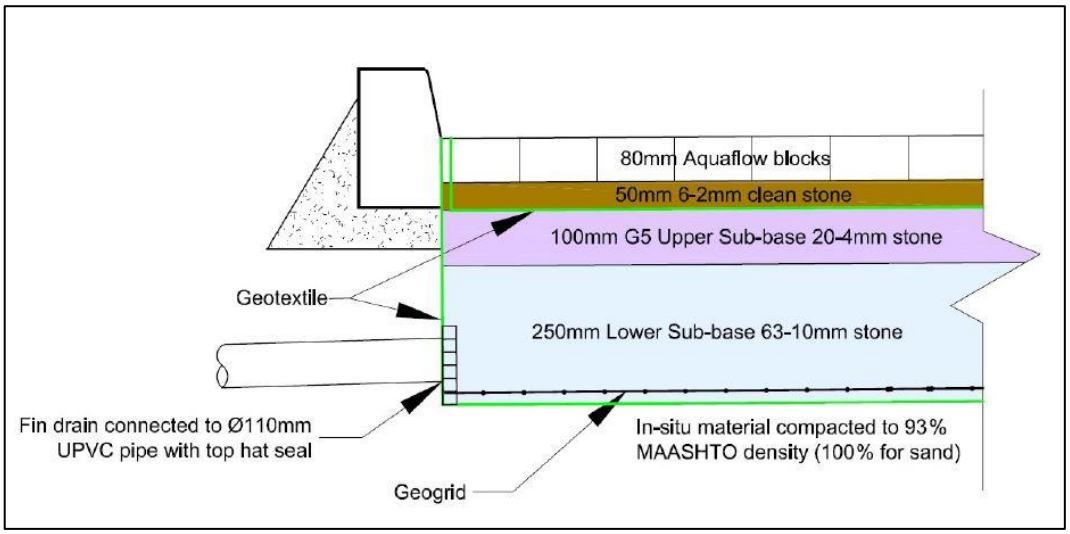


Figure 15: Proposed Permeable Paving System.

Table 8: Enhanced Swale for section North of the wetland.

ITEM	VALUE	COMMENT
SURFACE		
Storage Depth	400mm	
Vegetation Fraction	0.75	No Vegetation growth
Manning n	0.24	
Surface Slope	0.5%	
STORAGE		
Height	750mm	Base course depth
Void Ratio	0.43	30% voids in base course
Conductivity	120mm/h	Conductivity of in-situ material
Clogging Factor	0	Taken into consideration above
UNDERDRAIN		
Drain Coefficient	1.667mm/hour	
Drain Exponent	0.5	Conduit
Drain Offset	0	

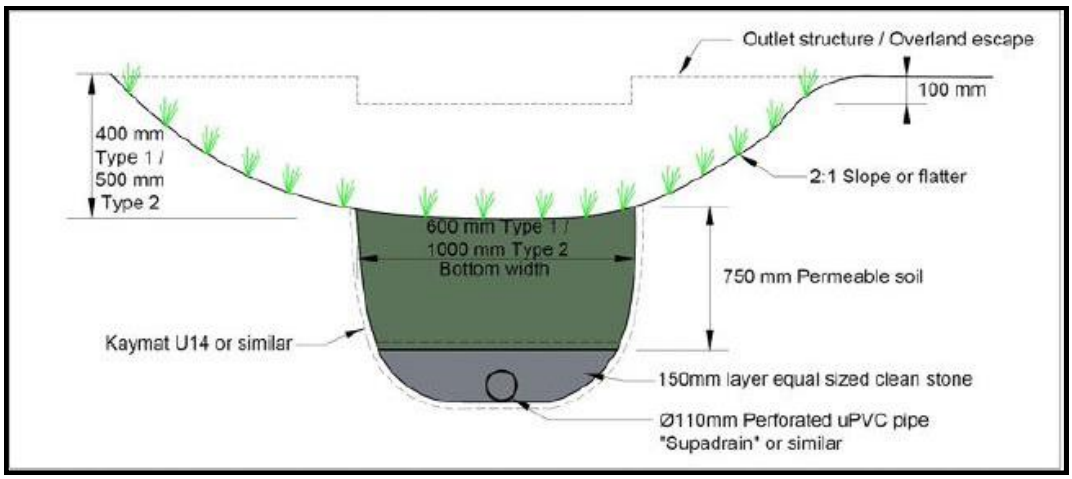


Figure 16: Proposed Enhanced Swale System.

Conclusions provided by the Engineer:

- The proposed permeable paving and enhanced swale system will reduce the post development runoff to equal or less than the pre-development recurrence interval storm.
- The proposed permeable paving and enhanced swale system will ensure that the water level in the attenuation area will remain to that of the predevelopment level.
- The proposed permeable paving and enhanced swale system will treat the stormwater runoff quality to the acceptable requirements.
- The stormwater runoff from above the R43 be controlled to discharge through the site for development as proposed in Paragraph 5.9.
- The proposed development be protected from flooding by ensuring that the properties are above at least 1.0 m in high above the wetland.

Wetland offset, Rehabilitation and Management Plan

To minimize wetland encroachment, three layout alternatives were evaluated (Van Zyl et al., 2023, 2024), which resulted in the final preferred Alternative 3. This layout confines development to approximately 7000 m^2 (47% of the site), primarily affecting 240 m^2 (3%) of the wetland's seasonal / temporary zone for access roads, while avoiding the permanent wetland zone. The remaining 0.876 ha of the wetland is designated as Private Open Space, with strict no-go restrictions during construction and post-construction phases to preserve its functionality. Despite efforts to apply the mitigation hierarchy fully, complete avoidance of wetland encroachment was deemed, unfeasible due to the wetland's extensive coverage across the site (60% of the total area). The development requires 0.70 ha (47%) of the site, a development footprint which has been reduced and, making some level of wetland loss unavoidable. The residual loss was quantified using the Macfarlane et al. (2016) wetland offset calculator, valuing the lost wetland at 0.0139 Hectare Equivalents (HE) of function and 0.1323 HE of habitat.

Wetland Loss and Offset Quantification

The wetland loss was quantified using the Macfarlane et al. (2016) wetland offset guidelines, resulting in a loss of 0.0139 Hectare Equivalents (HE) of function and 0.1323 HE of habitat (**Table 9**). To compensate, the Wetland Offset, Rehabilitation, and Management Plan targets the rehabilitation of the remaining 0.876 ha, projecting gains of 0.1214 HE of function and 1.3841 HE of habitat. This yields a surplus of 0.1075 HE of function and 1.2518 HE of habitat, satisfying offset requirements and aligning with the Department of Water and Sanitation's (DWS) Water Use Authorisation (WUA) conditions.

This Wetland Offset, Rehabilitation and Management Plan is practically implementable and will allow for the maximum onsite wetland offset possible without compromising the feasibility of the proposed development.

It is thus the opinion of the specialist that implementation of this plan would result in substantial biodiversity gains, and offset the loss incurred through construction and operation of the proposed development. It is therefore acceptable from a wetland and general biodiversity perspective to approve the proposed development with implementation of this Offset, Rehabilitation, and Management Plan as a condition of approval.

Rehabilitation and Management Strategies

The wetland's modified state, characterized by alien invasive species (e.g., *Kikuyu grass*, *Pampas grass*, *Acacia saligna*, and *A. cyclops*) and foreign fill material, prompted a comprehensive rehabilitation plan to elevate the PES to upper Category C (minimum PES score of 79%).

Key interventions include:

Removal of Foreign Fill Material:

All rubble and fill material will be removed at the start of summer to avoid downstream sedimentation, with reshaping to restore natural wetland contours. This process will be overseen by a qualified contractor and inspected by an aquatic biodiversity specialist to ensure minimal disturbance to intact habitats.

Alien Invasive Species (AIS) Removal

Targeted removal of AIS, particularly *Pampas grass* (NEMBA Category 1b) and *Acacia* species, will use manual (hand pulling, tree popping), mechanical (felling), and chemical (herbicide stump treatment) methods. *Pampas grass* removal involves cutting flower heads to prevent seed dispersal and excavating roots, while *Acacia* species require herbicide

application to prevent resprouting, refer to **Appendix A** of the Wetland Offset, Rehabilitation and Management Plan. Ongoing monitoring and quarterly clearing for 5–10 years must be undertaken during post-rehabilitation to prevent re-establishment of Alien vegetation.

Revegetation

Active revegetation with indigenous wetland species (e.g., *Senecio halimifolius, Bolboschoenus maritimus, Cyperus textilis*) aims for 80% vegetation cover within 8–12 months. Plants will be sourced from local nurseries (e.g., Kraaibosch, Kirstenbosch) and planted at a density of 4 plants/m² in appropriate hydrological zones (permanent, seasonal, temporary) to enhance habitat quality, reduce erosion, and improve water quality, refer to Table 8-1 of the Wetland Offset for the list of indigenous plant species that can be introduced to the offset wetland. To ensure adequate rehabilitation , it is recommended that planting must happen in autumn (March–May) to allow for the plants to establish roots before subjected to heavy rains.

Stormwater Management

The potential increase in surface runoff and contamination resulting from hardening of the catchment area has been addressed through the inclusion of a Stormwater Management Plan (SMP) as part of the project design (**Appendix F7**). The SMP outlines several mitigation measures, including the use of vegetated swales, permeable paving, sediment traps, and energy dissipaters to manage the volume, speed, and quality of stormwater runoff. Additional recommendations include implementing rainwater harvesting, prohibiting the use of herbicides and pesticides, and ensuring regular maintenance of stormwater infrastructure to prevent erosion and sediment build-up.

Monitoring and Long-Term Management

A robust monitoring and management plan ensures the wetland's rehabilitated state is maintained in perpetuity. During the rehabilitation phase, two site visits by a freshwater specialist will verify fill removal and assess vegetation cover 12 months post-planting. Annual inspections and fixed-point photography will continue until the PES target is achieved. Post-rehabilitation audits will be undertaken every 5 years by an independent environmental auditor to evaluate PES, vegetation cover, erosion, and AIS presence using WET-Health Version 2.0 (Macfarlane et al., 2020). Management interventions, such as soft engineering for erosion control (e.g., geotextiles, live staking) and ongoing AIS clearing, will address emerging issues.

Formal Protection

To safeguard the wetland, a conservation servitude will be established over the 0.876-ha offset area, recorded as a title deed restriction to prevent future development. This ensures long-term protection of the permanent wetland area in achieving significant biodiversity gains through targeted interventions.

Table 9: Offset balance table indicating net results of the onsite offset feasibility study.

Offset Balance Table						
Wetland Name	**Area (ha)**		**Function (HE)**		**Habitat (HE)**	
	Losses	**Gains**	**Losses**	**Gains**	**Losses**	**Gains**
UVB Wetland (portion lost)	-0,0240	0,0000	-0,0139	0,0000	-0,1323	0,0000
UVB Wetland (remaining – rehabilitated)	0,0000	0,8760	0,0000	0,1214	0,0000	1,3841
Subtotal (HE)	-0,0240	0,8760	-0,0139	0,1214	-0,1323	1,3841
Balance (HE)	**0,8520**		**0,1075**		**1,2518**	

Figure 17: Wetland area to be lost and developed.

Below mitigation measures have been recommended by the Freshwater specialist and should be incorporated into the Stormwater management plan:

- Discharge stormwater from rooftops into rain harvesting tanks. This will limit the volumes of stormwater runoff that will reach the wetland. Where possible, water collected in rain harvesting tanks can be utilised for flushing of toilets, washing etc.
- Vegetated swales must be utilised rather than concrete drains or underground stormwater pipes in order to encourage infiltration, particularly next to roadways.
- Energy dissipaters / erosion protection measures (such as lining with stones, grass, reno-mattresses, or gabions) must be constructed where stormwater is released in order to reduce the runoff velocity and therefore erosion.
- Sheet runoff from hardened surfaces must be intercepted and the treatment and infiltration of runoff must be promoted.
- Sediment traps should be incorporated into stormwater drains / swales upstream of all discharge points into the wetland.
- All stormwater draining into the wetland must receive basic filtering and treatment prior to its release.
- Incorporate measures into the stormwater design to trap solid waste, debris and sediment carried by stormwater. Measures may include the use of curb inlet drain grates and debris baskets/bags.
- Stormwater generated from areas with a higher risk of contamination such as parking areas and roads must receive basic filtering and treatment prior to its release into surrounding areas. Treatment methods may include sand filter traps and oil-water separators which will require maintenance.
- The extent of hardened surfaces must be minimised. E.g. where required permeable paving must be used.

- Homeowners must be encouraged to landscape their gardens with the use of indigenous species to decrease the area of hardened surface and increase infiltration.
- Homeowners should store any potential pollutants in such a way that pollution will not occur to the wetland (such as any fuel, etc.). Potential pollutants should be stored in an adequately bunded area.
- The use of herbicides, pesticides and any other poisons within private gardens must be strictly prohibited. The home owner's association must be responsible for ensuring that residents are compliant with this.
- Backwashing of swimming pools directly into the wetland must be strictly prohibited. Backwash water can be collected in settling tanks where dirt and debris settle to the bottom. The cleaner water can then be reused for non-potable purposes or even filtered back into the pool system. Backwash water can be diverted to greywater tanks.
- Monitor the proposed development and adjacent wetland for erosion and sedimentation after heavy rainfall events. Any erosion noted must be immediately addressed. Rehabilitation measures may include the removal of accumulated sediment by hand, filling of erosion gullies and rills, the stabilisation of gullies with silt fences, riprap, and the revegetation of stabilised areas.
- Stormwater systems will require ongoing maintenance. Any build-up of silt or debris within stormwater drains or swales will need to be cleared to ensure the continued functioning of the systems.
- Any damage to stormwater infrastructure, and any flaws identified in the functionality of stormwater infrastructure, must be rectified immediately.
- Stormwater systems must be monitored and maintained into perpetuity and collections of debris and solid waste removed from grates and baskets. The developer must confirm who will be responsible for this monitoring and maintenance as well as their roles.
- The stormwater system must be designed by a suitably qualified engineer with input from an aquatic specialist.

3. Coastal Environment

3.1.	Was a specialist study conducted? **NOT APPLICABLE**	YES	NO x
3.2.	Provide the name and/or company who conducted the specialist study.		
N/A			
3.3.	Explain how the relevant considerations of Section 63 of the ICMA were taken into account and explain how this influenced your proposed development.		
N/A			
3.4.	Explain how estuary management plans (if applicable) has influenced the proposed development.		
N/A			
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. N/A		

4. Biodiversity

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

Nick Helme of Nick Helme Botanical Surveys – Terrestrial Biodiversity Impact Assessment

Jan Venter – Terrestrial Animal Site Sensitivity Verification Report and Compliance Statement

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.

1. Terrestrial Biodiversity Impact Assessment Report (Botanical and Plant Species Assessment)

The systematic conservation planning, supported by Cape Nature BSP, SA vegetation maps, NFEPA, NSBA, and other biodiversity informants analysed via a desktop study, played a collaborative role in positively shaping the proposed development. Following the guidelines outlined in the Western Cape Biodiversity Spatial Plan (2023), the chosen development site is strategically positioned within the Ecological Support Area (ESA2). While it incorporates this section of the ESA2, it falls outside the Priority Area. The botanical report highlights the significance of the study area within the Southwest Fynbos bioregion, emphasizing its high biodiversity value and the presence of numerous threatened plant species.

SA Vegetation Map (2024) shows the regional extent of the original natural vegetation in the study as Hangklip Sand Fynbos. This vegetation is now gazetted as Critically endangered according to NEM:BA, 2004 (ACT NO. 10 of 2004). Less than 68% of the vegetation extent still remains intact, while less than 18% of its portion is conserved, and the 30% of it is the national conservation target.

A site survey, supported by Google Earth imagery, indicates that the vegetation on the property has not been affected by fire for at least the past 20 years, implying that the vegetation on site is senescent (some species dying of old age; diversity dropping), as this type of Fynbos should burn once every 10-14 years for optimal ecological functioning.

Photo 10: View south from near the northeastern corner, with non-wetland vegetation in the foreground, grading into wetland vegetation after about 6m. *Source*: Helme, (2023).

Photo 11: View south along the western boundary. Indigenous buffalo grass (*Stenotaphrum secundatum*) is dominant in the foreground. *Source*: Helme, (2023)

Photo 12: View of the central wetland channel, looking east, with indigenous *Juncus kraussii* (steekbiesie) dominant. The tall, showy grass at left is the declared alien invasive pampas grass (*Cortaderia selloana*) and should be removed.

Photo 13: View of the southwest corner of the erf, looking west, showing how someone (presumably neighbours) have taken it upon themselves to garden this area. Most of the planted species are aliens or horticultural varieties not present in Fynbos systems. *Source*: (Helme, 2023)

Photo 14: View of the southeast corner of the erf, looking east, showing extensive invasion of alien kikuyu grass (*Cenchrus clandestinus*) in the previously disturbed area. The dark trees at left are milkwoods (*Sideroxylon inerme*), possibly planted here.

Photographs taken during the site visit reveal the presence of existing vegetation, which is extensively invaded by alien Kikuyu grass (*Cenchrus clandestinus*). Additionally, five fairly large milkwood trees (*Sideroxylon inerme*), likely planted, were observed on site (**Photo 14**). From a botanical perspective, there is evidence of brush cutting on the southern side of the wetland. Historical imagery also shows that the first houses were constructed along the southern boundary of the site in the period 2007-2009, suggesting early disturbance in that area.

The previously disturbed areas are in three main patches: the current, occupied building area; the northeastern edge of the main wetland; and the southern boundary. Many of the disturbed areas are dominated by alien invasive kikuyu grass (*Cenchrus clandestinus*), which tends to smother any indigenous seedlings. The southwestern edge of the erf has been gardened **(Photo 13**) with all manner of non-locally indigenous species planted, including *Pelargonium* hybrids, *Ficus* species, *Searsia pendulina* and *Arctotis stoechadifolia*. At least two bird Species of Conservation Concern (SoCC) may use the site for foraging, and at least one plant SoCC (*Disa hallackii*) may be present in low numbers, but no plant or animal SoCC were recorded on site during the survey.

Large alien invasives are present on site but occur at a low density (<2% cover), and include *Leptospermum laevigatum* (Australian myrtle), *Cortaderia selloana* (pampas grass), *Hakea drupacea* (sweet needlebush), *Acacia saligna* (Port Jackson) and *Acacia cyclops* (rooikrans), evidently thanks mostly to some active alien vegetation removal that takes place regularly (local tenant – pers. comm).

The permanent wetland area has clearly become significantly more vegetated in the last five years (compared to photos in the EnviroSwift wetland report of 2018) and is now in good condition. Indigenous plant species include *Senecio halimifolius, Juncus kraussii, Orphium frutescens, Typha capensis, Plecostachys serpyllifolia, Schoenoplectus scirpoides, Juncus lomatophyllus, Isolepis striata, Nidorella ivifolia, Nidorella pinnatifida, Fuirena coerulescens, Laurembergia repens* and *Elegia nuda*.

About 50% of the site is made up by what could be considered permanent wetland, but that is not seasonally inundated or flooded (mostly indicated as seasonal wetland in the Freshwater Screening (EnviroSwift 2018). Indigenous species in this area include *Senecio halimifolius, Juncus kraussii, Orphium frutescens, Plecostachys serpyllifolia, Nidorella ivifolia, Nidorella pinnatifida, Fuirena coerulescens, Laurembergia repens, Zantedeschia aethiopica, Stenotaphrum secundatum, Cynodon dactylon, Senecio rigidus, Cyperus sphaerospermus, Pycreus* sp., *Juncus cephalotes* and *Elegia nuda*.
The non-wetland portions of the site that have not been totally disturbed and they support the following indigenous plant species: *Passerina corymbosa, Thamnochortus insignis, Stenotaphrum secundatum, Seriphium plumosum, Pelargonium capitatum, Searsia lucida, Colpoon compressum, Mesembryanthemum canaliculatum, Struthiola ciliata, Metalasia muricata, Osteospermum moniliferum, Cliffortia stricta, Oxalis dentata, O. pes-caprae, Carpobrotus edulis* and *Athanasia trifurcata*.

The non-wetland portions of the site that have not been totally disturbed support the following indigenous plant species: *Passerina corymbosa, Thamnochortus insignis, Stenotaphrum secundatum, Seriphium plumosum, Pelargonium capitatum, Searsia lucida, Colpoon compressum, Mesembryanthemum canaliculatum, Struthiola ciliata, Metalasia muricata, Osteospermum moniliferum, Cliffortia stricta, Oxalis dentata, O. pes-caprae, Carpobrotus edulis* and *Athanasia trifurcata*.

Plants species of Conservation Concern

No plants Species of conservation concern have been identified during the site survey, the specialist also highlights that there is likely occurrence of at least one species, *Disa Hallackii*, which is endangered and has been recorded in the nearby erf, and that there are various records of this species type from Onrus and Vermont area. According to the specialist this species type is most evident in the first few years after a fire, since the vegetation on the property is in senescent state and has not been burnt for more than twenty years, this mitigates against finding it onsite.

Fauna

Two species of frogs were heard calling on site, and populations on site are probably viable and significant. *Hyperolius marmoratus* (painted reed frogs) were calling from the standing water, whilst *Strongylopus grayii* (clicking stream frogs) were calling across most of the site. *Cacosternum australis* may also occur here, but was not heard.
An animal species of conservation concern *Bradypodion pumilum* (Cape Dwarf Chameleon) is likely to be present on site, since it has been recorded from similar nearby habitat. Additionally, no other Reptile Redlist species are considered to be present on site. The Southern Adder (*Bitis armata*; Vulnerable) has been flagged by the Screening Tool for the region but is unlikely in this habitat.

The botanical specialist highlights that at least two bird's species may occasionally visit this site, this includes African Marsh Harrier (*Circus ranivorus*; Endangered) and the Black Harrier (*Circus maurus*; Endangered), which are known form the general area and travel widely.

While Blue Cranes (*Anthropoides paradiseus*), Lesser Flamingos (*Phoenicopterus minor*), and Greater Flamingos (*Phoenicopterus roseus*) all listed as Near Threatened have been recorded in the greater Vermont Pan area, the specialist indicates that these species are unlikely to frequent the study site itself due to the limited size of the water body present. This suggests that the site does not provide suitable habitat for feeding or roosting for these avifaunal species, though its proximity to the Vermont Pan may contribute to broader ecological functioning.

Mammalian presence was confirmed by the detection of tracks and scat, with species such as Porcupine (*Hystrix africaeaustralis*), Vlei Rat (*Otomys unisulcatus*), Cape Grey Mongoose (*Herpestes pulverulentus*), and Water Mongoose (*Atilax paludinosus*) recorded. Additional species likely to traverse the site include Large Grey Mongoose (*Herpestes ichneumon*), Striped Fieldmouse (*Rhabdomys pumilio*), and Cape Genet (*Genetta tigrina*). Someof these species likely use the site transiently as a corridor between the site and Hoek van der Berg and the Salt Pan.

Although no threatened butterfly species have been recorded, the possibility of their occurrence cannot be definitively ruled out without a focused survey, as referenced by Mecenero et al. (2013). The dune snails (*Trigonephrus* spp., possibly *T. ambiguosus*) were also observed on site.

Impact Assessment

The specialist notes that the primary construction phase ecological impacts include the permanent loss of existing and natural and partly natural vegetation and faunal habitat within the development footprint. However, no plants species of conservation concern have been identified on site, and there is a moderate chance of at least one present (*Disa hallackii;* endangered). Though the specialist highlights that at least two Endangered bird species may occasionally utilise the site to forage (*Circus ranivorus and Circus maurus*).

Despite these occurrences, the botanical specialist believe that Alternative 3 (preferred) is a good compromise and has substantially lower ecological impact than the alternative assessed in the previous report (Alternative 2). The new preferred layout design now excludes most of High sensitive areas and only about 500m^2 of high sensitivity habitat will now be lost. The private access road now does not need to cross the wetland, as there will now be two access roads instead of one. Additionaly, some 52% of the total erf will now be conservation area (Private Open Space), up from about 36%.

The ecological significance of the proposed development phase of the project has now been reduced from an unacceptable High negative (Alternative 2) to an acceptable Medium negative (Alternative 3).

2. Terrestrial Animal Site Sensitivity Verification Report and Compliance Statement (Faunal Assessment)

Photo 15: Fence line between study site and Hoek van der Berg Nature Reserve

A significant portion of the disturbed areas is covered by alien invasive kikuyu grass (*Cenchrus clandestinus*). The southwestern edge of the property has been landscaped, and although alien invasive plants are present on site, they are found in low density (Helme 2023).

Photo 16. Large portion of disturbed areas dominated by invasive kikuyu grass (*Cenchrus clandestinus*) (Venter, 2024).

During the site visit, the following animal species were observed through visual sightings, acoustic signals, tracks, and other signs.

Table 10: Animal species observed at Erf. 1486, Vermont during the site visit (Venter, 2024)

Group	Species	Notes	Status
Birds	Cape spurfowl, *Pternistis capenis*	In short grass next to fence, nature research	Least concern
	Yellow billed duck, *Anas undulata*	In wetland	Least concern
	Egyptian goose, *Alopchen aegyptiaca*	Flying	Least concern
	Hadeda ibis, Bostrychia hagedash	Flying	Least concern

	Cape turtle dove, *Streptopelia capicola*	Onsite	Least concern
	Cape weaver, *Ploceus capensis*	On site (birds & nests observed)	Least concern
Amphibians	Southern caco, *Cacosternum australis*	Calling on site	Least concern
	Clicking stream frog, *Stronglylopus grayii*	Calling on site	Least concern
	Cape river frog, *Amietia fuscigula*	Observed	Least concern
Mammals	Four striped field mouse Rhabdomys pumilio	Observed	Least concern
	Bush vlei rat, *Otomys, unisulcatus*	Nests and latrine observed	Least concern
	Cape porcupine, *Hystrix aficaeastralis*	Scat observed	Least concern
	Cape genet, *Genetta tigrina*	Scat observed	Least concern
	Cape dune mole-rat, *Bathyergus suillus*	Fossorial activity	Least concern

The desktop study identified several other notable species that have might have occurred either on site or in the nearby area, as listed in **Table 11** below.

Table 11: *Other notable animal species likely to occur at or near Erf. 1486, Vermont based on the desktop survey (Venter, 2024*)

Group	Species	Notes	Status
Birds	Black Harrier, *Circus maurus*	iNaturalist, GBIF	Endangered
	African marsh harrier, *circus ranivorus*	iNaturalist, GBIF	Endangered
	Martial eagle, *Polemaetus bellicosus*	iNaturalist, GBIF	Endangered
	Cape dwarf chameleon, *Bradypodion pumilum*	iNaturalist, GBIF	Near threatened
Reptiles	Cape dwarf chameleon, Bradypodion pumilum	iNaturalist, GBIF immediate area	Near threatened

Animal Species of concern

The screening tool identified a total of eight animal species of concern. Additionally, one more species of conservation concern (SCC) was identified during the desktop study. The following section addresses the site's potential significance for these species and assesses the likelihood of their presence in the habitats within the development area.

Connectivity for animal species

The conservation planning map of the Western Cape Biodiversity Plan (Pool-Stanvliet et al. 2017) indicates the presence of a ESA2 (Ecological Support Area), linking the Hoek van die Berg Private Nature Reserve to the west with the Vermont Salt Pan to the east, and is part of the primary water source for that pan, see (Helme, 2023)

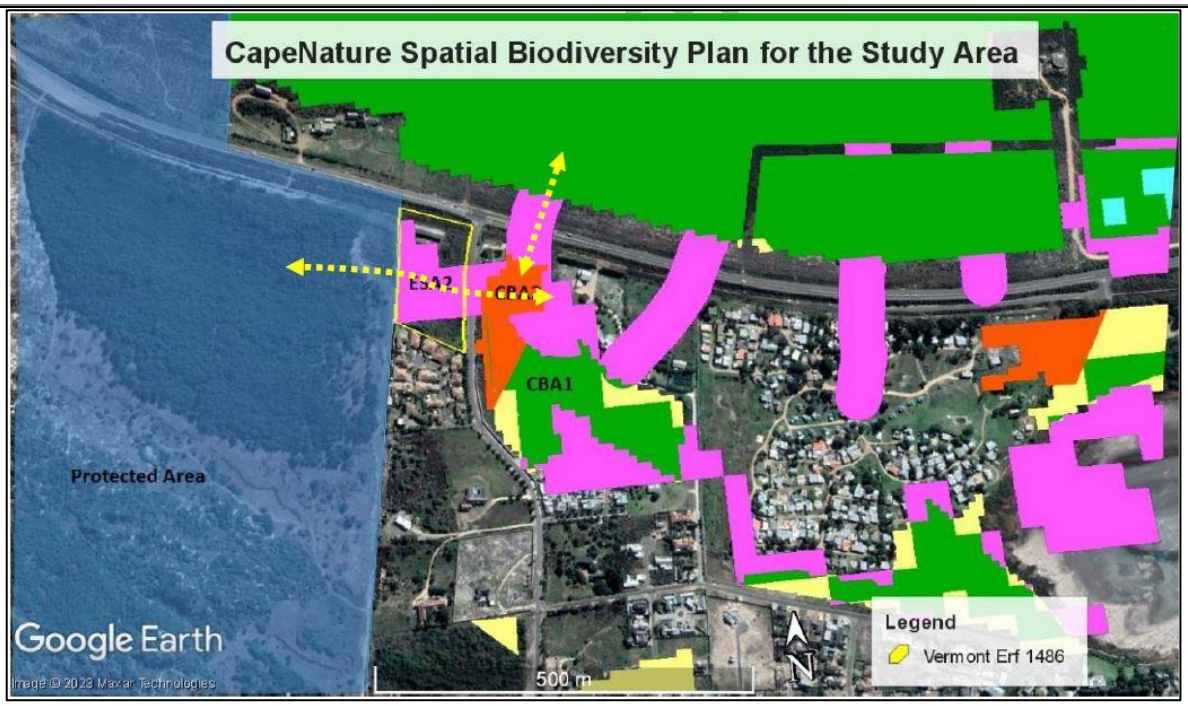


Figure 18: *The conservation planning map of the Western Cape Biodiversity Plan (Pool-Stanvliet et al. 2017) indicates the presence of a ESA2 (Ecological Support Area)(yellow dotted arrows), linking the Hoek van die Berg Private Nature Reserve to the west with the Vermont Salt Pan to the east (Venter, 2024).*

In accordance with the faunal specialist report by Venter (2024), the preservation of the ecological corridor is identified as critical for facilitating species movement between the nature reserve and the on-site wetland. The preferred development layout, Alternative 3, has been specifically designed to incorporate a more substantial undeveloped space between the permanent and seasonal / temporal zones of the wetland. This approach aligns with the input provided by botanical and aquatic specialists, aiming to support ecological movement and maintain hydrological connectivity within the wetland. However, Venter (2024) also noted that the development footprint encroaches upon the Ecological Support Area 2 (ESA2) corridor, with minor infringement by the residential erven and a more significant encroachment by the access road. This was also highlighted in the Freshwater specialist report. Despite these encroachments, which have been significantly reduced from the original design, the faunal connectivity assessment classifies the proposed development risk as '**medium**'. It is important to note, as indicated in the Aquatic Biodiversity Assessment and Wetland Offset, Rehabilitation and Management Plan that, the recommended mitigation measures will be fully implemented on site to ensure the continued functionality of the wetland area as well as their habitat and mostly restoring the habitat into a more functional state. A nighttime Search and Rescue is mandatory prior to vegetation clearance and commencement of construction. Sheraine van Wyk from Whale Coast Conservation Chameleon project must be contacted to facilitate the Search and Rescue (sheraine.wcc@gmail.com 083 484 0202).

Based on input from the botanical, faunal and wetland specialist the development footprint has evolved to make provision for a 'private open space' facilitating a more functional corridor connection which runs from the Vermont Salt Pan across to Hoek van der Berg. The evaluation of its improved functionality (compared to earlier versions of the development plan) in terms of connectivity for animal species is summarized below (Venter, 2024).

Table 12. Impact Assessment comparison

Potential impacts and risk	Alternative 2	Preferred Alternative 3
Nature of impact	Infringement on ESA2 corridor	
Extent and duration of impact:	Local and long term	Local and long term
Consequence of impact or risk:	High	Medium
Probability of occurrence:	High	High
Degree to which the impact may cause irreplaceable loss of resources:	High	Medium-Low
Degree to which the impact can be reversed:	Irreversible	Irreversible
Indirect impacts:	N/A	N/A
Cumulative impact prior to mitigation:	High	High
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High	Medium
Degree to which the impact can be avoided:	Low	Medium-Low
Degree to which the impact can be managed:	Low	Medium-Low
Degree to which the impact can be mitigated:	Low	Low
Residual impacts:	High	Medium-Low
Cumulative impact post mitigation:	High	Medium
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High	Medium

Black harrier *(Circus maurus)*

The faunal specialist indicates that the Black Harrier (*Circus maurus*), a rare and endangered species endemic to southern Africa, may have lost more than 50% of its breeding habitat due to extensive land transformation caused by agriculture, invasive alien vegetation, and urbanization within the Fynbos biome (Curtis et al. 2004; Taylor 2015a). This species typically breeds in Fynbos, particularly in Strandveld and Mountain Fynbos, and in fragmented Renosterveld habitat, it is only found in high-quality, larger patches (Curtis et al. 2004). The Black Harrier's foraging habitat includes montane areas, lower-altitude Karoo scrub, semi-desert regions, floodplains, and croplands (Curtis et al. 2004), with small mammals and birds, especially quail, being its primary diet (Curtis et al. 2004).

Data from both GBIF and iNaturalist indicate sufficient records of this species in the general region of the property, suggesting a reasonable likelihood that the Black Harrier may be frequent in the area for foraging. Although the species was not observed during the field visit, the small footprint of the proposed development and the provision of 'private open space' provide adequate foraging habitat for the Black Harrier. Given that the species ranges widely, the minor loss of foraging habitat is unlikely to significantly affect it. Additionally, the development site does not significantly

impact potential breeding sites or prey species. Therefore, the faunal specialist concludes that the proposed development is not likely to significantly impact the Black Harrier, and the potential impact is classified as '**low**'.

African marsh harrier (*Circus ranivorus*)

According to the faunal specialist findings, the African marsh harrier (*Circus ranivorus*) typically inhabits large water bodies and adjacent open vegetation (Simmons 2005). Classified as Endangered in South Africa (Taylor 2015b), this species faces significant threats from habitat loss and degradation. Records from both GBIF and iNaturalist indicate the presence of this species near and within the general region of the property, suggesting a reasonable likelihood of the species foraging on the property. Although the species was not observed during the field visit, the small footprint of the proposed development and the provision of 'private open space' offer sufficient foraging habitat for marsh harriers. Given the species' wide range and the minor extent of habitat loss, the development is unlikely to have a significant impact on the African marsh harrier. Additionally, the development does not significantly affect potential breeding sites or prey species. Consequently, the potential impact on the African marsh harrier is considered '**low**'.

Martial Eagle (*Polemaetus bellicosus*)

The Martial Eagle is native to sub-Saharan Africa and is considered an African endemic species that is currently declining, having recently been classified as globally Vulnerable due to a lack of detailed population trend data (Amar and Cloete 2018). In South Africa, the species is listed as 'Endangered' (Taylor 2015d). Martial Eagles typically occupy various habitats as long as there are tall trees or pylons available for nesting and perching (Machange et al. 2005). Although there are a few iNaturalist and GBIF records of the species in the general area, it was not observed during the field visit. The site does not provide suitable habitat for the Martial Eagle's preferred prey species, and the minor loss of marginal forage habitat is unlikely to significantly affect the species. Additionally, the development site does not impact potential breeding sites or prey species. Therefore, the proposed development is expected to have a '**low'** impact on the Martial Eagle.

Denham's Bustard (*Neotis denhami*)

Denham's Bustard inhabits natural vegetation such as fynbos and grasslands, as well as pastures and agricultural fields (Allan 2005). Classified as 'Vulnerable' (Taylor 2015c), the species faces threats from powerline collisions, habitat conversion to monoculture fields, and overgrazing (Shaw et al. 2010). iNaturalist and GBIF records show several occurrences east of the property, predominantly in the more open agricultural fields of the Overberg. The species was not observed during the field visit, and the habitat on the development site is unsuitable for it. Consequently, the impact of the proposed development on Denham's Bustard is considered '**low'**.

Hottentot Buttonquail (*Turnix hottentottus*)

The Hottentot Buttonquail is an endangered species endemic to the Fynbos biome (Lee et al. 2018). Major threats to this species include inappropriate burning frequencies and rapid urban and agricultural expansion in lowland areas (Peacock 2015). It prefers sparse, drier vegetation and avoids older or dense vegetation (Lee et al. 2018). Although there are iNaturalist and GBIF records in the vicinity, they do not match the habitat types of the development site. The species was not observed during the field visit, and the dense wetland vegetation at the site is unsuitable for its needs. Therefore, the likelihood of the Hottentot Buttonquail occurring at the site is low, and the impact of the proposed development on the species is expected to be **'low'**.

Striped Flufftail (*Sarothrura affinis*)

The South African population of Striped Flufftail is suspected to be declining due to habitat loss (Peacock et al. 2015). Over 10% of the regional population may have been lost because suitable grassland habitats are threatened by inappropriate burning practices, heavy grazing, agriculture, and afforestation (Peacock et al. 2015). In the Western Cape, this species is typically found in dense Psoralea-Osmitopsis Fynbos near streams or moist depressions (Graham and Ryan 1984, Kakebeeke 1993). Records on iNaturalist and GBIF show sightings mostly around Kleinmond and Grabouw, about 20 km away, with one GBIF record closer to the property, within 15 km, on the mountain slopes near the Klein River to the east. Despite attempts to attract the species with playbacks, none were detected at the development site, possibly due to high winds affecting the call-ups. While the habitat at the site is not considered highly suitable for this species, its presence cannot be ruled out entirely. If present, some habitat loss is likely, and disturbance during construction may temporarily drive them away, though the adjacent nature reserve and wetland system could offer refuge. The potential impact on the Striped Flufftail is deemed **'low'**.

Southern Adder (*Bitis armata*)

The Southern Adder is classified as 'Vulnerable' due to its fragmented distribution and reduced habitat quality (Maritz and Turner 2023). It has a small range along the southwest coastal margin of the Western Cape with three disjunct populations: one from West Coast National Park to just north of Cape Town, another near Hermanus, and the third near De Hoop Nature Reserve (Maritz and Turner 2023). This species inhabits coastal lowland Fynbos on sandy and rocky substrates (Phelps 2010) and is known to shelter under rocks between dense shrubs (Phelps 2010). Records on iNaturalist and GBIF are concentrated between Stanford and Struisbaai, 20 km to the east of the property. The species was not observed during our visit, and the dense wetland vegetation at the development site is unsuitable for it. Thus, the likelihood of its presence is considered low, and the impact of the development is likely to be **'low'**.

Cape Dwarf Chameleon (*Bradypodion pumilum*)

Although not listed as a species of conservation concern in the screening report, the Cape Dwarf Chameleon is included here due to its confirmed presence near the development site. It is classified as 'Near Threatened' due to habitat loss and decline in quality and extent (Tolley 2023). The species is found from southwestern Cape Town to the Agulhas Plain (Tolley and Burger 2004) and inhabits various vegetation types, including Fynbos, forested riparian zones, and some exotic and indigenous trees. It can also adapt to peri-urban gardens and greenbelts (Tolley 2023). Several iNaturalist and GBIF records indicate its presence directly adjacent to, and likely within, the development site. Although not observed during our field visit, the habitat is deemed highly suitable for this species. Habitat loss and construction disturbance are likely to have a negative impact, though the adjacent nature reserve and wetland system provide some refuge. A search and rescue operation before construction could be considered. The potential impact on the Cape Dwarf Chameleon is classified as **'medium'**.

Yellow-winged Agile Grasshopper (*Aneuryphymus montanus*)

This endemic grasshopper species is found in the mountains of the Western and Eastern Cape and is listed as 'Vulnerable'. It has been recorded from near Clanwilliam extending eastward to East London, typically in various fynbos types on south-facing, cool slopes (Brown 1960). Brown (1960) notes that the species was collected "amongst partly burnt stands of evergreen sclerophyll in rocky foothills." Documented sites include Graafwater, near Lambert's Bay, De Rust, Suurbraak, Bot River, Kogelberg, and Joubertinia. The species appears to prefer rocky, mountainous areas, with an estimated extent of occurrence of about 170,000 square kilometers. No specimens were observed during the field visit. The proposed development is considered to have a 'low' impact on A. montanus due to the lack of species data from this area, absence of suitable habitat, no direct evidence of occurrence, the small scale of the development relative to the surrounding vegetation, and the species' broad regional distribution.

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.

The objectives and management guidelines of the WCBSP are intended to guide planning and decision-making in terrestrial and Freshwater CBAs and ESAs on land outside the protected area:

These guidelines direct the EAPs or specialist to promote the effective management of the biodiversity. The Western Cape Biodiversity Spatial Plan Identifies the development site within Ecological Support Area, which serves as a critical corridor linking the Hoek van der Berg Private Nature Reserve to the Vermont Salt Pan. This corridor supports hydrological connectivity and faunal movement. The preferred development layout (Alternative 3) was designed to minimize infringement on the ESA2 corridor, incorporating a substantial "private open space" to maintain ecological connectivity and support wetland functionality, this is considered desirable by the faunal specialist. It is important to highlight that this portion of the site constituting of the wetland area will be protected through a conservation servitude. The adjustment of the layout from the previously preferred alternative (Alternative 2) significantly reduces the ecological footprint compared to earlier alternatives, lowering the overall impact from high to medium negative, as assessed by faunal and botanical specialists. The development in its current scenarios offers an opportunity for long term conservation and rehabilitation of this link and reduces risk of future development which may have long term negative impacts on the system.

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.

The proposed development is anticipated to influence several site-specific ecological features, notably the Critically Endangered Hangklip Sand Fynbos vegetation, a portion of wetland area, ecological connectivity, and forage habitat for some animal species identified by the specialist. These impacts have been carefully evaluated in accordance with the Biodiversity Spatial Plan, particularly concerning the Ecological Support Area (ESA2) corridor, as outlined by Venter (2024). The development footprint, whilst reduced in the preferred layout (Alternative 3), still results in a slight infringement on the ESA2 corridor, however, through layout refinements and the avoidance of most of the delineated wetland area, the project has sought to balance ecological preservation with development needs, reducing impacts to an acceptable level as far as practical and fulfilling the mandate of infill development within built up urban areas.

Vegetation Loss and Ecological Function

The site is characterized by Hangklip Sand Fynbos, a vegetation type gazetted as Critically Endangered. According to the Terrestrial Assessment (Helme, 2023), the on-site vegetation has not been subjected to fire for over 20 years, resulting in its senescence and the decline of certain species. Optimal ecological functioning of Fynbos requires burning every 10-15 years, a condition not met on this site due to its location within the built-up urban landscape. Approximately 50% of the site comprises permanent wetland areas supporting a higher prevalence of indigenous vegetation, while non-wetland areas retain only some native species. No plant species of conservation concern were recorded on-site, though *Disa hallackii* (Redlisted as Endangered) is known from a nearby erf and is most detectable post-fire (Helme, 2023). The absence of recent burns likely reduces the probability of its presence.

The development will result in the permanent loss of all natural and semi-natural vegetation and faunal habitat within the development footprint, including approximately 500 m² of high-sensitivity habitat. Through design revisions, the impact has been reduced from a high negative (Alternative 2) to a medium negative (Alternative 3), rendering it acceptable within the context of the project's constraints.

Ecological Connectivity for Faunal Species

The site supports an ecological corridor important for the movement of ground-dwelling species between adjacent nature reserves and wetlands (Venter, 2024). The inclusion of designated "private open space" in the current layout (Alternative 3) enhances connectivity and is considered essential for maintaining faunal movement. While the development footprint still encroaches slightly on the ESA2 corridor primarily through the residential erven and access roads, these infringements are significantly reduced compared to the initial layout (Alternative 2). Consequently, the risk to faunal connectivity is assessed as medium, reflecting a balanced approach to development and ecological preservation.

Hydrological Connectivity and Wetland Impacts

The proposed eastern and southern boundary access roads overlap with a small portion of the Unchanneled Valley Bottom (UVB) wetland, leading to the loss of approximately 0.024 ha (3%) of the 0.90-ha wetland. Given the site's spatial constraints and the central location of the wetland, complete avoidance of wetland encroachment is not feasible, as noted in the Aquatic Biodiversity Impact Assessment (van Zyl et al., 2025). Efforts to further reduce the development footprint were deemed inviable, and no additional mitigation measures could eliminate wetland loss entirely. However, the application of the mitigation hierarchy has minimized impacts to the greatest extent practicable, ensuring that wetland loss is kept to an unavoidable minimum through implementation of Wetland Offset Rehabilitation and Management Plan.

Moreover, an existing pipeline to be upgraded is located along Kolgans Close and Malmok Road. The wetland area along the stretch of this road where the pipeline is to be upgraded, is critically degraded, i.e. relic or historical, due to infill from the road. Other notable impacts to the general UVBW in this vicinity include artificial channels, roads, residential dwellings, excavation, and culverts, which have altered natural flow regime, vegetation, water quality and geomorphology.

The vegetation within the functional UVB wetland downslope / adjacent to the road, consists of wetland obligate species Juncus krausii, Cyperus textilis, with wetland facultative Senecio halimifolius and Zantedeschia Aethiopica along the outer boundary of the functional wetland area.

Soils that were sampled in the UVB wetland did not differ markedly from terrestrial soils, aside from appearing darker and with a higher organic content than the terrestrial baseline.

Given that the Erf, and the proposed pipeline to be upgraded, are located more than 387 m away from the Vermont Salt Pan, no impacts to this wetland as a result of the project is expected. Therefore, the only watercourse deemed to be "At Risk" is the UVBW on Erf 1486.

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.

Not applicable. The development is not within a protected area.

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

A Faunal Specialist was appointed to assess the site and development proposal.

The species observed on-site, such as the Cape spurfowl, Southern caco, and Cape porcupine, among others, are predominantly classified as "Least Concern." However, their presence, particularly in and around the wetland area, emphasized the need to preserve critical habitats on site and maintain ecological connectivity along the entire wetland

length from the Vermont Salt Pan and across to the Hoek van der Berg Nature Reserve. The wetland area, which supports several of these species, has been incorporated into the design as a private open space, ensuring that their habitat remain largely undisturbed.

Connectivity and Ecological Corridors

The conservation planning map from the Western Cape Biodiversity Spatial Plan (2017) identifies an Ecological Support Area 2 (ESA2) corridor on the site. This corridor is crucial for facilitating species movement between the Hoek van de Berg Private Nature Reserve, the site and the Vermont Salt Pan. The development layout, particularly Alternative 3, was adjusted to include a larger open space between the permanent and seasonal/temporal zones of the wetland, thereby supporting both faunal movement and hydrological connectivity. While there is some encroachment into the seasonal/temporal wetland area by the access road and residential erven, this has been minimized compared to other alternative designs. Of importance to note, the private open space, including the permanent and seasonal wetland area will be preserved via a conservation servitude so that it maintains and improve its functional status, these efforts will also be done through an implementation of a Wetland Offset, Rehabilitation and Management Plan compiled by Delta Ecology to ensure its recovery during post-construction phase. This will ensure that, aside from the access road encroachment already accounted for in the wetland offset, portions of the erven that are still encroaching on the seasonal wetland area will be designated as no-go areas where no development will be permitted.

Species of Conservation Concern

The desktop study identified several species of conservation concern, including the Black Harrier, African Marsh Harrier, and Martial Eagle. None of these species observed during the site visit, their potential presence has been considered and were classified as low. The development plan has been adjusted to minimize the loss of foraging habitats and avoid impacts on potential breeding sites. For example, the provision of private open space within the development is intended to offer adequate foraging habitat for species like the Black Harrier (*Circus maurus*; Endangered) and African Marsh Harrier (*Circus ranivorus;* Endangered), reducing the overall impact on these species. Nighttime Search and Rescue is mandatory a few days ahead of construction commencement. Sheraine van Wyk from Whale Coast Conservation must be contacted to facilitate the Search and Rescue (sheraine.wcc@gmail.com 0834840202).

Mitigation Measures and Impact Assessment

The potential impacts of the development have been assessed through a systematic evaluation of the development footprint. Alternative 3, which represents the preferred layout, demonstrates a lower impact on faunal connectivity and ecological corridors compared to earlier alternatives. The faunal connectivity assessment classifies the risk associated with the proposed development as 'medium,' indicating that while some impacts are unavoidable, they have been substantially mitigated through careful planning.

To further reduce the impact on fauna, the following mitigation measures are recommended by faunal specialist:

a) During the construction phase the construction area should be clearly demarcated and blocked off from the 'private open space' area to avoid damage and pollution.
b) Pre and post construction site preparation should include rehabilitation of the 'private open space' by removing current building rubble and litter from this area.
c) Long term maintenance of ecological integrity of the 'private open space' is critical. Therefore, measures should be put in place for constant removal of alien vegetation, cleanup of litter and prevention of illegal dumping. Clear legal responsibility for the maintenance of the space should be entrenched to be the responsibility of the homeowners association.
d) The fence traversing the ecological corridor should always be permeable to allow for movement of small sized animals e.g. small antelope, genets, mongoose between the nature reserve and wetland system.

e) Search and Rescue of chameleons and other slow-moving animals is feasible due to the presence of the adjacent nature reserve where they can be released. A search and rescue effort must be implemented before and during construction where animals that are found are released in the adjacent nature reserve or other suitable sites. The necessary permission and permits should be obtained before this is done.
f) Pets (especially domestic cats) must not be allowed to free-roam the 'private open space'.

5. Geographical Aspects

Explain whether any geographical aspects will be affected and how has this influenced the proposed activity or development.
Erf 1486 is geographically significant as one of the last remaining large vacant properties within the built-up suburb of Vermont, making it a key site for potential infill residential development. The property is characterized by natural features such as indigenous vegetation, gentle topography, and proximity to ecological corridors and wetland systems. These geographical features have played a central role in informing the planning and design of the proposed development. The most notable geographical change will be the conversion of a portion of the natural landscape within the defined development footprint into a built environment. This transformation introduces a permanent alteration to the site's current state. However, in recognition of the site's ecological and hydrological sensitivity, the development has been carefully designed to minimize ecological impact and reduce the development footprint as far as practical. Specifically, the selection of the preferred layout alternative (Alternative 3) was influenced by the need to retain ecological connectivity and avoid the mapped wetland areas. This layout strategically limits the development footprint to already disturbed or less environmentally sensitive areas, thereby preserving important open space and maintaining hydrological connectivity. These measures are intended to ensure that the development coexists with the surrounding natural landscape and continues to support ecosystem functioning within the broader area.

6. Heritage Resources

6.1.	Was a specialist study conducted? A Notice of Intent to develop was submitted to Heritage Western Cape. HWC has confirmed that no further Heritage Assessment is required. See **Appendix F5**.	YES	NO X
6.2.	Provide the name and/or company who conducted the specialist study.		
N/A			
6.3.	Explain how areas that contain sensitive heritage resources have influenced the proposed development.		
N/A			

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.
N/A

8. Socio/Economic Aspects

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

The project site falls within the jurisdiction of the Overstrand Municipality and the Overberg District Municipality (ODM). The visual metrics of the ODM's socioeconomic profile (2023) are presented below:

Overstrand Municipality is located along the south-western coastline of the Overberg District Municipal area bordering the City of Cape Town in the west and Cape Agulhas Municipality in the east. Its northern neighbour is Theewaterskloof Municipality. Overstrand is a dynamic unity combining great potential and a beautiful setting. The aim is to bring about growth and development to the benefit of all their people, in their different communities, whilst maintaining a balance with nature. The Municipality covers a land area of approximately 1708 km^2, with a projected population of 110 971 people (Western Cape Provincial Treasury, SEP 2022) and covers the areas of Hangklip Kleinmond, Greater Hermanus, Stanford and Greater Gansbaai.

In addition to the endless, pristine beaches dotting the coastline, the Overstrand boasts 5 Blue Flag beaches. Tourism is a major economic driver in the area and its popularity as a holiday destination results in a fourfold increase of its population over the holiday seasons. This influx places a great strain on the existing municipal services and roads infrastructure.

The Overstrand municipality's population increased by 56 721 people over a period of 20 years from 1996 to 2016. Overstrand's population has increased steadily from 80 432 in 2011 to 93 407 in 2016. Between 2011 and 2016 the population growth in Overstrand was 16.1 per cent. The projected population growth for the period 2022-2026 are cited on the Municipal IDP 2023/24. The population increase for the municipality is expected to increase from 110 971 to 124 826 in 2026, making it the most populated municipal area in the Overberg District.

According to the Overstrand IDP 2023/2024, the Overstrand has a growing population that will increase the demand for housing, employment, service delivery and related infrastructure developments. The increased population growth will therefore place increased pressure on the municipal resources to develop new as well as maintain existing infrastructure. The ability to work from home has enabled households to move away from the economic hubs and settle in smaller towns such as Hermanus. This trend can be a valuable injection for the local economy as well as the municipality in terms of income generation, despite the increased demand for services (Source: Western Cape Provincial Treasury, MERO 2021and SEP 2021).

Overstrand's projected forecast is 0.1 per cent economic growth, which is lower than both the District and Western Cape projection over the same period. In 2020, a total of 33 096 workers were employed in the Overstrand municipal area, contributing 27.4 per cent to Overberg District employment during the year. Between 2016 and 2020, the Overstrand municipal area experienced an average annual decline of 520 jobs. Estimates for 2021 indicate a further deterioration in Overstrand's employment, with a total of 1 475 jobs lost. Overall, the deterioration of the Overberg's labour market conditions in 2020 was due to the COVID-19 pandemic and the implantation of lockdown restrictions to contain its spread. Furthermore, restrictions in domestic and international travel greatly impacted activity in sectors related to tourism (Western Cape Provincial Treasury, MERO, 2022). Furthermore, load shedding in 2022 and 2023 are expected to further deteriorate employment prospects in the Overstrand municipal area. The estimated decline in employment opportunities is likely to result in a decline in household income, which in turn will continue to restrain municipal revenue and increase the demand for free basic services.

Overall, all development and growth in Overstrand must be sensitive to the area's most important asset, that being the natural environment. Sustainable development in Overstrand will be guided by the Municipal Spatial Development Framework (SDF) and related sector plans. The SDF identified Kleinmond, Hawston, Hermanus, Stanford and Gansbaai

with its suburbs as areas prioritized for further development. This is due to bulk services being available to support densification and developments.

The proposed site is situated in the Overberg Municipal area, specifically in Vermont, which falls under the urban jurisdiction of Hermanus. The existing social and economic characteristics of the community in the vicinity of the proposed site are influenced by several factors:

- Job creation is identified as a critical need in the area, especially for the unskilled labour living in the township. The proposed development is expected to contribute significantly to economic growth by generating employment opportunities. This, in turn, can lead to increased investments in the area, fostering economic prosperity.
- The area has an active real estate and rental market, which is driven by ongoing in-migration to Hermanus. The development of new residential erven aligns with the increasing demand for housing and is anticipated to stimulate local property markets.
- The proposed development is seen as an opportunity for attracting investments. The creation of residential properties may attract investors interested in the real estate market, further stimulating economic activities in the area.

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

The proposed development holds several socio-economic values and contributions to the community and the broader area:

- One of the significant contributions is the creation of employment opportunities, both directly and indirectly. The proposed development will have both short- and long-term economic impacts on the Overstrand Municipality and the surrounding area. It will create employment opportunities during the construction phase, generate additional rates and taxes, all of which will contribute positively to the local economy. The development has the potential to generate revenue for the local municipality through property taxes and other associated fees. This additional revenue can be reinvested in community services and infrastructure.
- By attracting investments and stimulating economic activities, the development contributes to the overall economic growth of the area. Increased economic activities will lead to the growth of local businesses and services, benefiting the community.
- The creation of residential erven adds value to the real estate market in the area. The sale of properties to new residents contributes to the local property market, potentially increasing property values and attracting further investments.
- Additionally, the combined development is expected to accommodate at least 27 new residents to the Hermanus area, based on a calculation ratio of 3 people per dwelling unit. These new residents will contribute to the local economy by spending money on various items such as food, petrol, restaurants, repairs, and other goods and services, thereby boosting the local economy. The development may lead to improvements in local infrastructure. Increased housing demand could necessitate enhancements to utilities, roads, and other essential services, benefiting both existing and new residents

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

The development will result in a sizable contribution towards job creation during both the construction and operational phase and allow for potential skills development for local laborers and artisans residing in the area.

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.

The proposed residential development on Erf 1486, Vermont, is not expected to result in any significant negative impacts on human health and well-being. However, several considerations have been noted, and appropriate mitigation measures have been incorporated into the Environmental Management Programme (EMPr) to address potential temporary and long-term effects:

- Construction-related activities and the temporary increase in human presence may result in elevated noise levels, potentially affecting nearby residents. Although this impact is considered minor, the EMPr includes specific measures to mitigate construction noise, including adherence to permissible working hours as per municipal bylaws and the implementation of best-practice noise control measures.
- Temporary impacts on air quality due to dust and emissions from construction materials may occur during the development phase. While these impacts are not expected to pose a health risk, the EMPr outlines specifications for dust suppression, proper storage of materials, and regular site maintenance to mitigate nuisance conditions and uphold neighbourhood quality of life.
- The transformation of a portion of the site from natural vegetation to built residential infrastructure may result in a degree of change to the visual character and sense of place, particularly for residents who value the natural setting. To reduce visual intrusion, the development will incorporate design principles that are sensitive to the surrounding context, ensuring architectural harmony and maintaining the aesthetic quality of the area. Landscaping measures and the use of materials compatible with the local character will be prioritised.
- While the development may lead to an influx of new residents and changes to the existing neighbourhood structure, it is not anticipated to disrupt social cohesion significantly. The proposed layout is consistent with surrounding residential land uses and will integrate open space areas to promote a sense of community. Furthermore, the development supports the strategic growth vision of the municipality by aligning with planned urban expansion within demarcated urban edges.

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 applicant has identified Erf 1486 as the preferred property and site alternative for the proposed residential development in Vermont, Hermanus. This selection, coupled with the adoption of Alternative 3 as the preferred development plan, reflects a strategic approach to balance residential development with environmental conservation. The proposed development is in line with the surrounding residential offerings and forms the logical infill opportunity within the built-up suburb of Vermont. The design sees the avoidance of key biophysical features on site, minimizes negative impacts, mitigates unavoidable effects, and maximizes positive outcomes, particularly in preserving ecological connectivity and biodiversity. Below is a detailed description of the preferred property and site alternative, including the key components of Alternative 3.

Site context and characteristics

Erf 1486, located at the corner of the R43 and Lynx Road, approximately 9 km west of central Hermanus in the Western Cape, spans 15 069 m². As one of the last large erven in Vermont suitable for single residential development, it presents a unique opportunity to meet residential demands within an urban context while addressing environmental constraints. The site is bordered by the Hoek van der Berg Private Nature Reserve to the west and a wetland system to the southeast, which connects to the Vermont Salt Pan, the site occurs within the built-up residential suburb of Vermont, and abuts the R43 main road to the north. The site contains Critically Endangered Hangklip Sand Fynbos vegetation and an unchanneled valley-bottom wetland, both of which are ecologically sensitive. Its designation as part of an Ecological Support Area (ESA2) corridor as per the BSP (2017) underscores its importance for faunal movement between the Hoek van der Berg nature reserve and the Vermont Salt Pan. The selection of Erf 1486 as the sole property alternative is driven by its size, location within the urban edge of Vermont, and the potential to integrate residential development with ecological preservation through careful planning.

Preferred Site Alternative: Alternative 3

Alternative 3, developed through iterative design processes informed by specialist inputs (e.g. botanical, aquatic, and faunal assessments) as well as comments received during public participation, is the preferred layout design for Erf 1486. This preferred alternative optimizes the balance between residential development and environmental conservation. It avoids development within ecologically sensitive areas, notably the permanent and seasonal wetland areas through delineation of no-go areas. Additionally, the limited encroachment from the access road already accounted for in the biodiversity offset calculation has been minimized to reduce ecological impact. The key components of Alternative 3 are outlined below:

Residential Use

- Approximately 4984 m² (33% of the site) is designated for residential development.
- 9 x Single residential erven of varying sizes

Access road

- A development footprint of approximately 2123m^2 is allocated for private access roads.
- Two private roads are integrated to provide accessibility to the residential erven. However, a portion of a seasonal wetland area (0.024 ha) will be unavoidably lost due to road construction, specifically where access connectivity necessitates crossing over the seasonal wetland fringe. This loss has been fully accounted for in the wetland offset as recommended by the aquatic specialist. The offset ensures the long-term protection and rehabilitation of equivalent or greater ecological value elsewhere on-site or within a relevant receiving area.

Open Space

- A development footprint of approximately 7964m^2 is allocated for private open space.
- This area will be preserved via a conservation servitude.

Associated service infrastructure

Electricity Supply

Electrical services will be supplied via a connection to the municipal electricity network. The installation will be done in line with the requirements and specifications of the Overstrand Municipality.

Water Supply

Potable water will be sourced from the Preekstoel Water Treatment Plant, via a 200 mm diameter pipeline located along Lynx Avenue. A new connection point will be established, and internal reticulation infrastructure will be constructed in accordance with municipal engineering standards. The Overstrand Municipality has confirmed sufficient capacity to accommodate the additional demand from the development.

Sewer and Effluent Management

The proposed development will be connected to the existing municipal sewer system with the minor upgrade of the North south section in Kolgasn and Malmok roads required (110 mm pipeline to 160 mm pipeline).

Stormwater Management

Given the site's proximity to a delineated wetland, a comprehensive Stormwater Management Plan has been developed to manage surface runoff effectively and mitigate impacts on the downstream wetland system. The site forms part of a larger hydrological catchment where runoff from Catchment Area 1 (CA1), located north of the R43, drains into Catchment Area 2 (CA2), which includes the development site and wetland.

Key Stormwater Control Measures Include:

- Installation of 2 × 900 mm diameter culvert pipes, or alternatively, a 1.3 m wide × 0.7 m high trapezoidal concrete-lined channel to manage upstream flow.

From this point, runoff from R43 culverts or trapezoidal lined channel will be directed through to the permeable paving and enhanced swale into the wetland (natural attenuation area of ±10,000 m²). To manage stormwater in the proposed development Low Impact Development (LID) measures will be implemented:

Permeable Paving System (South of Wetland)

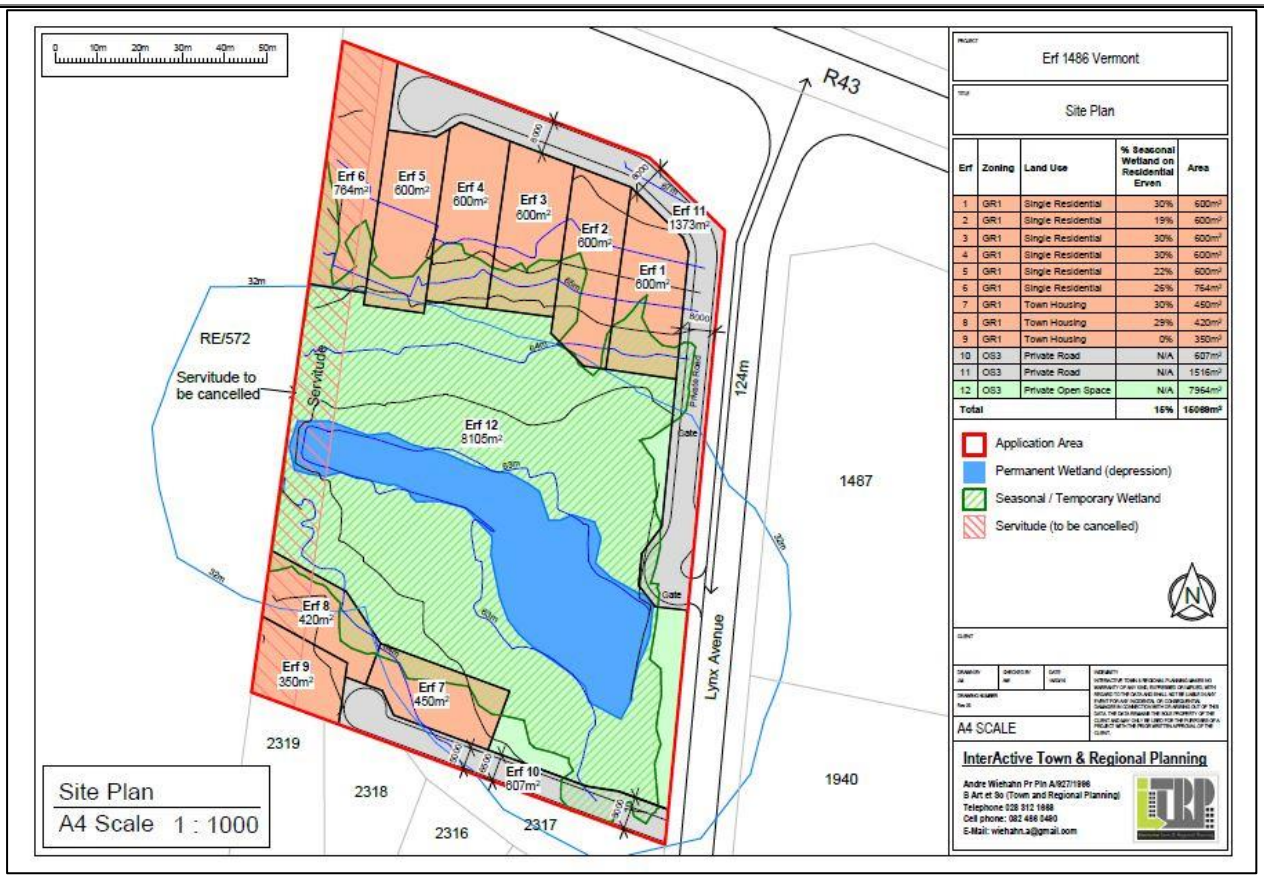
Designed to reduce surface runoff and promote infiltration:

- Surface Storage Depth: 50 mm
- Pavement Thickness: 80 mm
- Base Course Height: 400 mm (43% void ratio)
- Permeability (clogged): 360 mm/hr
- Outlet: 160 mm uPVC pipe
- Storage Volume: 140 m³

Enhanced Swale System (North of Wetland)

A vegetated swale to filter pollutants and slow runoff:

- Surface Storage Depth: 400 mm
- Swale Storage Depth: 750 mm
- Surface Slope: 0.5%
- Void Ratio: 0.43
- Vegetative Cover: 75%
- Conductivity: 120 mm/hr
- Storage Volume: 81 m³



Erf	Zoning	Land Use	% Seasonal Wetland on Residential Erven	Area
1	GR1	Single Residential	30%	600m²
2	GR1	Single Residential	19%	600m²
3	GR1	Single Residential	30%	600m²
4	GR1	Single Residential	30%	600m²
5	GR1	Single Residential	22%	600m²
6	GR1	Single Residential	26%	764m²
7	GR1	Town Housing	30%	450m²
8	GR1	Town Housing	29%	420m²
9	GR1	Town Housing	0%	350m²
10	OS3	Private Road	N/A	607m²
11	OS3	Private Road	N/A	1516m²
12	OS3	Private Open Space	N/A	7964m²
Total			15%	15088m²

Figure 19: The preferred site plan of the proposed development on site – Alternative 3

Provide a description of any other property and site alternatives investigated.
N/A
Provide a motivation for the preferred property and site alternative including the outcome of the site selectin matrix.
No property alternatives exist. The property in question forms one of the last vacant erven within the suburb of Vermont and contributes to infill development within the built-up suburb of Vermont. The Overstrand Municipality Spatial Development Framework (2020) projects a population growth of approximately 155 272 for the greater Hermanus area. This anticipated growth highlights the increasing demand for residential development. The proposal is in line with the prevailing development trend in Vermont, which involves utilizing available vacant properties.
Provide a full description of the process followed to reach the preferred alternative within the site.
N/A
Provide a detailed motivation if no property and site alternatives were considered.
Refer to the above

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

Positive

- The proposed development contributes to addressing housing needs, providing residences for single families.
- Job creation and economic growth are anticipated during the construction phase, fostering local economic development.

Negative

- Loss of ecological connectivity
- Construction activities may contribute to soil erosion, especially in areas where vegetation is removed, necessitating erosion control measures.
- During the construction phase, noise and dust generation may occur, impacting the immediate environment.

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

Provide a description of the preferred activity alternative.

N/A

Provide a description of any other activity alternatives investigated.

N/A

Provide a motivation for the preferred activity alternative.

N/A

Provide a detailed motivation if no activity alternatives exist.

N/A

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

N/A

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.

ALTERNATIVE 3 (FINAL PREFERRED)

The preferred alternative design for the proposed development in Vermont involves the establishment of 9 residential erven, 2 access road erven, and an open space erf. This selection emerged after a series of iterations which considered ecological constraints, particularly sensitive aquatic and terrestrial biodiversity onsite. Adjustments to the layout were made to avoid large areas of the delineated wetland on site. These changes, informed by input from the aquatic biodiversity specialist, led to the adoption of Alternative 3, which significantly minimizes ecological impact compared to previous preferred alternatives evaluated.

The new residential erven will strategically be positioned to avoid all of the permanent wetland with only intrusion into the seasonal wetland (0.024 ha) being for a small section of the internal access road. The Wetland offset was applied for

this unavoidable loss. It is important to note that the permanent wetland area on site is currently in a modified state, largely due to the presence of foreign fill material and the presence of alien invasive vegetation.

The final preferred alternative layout (Alternative 3) includes two access roads instead of one which was proposed on the initial former layout (Alternative 2), eliminating the need for the private road to traverse the permanent wetland area. Approximately 58 % of the total area will be designated as conservation space (Private Open Space), a notable increase from ~ 36 %. This shift in design reduces the ecological significance of the development phase from an initially deemed "unacceptable High negative" in Alternative 2 to an "acceptable Medium negative" in Alternative 3.

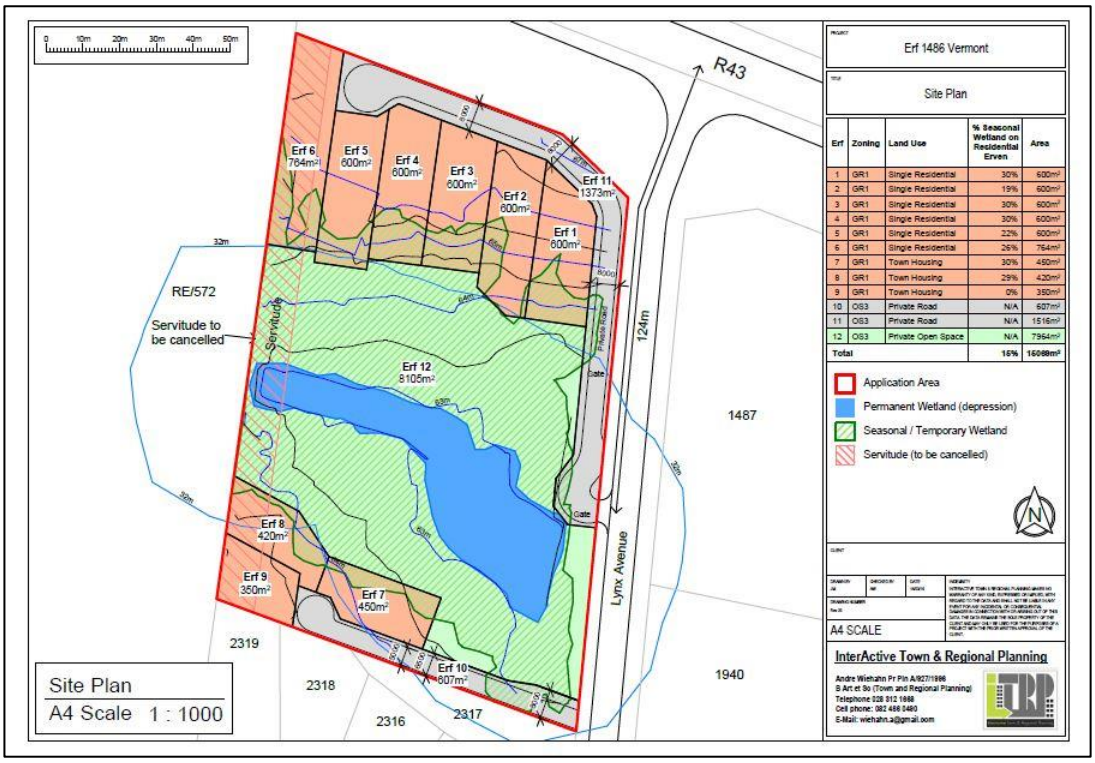
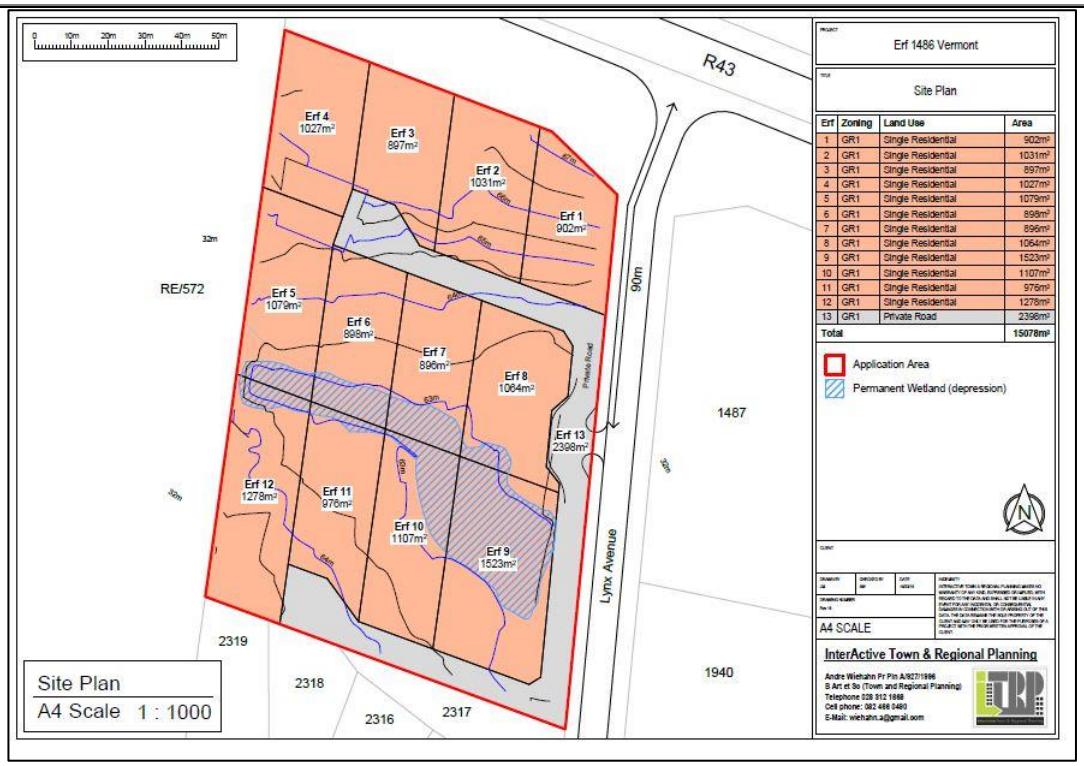


Figure 20: Preferred Layout – Alternative 3

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

ALTERNATIVE 1

Initially, Alternative 1 involved the development of 12 residential erven and 1 road erf, on the subject property. The layout includes erven that directly encroach upon the mapped wetland and other highly ecologically sensitive areas onsite. Unlike other alternatives, there is no provision for open space to facilitate ecological corridors. The erven proposed under this layout are larger but extend into the wetland areas and the proposal results in disturbance and loss of wetland area and natural vegetation. No consideration of the natural environment is included in this layout, which is based on financial feasibility and gains only.



Erf	Zoning	Land Use	Area
1	GR1	Single Residential	902m²
2	GR1	Single Residential	1031m²
3	GR1	Single Residential	897m²
4	GR1	Single Residential	1027m²
5	GR1	Single Residential	1079m²
6	GR1	Single Residential	898m²
7	GR1	Single Residential	896m²
8	GR1	Single Residential	1064m²
9	GR1	Single Residential	1523m²
10	GR1	Single Residential	1107m²
11	GR1	Single Residential	976m²
12	GR1	Single Residential	1278m²
13	GR1	Private Road	2398m²
Total			15078m²

Figure 21: Alternative 1 Layout

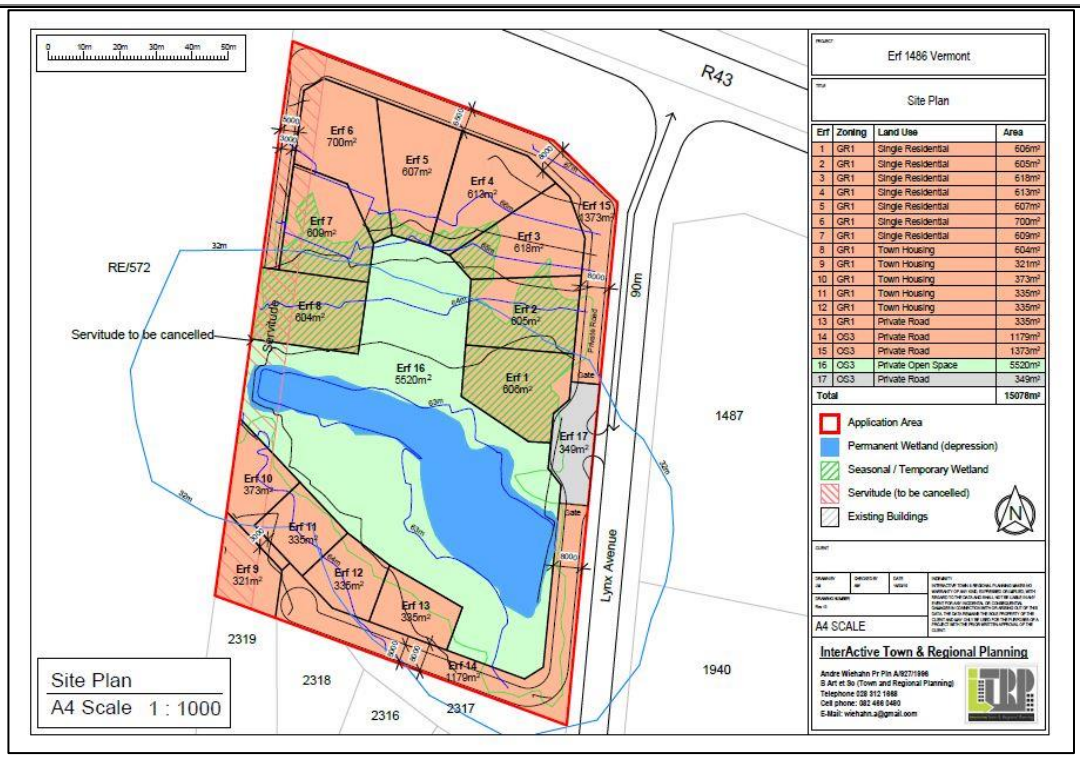
ALTERNATIVE 2:

This layout was the initial preferred option which was presented during the first round of public participation. It was guided by the delineation of the wetland by the freshwater specialist, who identified both seasonal and permanent wetland edges. 17 erven are proposed under this layout alternative and includes open space. However, this layout, although improved from Alternative 1, and avoiding the majority of the permanent wetland, still encroached into the seasonal and temporary wetland area. The internal road also encroaches into the wetland area under this layout.

The first round of Public Participation was undertaken on Alternative 1 and 2 above, as well as the no Development option (No Go).

Following the second round of public participation, further amendments were implemented to result in the evolution of the final Preferred Layout Alternative – Alternative 3:

The terrestrial biodiversity specialist proposed that the following erven should be removed from the layout: 1, 2, 7, 8, 10, 11, 12 and 13. The proposed access road (erf 14) should also be largely removed so that it does not cross the wetland and ecological corridor and can instead access erf 9 along the southern boundary. In addition, it was further recommended by the specialist team that with the reduction of the number of erven, and the realignment of the internal roads, all wetland areas, should be marked as no development areas. As a result of the above, the final preferred layout evolved:



Erf	Zoning	Land Use	Area
1	GR1	Single Residential	606m²
2	GR1	Single Residential	605m²
3	GR1	Single Residential	618m²
4	GR1	Single Residential	613m²
5	GR1	Single Residential	607m²
6	GR1	Single Residential	700m²
7	GR1	Single Residential	609m²
8	GR1	Town Housing	604m²
9	GR1	Town Housing	321m²
10	GR1	Town Housing	373m²
11	GR1	Town Housing	335m²
12	GR1	Town Housing	335m²
13	GR1	Private Road	335m²
14	OS3	Private Road	1179m²
15	OS3	Private Road	1373m²
16	OS3	Private Open Space	5520m²
17	OS3	Private Road	349m²
Total			15078m²

Figure 22: *Alternative 2 Layout*

ALTERNATIVE 3 (FINAL PREFERRED)

The preferred alternative design for the proposed development involves the establishment of 9 residential erven, 2 road erven, and an open space erf. This selection emerged after a series of evolutions of the site development plan considering ecological constraints, particularly sensitive aquatic and terrestrial biodiversity onsite. Adjustments to the layout were made to minimise encroachment of the development components on wetland area on site. These changes, informed by input from botanical specialists, led to the adoption of Alternative 3, which significantly minimizes ecological impact compared to previous alternatives evaluated in the May 2023 report.

The new residential erven are strategically positioned to avoid most high botanical sensitive areas, aligning with the initial mitigation goals. Only a minimal portion of high-sensitivity habitat, approximately 500m^2, will be affected. Furthermore, the layout now includes two access roads instead of one, eliminating the need for the private road to traverse the wetland, as mandated by the mitigation requirements. However, the two new private road will, however, encroach to the seasonal wetland area, which will contribute to the loss of 0.024 ha of the seasonal wetland area. As a result, approximately 58% of the total area will be designated as conservation space (Private Open Space), a notable increase from around 36%. This shift in design reduces the ecological significance of the development phase from an initially deemed "unacceptable High negative" in Alternative 2 to an "acceptable Medium negative" in Alternative 3.

NO GO

This option entails maintaining the status quo with no development. The current state remains unchanged, and no new development initiatives are pursued.

Provide a motivation for the preferred design or layout alternative.

The motivation for selecting Alternative 3 as the preferred layout stems from its ability to effectively address the site's key environmental constraints, while aligning with development goals. A primary consideration is the presence of a wetland, which, though identified by a freshwater specialist as being in a largely modified state due to foreign fill material and alien invasive vegetation, remains a critical ecological feature. Concerns raised during specialist studies and the public participation process highlighted the importance of maintaining hydrological connectivity between the onsite wetland and the Salt Pan to the east. Earlier layout alternatives proposed a road placement that would have severely impacted this connectivity, prompting the need for a revised design that incorporates robust mitigation measures.

Alternative 3 emerged as the optimal solution by prioritizing the preservation of this hydrological linkage through conservation servitude, benefiting both the natural environment and the proposed development. It achieves this through practical adjustments, such as reducing erven sizes and minimizing the overall development footprint, which significantly limits encroachment into the permanent and seasonal wetland zones. This approach not only mitigates environmental impact but also ensures that the building areas remain out of the mapped seasonal/temporal wetland area as far as possible, thereby ensuring that the areas falling within the seasonal wetland areas remain as no-go areas, in compliance with sustainability principles. By balancing ecological responsibility with development objectives, Alternative 3 stands out as the most feasible and forward-thinking option, offering a harmonious integration of human and environmental needs.

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

N/A

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

ALTERNATIVE ONE

Positive:

- Supply of residential erven to Vermont and Hermanus in response to large demand for residential opportunities.
- Investment in the area
- Upgrade and / or contribution to service infrastructure in the area
- Job creation during construction and post-construction phase.

Negative:

- No consideration of the wetland on site
- No opportunity for rehabilitation of the wetland and long-term management thereof to facilitate ecological linkages with the adjacent freshwater systems.
- Loss of high ecologically sensitive areas

ALTERNATIVE TWO

Positive:

- Supply of residential erven to Vermont and Hermanus in response to large demand for residential opportunities.
- Investment in the area
- Upgrade and / or contribution to service infrastructure in the area
- Job creation
- Design with the wetland system in consideration
- Opportunity to rehabilitate the wetland and provide long term management as well as facilitate connection with the surrounding freshwater ecosystems
- Management of activities on site and not adhoc use as currently experienced

Negative:

- Loss of high botanical sensitive areas still takes place
- Loss of wetland area as well as faunal habitats

ALTERNATIVE 3 (PREFERRED)

Positive

- Job opportunities during the construction and operational phase
- Investments
- Provision of housing
- Incorporation of large open spaces for ecological connectivity

Negative

- Loss of high ecological areas will occur but reduced impacts due to layout changes
- Few residential erven

NO-GO

Positive:

- The site will remain undeveloped, and the current state will persist
- No clearance of indigenous vegetation on site
- Positive sense of place for residents
- No encroachment or risk to the onsite wetland habitat

Negative:

- No management and rehabilitation of the wetland
- Continuous degrade of the site at the hand of unregulated and uncontrolled activities on site
- No alien vegetation management
- No investment, job creation or infill development with highly developed suburb of Vermont and Hermanus

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

Provide a description of the preferred technology alternative:

No specific technology alternatives have been explored; however the most recent technological advances will be applied during both construction, design and operations to ensure that the environmental impacts are reduced.

Provide a description of any other technology alternatives investigated.

N/A

Provide a motivation for the preferred technology alternative.

N/A

Provide a detailed motivation if no alternatives exist.

N/A

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

N/A

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

Provide a description of the preferred operational alternative.

As presented in the final preferred Alternative – Alternative 3 – there are specific No Development areas on proposed residential erven. These areas will form part of a buyer's erven but will be maintained as natural no development areas on the individual erven. The aim being to exclude built infrastructure in the seasonal and temporary wetland area in the long term. The mechanism of this will be via a specific No Go development plan, which will ultimately form part of the HOA.

Provide a description of any other operational alternatives investigated.

N/A

Provide a motivation for the preferred operational alternative.

N/A

Provide a detailed motivation if no alternatives exist.

N/A

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

N/A

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

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

The 'No-Go' Option, which entails maintaining the status quo without implementing the proposed development activity, is not preferred due to several factors. Firstly, it fails to address the need for balanced urban infill development in Vermont. Secondly, it overlooks the opportunity to rehabilitate the site and reinstate the ecological corridor between Hoek van der Berg and the Vermont Salt Pan whilst including a development option which allows for infill development within the built-up urban edge and avoids sensitive areas and mitigates ecological impact through careful planning and design. Ultimately, by choosing not to proceed with the proposed activity, the potential benefits of responsible development, such as accommodating the growing population, job creation, economic growth, and sustainable land use practices, would be missed, undermining the long-term prosperity and well-being of the community.

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.

Three layouts and the no go have been assessed in the NEMA process. Two rounds of out of process public participation have been undertaken to date, as follows:

- → PPP1: 22/03/2023 - 24/04/2024
- → PPP2: 17/05/2024 - 17/06/2025

Alternative 1 formed the initial layout for the proposal based on the concept, as per the adjacent development typologies, to create a grid type residential development. Alternative two was initially presented as the preferred Alternative in Public participation rounds 1 and 2, however, there were challenges on the layout due to its encroachment on highly sensitive

habitats (i.e. seasonal wetland area). The terrestrial biodiversity impact assessment mitigation measures proposed that the following erven should be removed from the previous preferred layout (Alternative 2): 1, 2, 7, 8, 10, 11, 12 and 13. Additional to this, the proposed access road had to be redesigned so that it does not lie across the wetland and ecological corridor and can instead access erf 9 along the southern boundary. It was recommended by the aquatic biodiversity specialist that the actual development footprints should then be positioned within the proposed new Erven out of the seasonal wetland boundary, as this will result to the reduced impact on wetland loss.

Alternative 3, the new preferred layout, stands out as the most suitable development option among the other alternatives considered. Its design has been refined from the specialists' inputs and mitigations measures identified to accommodate the site's high ecological sensitivity, effectively minimizing encroachment and reducing negative impacts on these critical areas. The layout now includes two access roads instead of one, which avoids encroaching on the permanent wetland. The 8 residential erven that were identified to be in highly sensitive areas and has been adjusted according to the mitigation measures required by the specialist. As a result, approximately 58% of the total area will be preserved and designated as conservation space (Private Open Space), a notable increase from around 36%. Through the implementation of mitigation measures recommended by specialist studies, the permanent wetland area has been avoided, the potential adverse impacts of the development are mitigated and been reduced to an acceptable level by all specialist team which were part of this project.

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

After assessment of various layout alternatives, Alternative 3 has been identified as the preferred option by avoiding all of the permanent wetland and most of the seasonal / temporary wetland and allowing for a large central open space which will maintain the ecological connectivity and ecological corridor. This alternative confines the development footprint to 0.70 ha (47% of the 1.50-ha site), resulting in the loss of only 0.024 ha (3%) of the 0.90-ha wetland, primarily within the seasonal / temporary zone to accommodate essential access roads. In contrast, earlier alternatives would have resulted in greater encroachment into the wetland's permanent and seasonal / temporary zones. Alternative 3 prioritizes the protection of the wetland, designating the remaining 0.876 ha as a "no-go" area to ensure its ecological functionality is preserved and enhanced through targeted rehabilitation efforts to maintain ecological connectivity from the adjacent Hoek Van Der Berg NR eastwards to the Vermont Salt Pan.

The preference for Alternative 3 is underpinned by its alignment with the mitigation hierarchy discussed above and compliance with the National Water Act's "no net loss" policy, as enforced by the Department of Water and Sanitation (DWS). The minimal wetland loss of 0.024 ha, quantified at 0.0139 ha Equivalents (HE) of function and 0.1323 HE of habitat using the Macfarlane et al. (2016) wetland offset guidelines, is offset by the rehabilitation of the 0.876-ha "no-go" area, projected to yield gains of 0.1214 HE of function and 1.3841 HE of habitat. This results in a surplus of 0.1075 HE of function and 1.2518 HE of habitat, satisfying offset requirements and ensuring a net biodiversity gain. The freshwater specialist has deemed the limited encroachment on the seasonal wetland area for access roads construction as acceptable, provided that robust mitigation measures are fully implemented. These include the comprehensive Stormwater Management Plan (SMP) attached in **Appendix F7**, which incorporates enhanced swale system, and permeable paving system to manage runoff and protect wetland hydrology and water quality. Additionally, the Wetland Offset, Rehabilitation, and Management Plan mandates the removal of foreign fill material, eradication of alien invasive species (e.g., *Pampas grass, Acacia saligna*), and revegetation with indigenous wetland species to elevate the wetland's Present Ecological State (PES) from Category D (largely modified) to upper Category C (moderately modified).

To ensure the long-term protection of the wetland, a formal conservation servitude will be established over the 0.876-ha "no-go" area, recorded as a title deed restriction to prohibit future development. This servitude, combined with ongoing monitoring and management interventions such as annual inspections during rehabilitation, five-yearly audits post-rehabilitation, and fixed-point photography will safeguard the wetland's ecological gains in perpetuity. The specialist's

recommendations further emphasize strict adherence to the SMP, prohibiting herbicide/pesticide use, and regular maintenance of stormwater infrastructure to prevent erosion and sedimentation.

The preferred location for the development activity is within the 0.70 ha footprint on Erf 1486, strategically positioned in the northern and southern portions of the site to avoid the permanent wetland zone.

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).

The "no-go" area was identified as the 0.876 ha portion of the UVB wetland that remains undeveloped in the preferred layout (Alternative 3). This area encompasses the majority of the wetland, including the permanent wetland zone and the remaining seasonal / temporary zones, after accounting for the unavoidable loss of 0.024 ha (3%) due to access roads. To preserve the ecological integrity of this no-go zone, no built infrastructure will be permitted within the wetland boundaries. Only the use of indigenous / natural gardens will be allowed, refer to **Table 8-1** of the Wetland Offset, Rehabilitation and Management Plan for the list of indigenous plant species that can be introduced to the offset wetland.

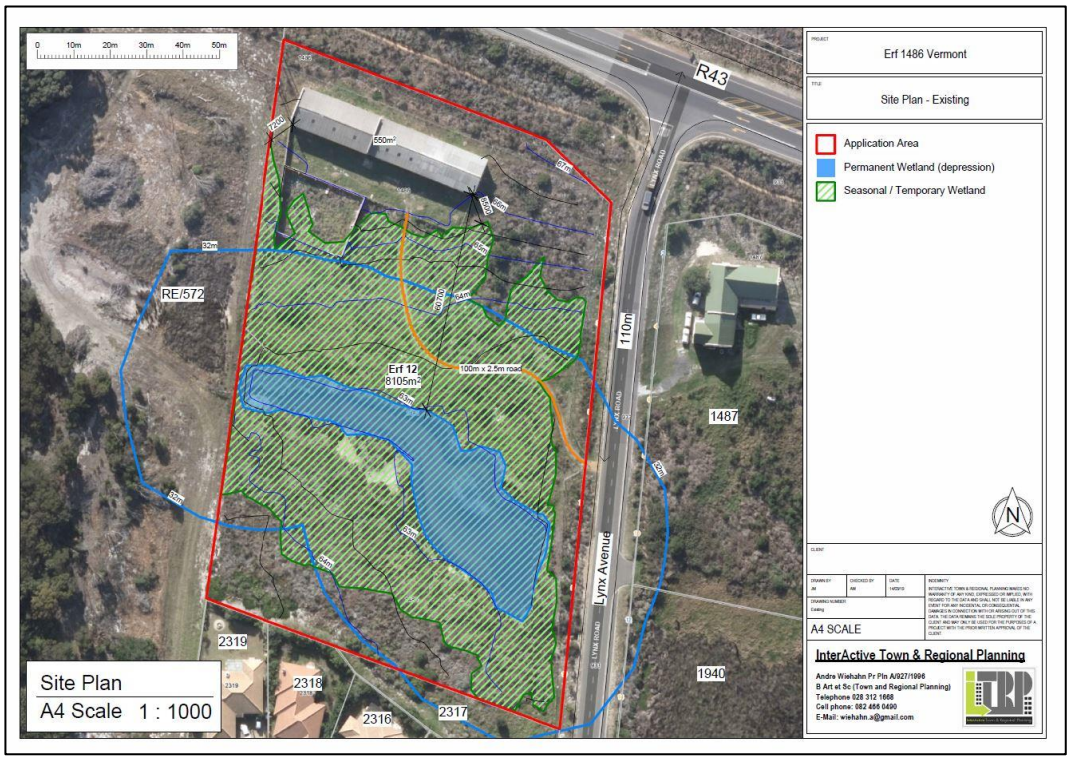


Figure 23: View of the UVB wetland delineated on site, highlighting permanent zone and seasonal /temporal zones.

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.

An impact is any change to a resource or receptor brought about by a project component or through the execution of a project related activity. The evaluation of baseline data provides information for the process of evaluating and describing how the project could affect the biophysical and socio-economic environment.

Impact is described according to their nature or type, as follows:

Nature/ Type

Nature/ Type of impact	**Definition**
Positive	An impact that is considered to represent an improvement on the baseline or introduces a positive change.
Negative	An impact that is considered to represent an adverse change from the baseline, or introduces a new undesirable factor.
Direct	Impacts that result from a direct interaction between a planned project activity and the receiving environment/receptors (e.g. between occupation of a site and the pre-existing habitats or between an effluent discharge and receiving water quality).
Indirect	Impacts that result from other activities that are encouraged to happen as a consequence of the Project (e.g. in-migration for employment placing a demand on resources).
Cumulative	Impacts that act together with other impacts (including those from concurrent or planned future third-party activities) to affect the same resources and/or receptors as the Project.

Significance

Impacts are described in terms of significance. Significance is a function of the magnitude of the impact and the likelihood of the impact occurring:

Impact Magnitude	
Extent	**On site** – impacts that are limited to the boundaries of the development site.
	Local – impacts that affect an area in a radius of 20 km around the Development site.
	Regional – impacts that affect regionally important environmental resources or are experienced at a regional scale as determined by administrative boundaries, habitat type/ecosystem.
	National – impacts that affect nationally important environmental resources or affect an area that is nationally important/ or have macro-economic consequences
Duration	**Temporary** – impacts are predicted to be of short duration and intermittent/occasional.

	Short-term – impacts that are predicted to last only for the duration of the construction period.
	Long-term – impacts that will continue for the life of the Project but ceases when the project stops operating
	Permanent – impacts that cause a permanent change in the affected receptor or resource (e.g. removal or destruction of ecological habitat) that endures substantially beyond the project lifetime
	BIOPHYSICAL ENVIRONMENT
	Negligible – the impact on the environment is not detectable.
	Low – the impact affects the environment in such a way that natural functions and processes are not affected.
	Medium – where the affected environment is altered but natural functions and processes continue, albeit in a modified way.
Intensity	**High** – where natural functions or processes are altered to the extent that they will temporarily or permanently cease
	SOCIO-ECONOMIC
	Negligible – there is no perceptible change to people's livelihood
	Low - people/communities are able to adapt with relative ease and maintain pre-impact livelihoods
	Medium – people/communities are able to adapt with some difficulty and maintain pre-impact livelihoods but only with a degree of support
	High - affected people/communities will not be able to adapt to changes or continue to maintain pre-impact livelihoods.

Likelihood- the likelihood that an impact will occur

Likelihood	
Unlikely	The impact is unlikely to occur
Likely	The impact is likely to occur under the most conditions.
Definite	The impact will occur

Once an assessment is made of the magnitude and the likelihood, the impact significance is rated through a matrix process:

Significance				
Magnitude		Unlikely	Likely	Definite
	Negligible	Negligible	Negligible	Minor
	Low	Negligible	Minor	Minor
	Medium	Minor	Moderate	Moderate
	High	Moderate	Major	Major

Definition of significance:

Negligible	An impact of negligible significance (or an insignificant impact) is where a resource or receptor (including people) will not be affected in any way by a particular activity, or the predicted effect is deemed to be 'negligible'.

Minor	An impact of minor significance is one where an effect will be experienced, but the impact magnitude is small (with and without mitigation) and within accepted standards, and/or the receptor is of low sensitivity/value.
Moderate	An impact of moderate significance is one within accepted limits and standards. The emphasis for moderate impacts is on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable. This does not necessarily mean that 'moderate' impacts have to be reduced to 'minor' impacts, but that moderate impacts are managed effectively and efficiently.
Major	An impact of major significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued / sensitive resource / receptors. A goal of the EIA process is to get to a position where the Project does not have any major residual impacts.

Significance of an impact is then qualified through a statement of the degree of confidence. Degree of confidence is expressed as low, medium or high.

Significance colour scale (if applicable):

Negative	Positive
Negligible	Negligible
Minor	Minor
Moderate	Moderate
Major	Major

Impact rating colour scale:

Negative	Positive
Negligible	Negligible
Low	Low
Medium	Medium
High	High

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.

SUMMARY OF ALTERNATIVES

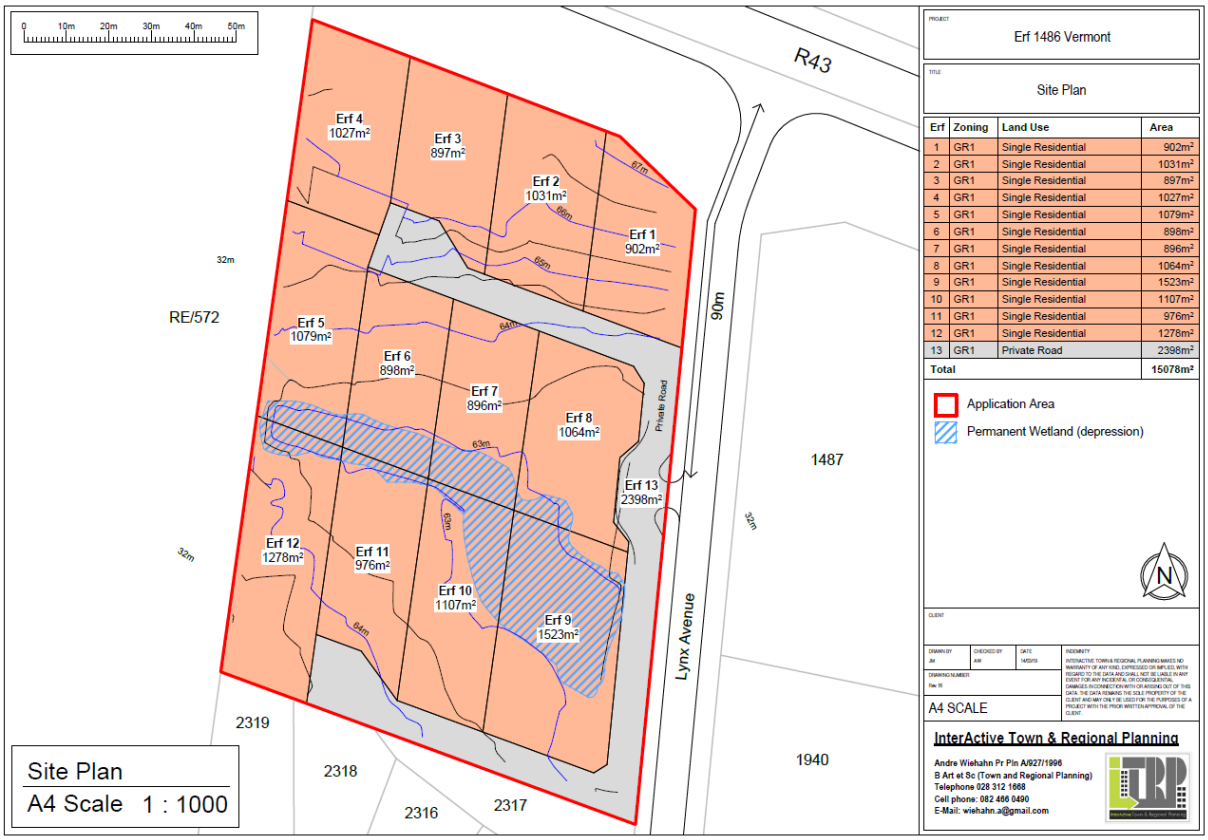
ALTERNATIVE ONE

Positive:

- Supply of residential erven to Vermont and Hermanus in response to large demand for residential opportunities.
- Investment in the area
- Upgrade and / or contribution to service infrastructure in the area
- Job creation

Negative:

- No consideration of the wetland on site
- No opportunity for rehabilitation of the wetland and long-term management thereof to facilitate linkages with the adjacent freshwater systems



Erf	Zoning	Land Use	Area
1	GR1	Single Residential	902m²
2	GR1	Single Residential	1031m²
3	GR1	Single Residential	897m²
4	GR1	Single Residential	1027m²
5	GR1	Single Residential	1079m²
6	GR1	Single Residential	898m²
7	GR1	Single Residential	896m²
8	GR1	Single Residential	1064m²
9	GR1	Single Residential	1523m²
10	GR1	Single Residential	1107m²
11	GR1	Single Residential	976m²
12	GR1	Single Residential	1278m²
13	GR1	Private Road	2398m²
Total			15078m²

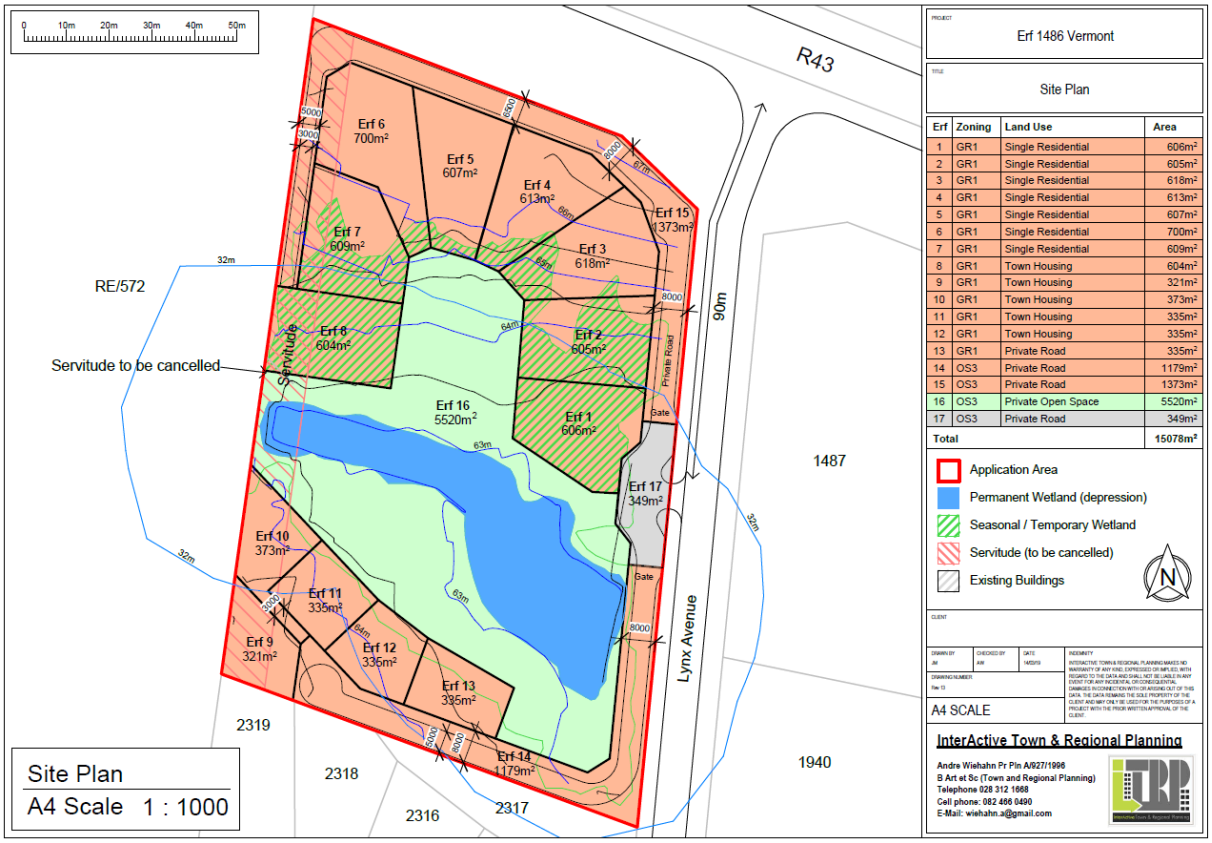
ALTERNATIVE TWO

Positive:

- Supply of residential erven to Vermont and Hermanus in response to large demand for residential opportunities.
- Investment in the area
- Upgrade and / or contribution to service infrastructure in the area
- Job creation
- Design with the wetland system in consideration
- Opportunity to rehabilitate the wetland and provide long term management as well as facilitate connection with the surrounding freshwater ecosystems
- Management of activities on site and not adhoc use as currently experienced

Negative:

- All proposed residential erven on the Northern part of the property encroach within the delineated seasonal/ temporal wetland area.
- loss of high ecological sensitive areas.
- One access road crossing the wetland to the residential erven.



Erf	Zoning	Land Use	Area
1	GR1	Single Residential	606m²
2	GR1	Single Residential	605m²
3	GR1	Single Residential	618m²
4	GR1	Single Residential	613m²
5	GR1	Single Residential	607m²
6	GR1	Single Residential	700m²
7	GR1	Single Residential	609m²
8	GR1	Town Housing	604m²
9	GR1	Town Housing	321m²
10	GR1	Town Housing	373m²
11	GR1	Town Housing	335m²
12	GR1	Town Housing	335m²
13	GR1	Private Road	335m²
14	OS3	Private Road	1179m²
15	OS3	Private Road	1373m²
16	OS3	Private Open Space	5520m²
17	OS3	Private Road	349m²
Total			15078m²

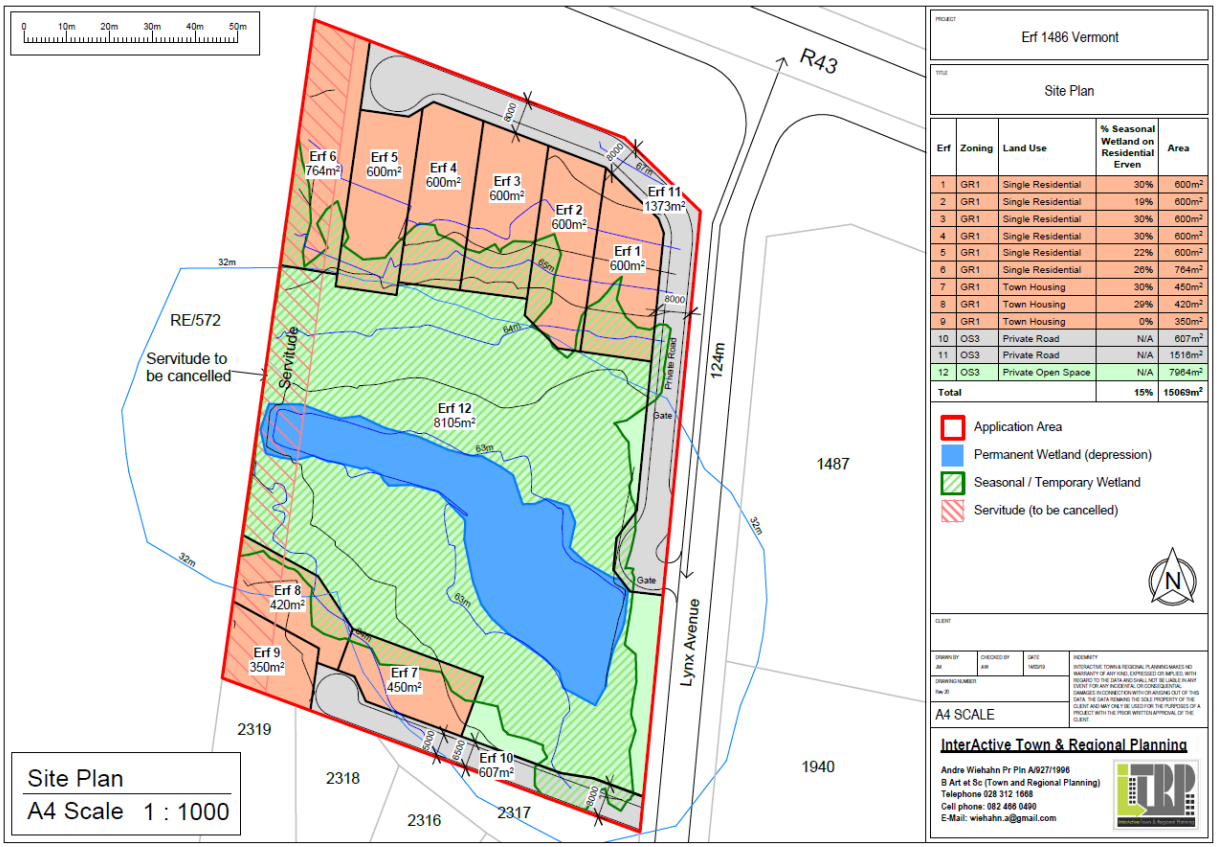
ALTERNATIVE 3 (PREFERRED)

Positive:

- Supply of residential erven to Vermont and Hermanus in response to large demand for residential opportunities.
- Investment in the area
- Upgrade and / or contribution to service infrastructure in the area
- Job creation
- Design with the wetland system in consideration
- Opportunity to rehabilitate the wetland and provide long term management as well as facilitate connection with the surrounding freshwater ecosystems
- Management of activities on site and not adhoc use as currently experienced
- Lower ecological impact than the previous alternative assessed.
- Proposed residential erven now exclude most of the High sensitivity areas
- Development includes two private access roads away from the delineated wetland area.

Negative:

- About 500m^2 of high sensitivity habitat will now be lost.
- Loss of sensitive vegetation will occur.



Erf	Zoning	Land Use	% Seasonal Wetland on Residential Erven	Area
1	GR1	Single Residential	30%	600m²
2	GR1	Single Residential	19%	600m²
3	GR1	Single Residential	30%	600m²
4	GR1	Single Residential	30%	600m²
5	GR1	Single Residential	22%	600m²
6	GR1	Single Residential	28%	764m²
7	GR1	Town Housing	30%	450m²
8	GR1	Town Housing	29%	420m²
9	GR1	Town Housing	0%	350m²
10	OS3	Private Road	N/A	607m²
11	OS3	Private Road	N/A	1516m²
12	OS3	Private Open Space	N/A	7964m²
Total			15%	15069m²

NO GO

Positive:

- No removal of vegetation and status quo remains

Negative:

- No management and rehabilitation of the wetland
- Continuous degrade of the site at the hand of unregulated and uncontrolled activities on site
- No alien vegetation management
- No investment, job creation or infill development with highly developed suburb of Vermont and Hermanus

ALTERNATIVE 1

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**1. Socio-economic**
Potential impact	Job creation during the development /construction phase of the Erven
Nature of impact:	Positive
Extent and duration of impact:	local; short-term
Consequence of impact or risk:	Improved livelihoods of the community
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	N/A
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	Job creation for local community
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High Positive
Degree to which the impact can be avoided:	N/A
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	1. Ensure labour force is sourced locally as far as possible. 2. A gender balance to be considered during employment.
Residual impacts:	1. Improved livelihoods 2. Improvement of local economy, skills transfer, investment in the area
Cumulative impact post mitigation:	Job creation and skills transfer to local community
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High Positive

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**2. Dust**
Potential impact	Dust generated from site clearing and site preparation
Nature of impact:	Negative
Extent and duration of impact:	Local, short term
Consequence of impact or risk:	Visual impacts Nuisance for residents adjacent to the site
Probability of occurrence:	Likely
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	High
Indirect impacts:	Potential for reduced visibility, temporary visual impacts to the general area

Cumulative impact prior to mitigation:	Dust may be generated as a result of earthmoving activities required for construction and development
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium High, High, or Very-High)	High negative
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:	1. Maintain ground cover for as long as possible to reduce the total surface area exposed to wind. Do not clear entire plots and rather clear building sites only 2. Ensure vehicle speed limits on site are kept to a minimum. 3. Delivery vehicles to keep loads covered. 4. Cover fine material stockpiles. 5. Wet dry and dusty surfaces using non-potable water. 6. Staff to wear correct PPE if dust is generated for long periods. 7. Road surfaces to be swept and kept clean of sand and fine materials
Residual impacts:	None
Cumulative impact post mitigation:	Dust generated during construction, mitigation successful
Significance rating of impact after mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	Very-Low Negative
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**3. Noise**
Potential impact	Noise generated from vehicles and machinery during the construction phase.
Nature of impact:	Negative
Extent and duration of impact:	Local, short term
Consequence of impact or risk	Noise disturbance to transient receptors, i.e. motorists, pedestrians, residents.
Probability of occurrence:	Likely
Degree to which the impact may cause irreplaceable loss of resources:	No resources will be impacted.
Degree to which the impact can be reversed:	High
Indirect impacts:	None
Cumulative impact prior to mitigation:	Noise generated from construction works
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	High negative
Degree to which the impact can be avoided:	Medium – High
Degree to which the impact can be managed:	Medium – High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	1. Limit noise levels (e.g. install and maintain silencers on machinery). 2. Provide protective wear for workers i.e. ear plugs. 3. Ensure that construction vehicles and machinery are maintained regularly to reduce noise generation.

	4. Restrict construction to normal working hours
Residual impacts:	None
Cumulative impact post mitigation:	Typical noise impacts associated with a construction site
Significance rating of impact after mitigation (e.g. Low, Medium, Medium High, High, or Very-High)	Low Negative
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**4. Visual**
Potential impact:	Visual impacts of construction site and construction activities.
Nature of impact:	Negative
Extent and duration of impact:	Local, short term
Consequence of impact:	Reduce aesthetic value of the site and surrounds
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	High
Indirect impacts:	None
Cumulative impact prior to mitigation:	Short term visual impacts associated with construction
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	High negative
Degree to which the impact can be avoided:	Medium
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	1. Good housekeeping of construction site and working areas. 2. Screen the visual elements of the site camp with netting. 3. Locate the site camp in a transformed area. 4. Site officer to walk the site on a daily basis to check for visual impacts and general site aesthetics, particularly prior to weekends and holidays 5. Officer to ensure that waste and batching areas are correctly screened and secured to prevent spread by wind, rain or animals
Residual impacts	None
Cumulative impact post mitigation:	Typical visual impacts associated with a construction site
Significance rating of impact after mitigation e.g. Low, Medium, MediumHigh, High, or Very-High)	Low Negative
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**5. Ecological Impact**
Potential impact:	It can safely be assumed that the primary construction phase ecological impact of the proposed subdivision and development would be permanent loss of all of the existing natural and partly natural vegetation and faunal habitat in the development footprints (gazetted as a Critically Endangered vegetation type)
Nature of impact:	Negative
Extent and duration of impact:	Local; Permanent
Consequence of impact:	Vegetation loss, species loss, diversity loss, connectivity loss

	Exposure of soil and degradation thereof
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	Low
Indirect impacts:	Continued loss of all critically endangered natural vegetation on site
Cumulative impact prior to mitigation:	Loss of natural vegetation and faunal habitat and threatened plant species to ongoing agriculture, urban development and alien plant invasion
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	High
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	→ No erven should intrude significantly into the seasonal wetland portions of the site that support mostly habitat of High ecological sensitivity (as per Figure 4). This means that the following erven should be removed from any authorised layout: 1, 2, 7, 8, 10, 11, 12 and 13. The proposed access road (erf 14) should also be largely removed so that it does not cross the wetland and ecological corridor, and can instead access erf 9 along the southern boundary. → No pipelines, cabling or infrastructure should be installed across the High sensitivity areas or wetlands. → Any boundary fencing used must be permeable to small animals at ground level. → The authorised erf and road boundaries should be surveyed and pegged out and fenced on site prior to any site development. → No areas of natural or partly natural vegetation should be disturbed outside the pegged/fenced out and authorised erven. No vehicular activity or dumping of material may take place outside the authorised erven or roads. → All alien invasive vegetation should be removed from within the natural portions of the project area, prior to any authorised development. Removal of the alien vegetation must be undertaken by a trained and licensed alien vegetation removal team and must be undertaken using methodology outlined in the Best Practise Guidelines (see Martens et al 2021). → The Homeowners Association (HoA, or similar) for the proposed development must ensure that all alien invasive vegetation (as per NEMBA legislation) is removed from the Public Open Space area on an annual basis by qualified contractors, using methodology as prescribed in Martens et al (2021; see below for reference).The HoA must ensure that there is adequate funding for this every year. • In order to try and safeguard the ecological integrity of the No Go wetland areas on Erven 1-8 (also shown in Figure 1) these areas that should not be altered, developed, gardened, covered, excavated, drained, infilled or disturbed in any way.

	Landowners and the HoA must be made aware of these constraints both prior to and after purchase. Alien invasive plant species should be removed from these areas on an annual basis, as part of the management actions required for the adjacent Private Open Space.
Residual impacts	Loss of high sensitivity vegetation
Cumulative impact post mitigation:	Loss of high sensitivity vegetation
Significance rating of impact after mitigation e.g. Low, Medium, MediumHigh, High, or Very-High)	**High negative**

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**6. Wetland Loss in the delineated UVBW**
Potential impact:	During the construction phase there would be loss of all the high ecological sensitive species on site and the wetland. Loss of ecological connectivity as well as hydrological connection from the wetland on site to the Vermont Salt Pan downstream which is an NFEPA designated wetland area.
Nature of impact:	High; Negative
Extent and duration of impact:	Local; Permanent
Consequence of impact:	Loss of wetland habitat, critically endangered fauna and wetland plants.
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	Very low
Indirect impacts:	Loss of the entire wetland on site.
Cumulative impact prior to mitigation:	Loss of wetland and habitat for SoCC that could potentially be found on site
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	Very High
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:	• The only mitigation applicable to wetland loss is reduction of the area of loss. • It is recommended that the proposed residential areas are positioned within the proposed new Erven so as to avoid the delineated wetland area. • Should the proposed residential developments avoid the wetland area entirely, the impact of Wetland Loss, as assessed in this report, will not be applicable.
Residual impacts:	Wetland loss, impact on adjacent freshwater systems, impact on infrastructure located within permanent wetland area
Cumulative impact post mitigation:	Wetland loss, impact on adjacent freshwater systems, impact on infrastructure located within permanent wetland area

Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High negative**

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**7. Faunal impacts**
Potential impact:	Infringement of development footprint on ESA2 corridor
Nature of impact:	Negative
Extent and duration of impact:	Local and long term
Consequence of impact:	High
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	Irreversible
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	High
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	High
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	Amend the site layout
Residual impacts:	Loss of all faunal species on the development footprint
Cumulative impact post mitigation:	High Loss of faunal connectivity on site as a result of development footprint
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High negative**

POST-CONSTRUCTION PHASE	
Potential impact and risk:	**1. Socio economic impacts**
Potential impact	Access to employment for the community during the operational phase, Job creation, Provision of residential erven in response to provincial demand, investment in the area
Nature of impact:	Positive
Extent and duration of impact:	Local, long-term
Consequence of impact or risk:	Improved livelihoods beneficiaries, influx of people to the area, investment in the area, spending in the area
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	N/A

Indirect impacts:	N/A
Cumulative impact prior to mitigation:	Access to employment for the community during the operational phase, Job creation, Provision of residential erven in response to provincial demand, investment in the area
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High positive
Degree to which the impact can be avoided:	N/A
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	N/A
Proposed mitigation:	-
Residual impacts:	Investment in the area, attraction to the area, spending in the area
Cumulative impact post mitigation:	Investment in the area, attraction to the area, spending in the area Access to employment for the community during the operational phase, Job creation, Provision of residential erven in response to provincial demand, investment in the area
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High positive
POST-CONSTRUCTION PHASE	
Potential impact and risk:	**2. Visual**
Potential impact:	Typical Visual impacts associated with the operational phase of a residential dwelling or group of residential dwellings that may lead to changes in sense of place of the individual from what was there and to what has now changed.
Nature of impact:	Negative – changes in the visual aesthetics of the area during the operational phase. Positive- infill development within an urban area as opposed to the alienation of new land, contributing to more sustainable land use.
Extent and duration of impact:	Long term, local to regional
Consequence of impact:	Risk – visual impact of operation within landscape and suburb
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	High
Indirect impacts:	Loss of sense of place due to the removal of the natural vegetation that is appealing to nature lovers
Cumulative impact prior to mitigation:	Short term impacts associated with changes of the built infrastructure.
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	High negative
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	High
Proposed mitigation:	• Implement landscaping strategies to minimize the visual impact of construction and operational activities. • Incorporate green design principles into the development to enhance aesthetics and mitigate negative visual effects.

	• Communicate with the community to ensure understanding and acceptance of the changes in the visual character. • Consider the use of native vegetation in landscaping to maintain a natural feel and reduce visual disruptions.
Residual impacts	None
Cumulative impact post mitigation:	Typical visual impacts associated with operational phase
Significance rating of impact after mitigation e.g. Low, Medium, Medium High, High, or Very-High)	Low negative
POST-CONSTRUCTION PHASE	
Potential impact and risk:	**3. Ecological**
Potential impact:	Loss of current moderate levels of ecological connectivity across the site (essentially only W-E connectivity is now available), and associated habitat fragmentation. Loss of ability for natural fires Loss of sensitive botanical areas and vegetation Reduction in natural habitat
Nature of impact:	Negative – ecological impacts Positive – infill development within urban area as opposed to alienation of new land
Extent and duration of impact:	Permanent, local to regional
Consequence of impact:	Loss of all available natural or partly natural faunal habitat on site. Loss of natural spaces, corridors and high ecological species.
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	N/A
Indirect impacts:	Loss of moderate current ecological connectivity across the site and associated habitat fragmentation.
Cumulative impact prior to mitigation:	Loss of all natural spaces, corridors and vegetation on site.
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	Very High
Degree to which the impact can be avoided:	Possible
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	→ No erven should intrude significantly into the seasonal wetland portions of the site that support mostly habitat of High ecological sensitivity (as per Figure 4). This means that the following erven should be removed from any authorised layout: 1, 2, 7, 8, 10, 11, 12 and 13. The proposed access road (erf 14) should also be largely removed so that it does not cross the wetland and ecological corridor, and can instead access erf 9 along the southern boundary.

	→ No pipelines, cabling or infrastructure should be installed across the High sensitivity areas or wetlands. → Any boundary fencing used must be permeable to small animals at ground level. → The authorised erf and road boundaries should be surveyed and pegged out and fenced on site prior to any site development. → No areas of natural or partly natural vegetation should be disturbed outside the pegged/fenced out and authorised erven. No vehicular activity or dumping of material may take place outside the authorised erven or roads. → All alien invasive vegetation should be removed from within the natural portions of the project area, prior to any authorised development. Removal of the alien vegetation must be undertaken by a trained and licensed alien vegetation removal team and must be undertaken using methodology outlined in the Best Practise Guidelines (see Martens et al 2021). → The Homeowners Association (HoA, or similar) for the proposed development must ensure that all alien invasive vegetation (as per NEMBA legislation) is removed from the Public Open Space area on an annual basis by qualified contractors, using methodology as prescribed in Martens et al (2021; see below for reference).The HoA must ensure that there is adequate funding for this every year. • In order to try and safeguard the ecological integrity of the No Go wetland areas on Erven 1-8 (also shown in Figure 1) these areas that should not be altered, developed, gardened, covered, excavated, drained, infilled or disturbed in any way. Landowners and the HoA must be made aware of these constraints both prior to and after purchase. Alien invasive plant species should be removed from these areas on an annual basis, as part of the management actions required for the adjacent Private Open Space.
Residual impacts	Loss of sensitive vegetation, open spaces, corridors
Cumulative impact post mitigation:	Loss of natural spaces, loss of ecological connectivity, corridors and vegetation
Significance rating of impact after mitigation e.g. Low, Medium, MediumHigh, High, or Very-High)	High negative
POST-CONSTRUCTION PHASE	
Potential impact and risk:	**4. Wetland loss within the UVBW**
Potential impact:	Site clearance, infilling and compaction will result in alteration of the flow regime for the onsite wetland and even loss of the entire wetland. Pollutants may enter the onsite wetland via stormwater or sewage leaks (although highly unlikely).
Nature of impact:	Negative
Extent and duration of impact:	Local; permanent
Consequence of impact:	High loss of ecological infrastructure as well as aquatic species
Probability of occurrence:	Definite

Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	N/A
Indirect impacts:	Loss of High ecological sensitivity and hydrological connectivity
Cumulative impact prior to mitigation:	High
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	High
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:	→ The significance of this impact can be largely mitigated by demarcating the UVBW as No-Go area during construction. → Bunded, impervious areas that are more than 15 m away from the UVBW must be designated by an Environmental Control Officer for temporary toilets, vehicle parking/servicing areas, and for pouring and mixing of concrete/cement, paint, and chemicals. → The significance of this impact can be largely mitigated by ensuring that SW generated onsite flows into the wetland through an appropriately designed broad, vegetated earth swale (to avoid erosion). → If possible, conduct any rehabilitation activities during summer months (November to March). It is recommended that a suitably qualified aquatic specialist compiles detailed method statements once the final layout of the proposed project has been formalized. → Additionally, a suitable Rehabilitation and Management Plan should be drafted for the wetland area onsite.
Residual impacts	Loss of wetland and ecological connectivity as well as the hydrological connectivity.
Cumulative impact post mitigation:	Loss of wetland and ecological connectivity as well as the hydrological connectivity.
Significance rating of impact after mitigation e.g. Low, Medium, MediumHigh, High, or Very-High)	**High Negative**
POST-CONSTRUCTION PHASE	
Potential impact and risk:	**5. Faunal impacts**
Potential impact:	Continued loss of fauna through introduced domestic animals.
Nature of impact:	Negative
Extent and duration of impact:	Local and long term
Consequence of impact:	High
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	Irreversible
Indirect impacts:	N/A

Cumulative impact prior to mitigation:	High
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	High
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	→ During the construction phase the construction area should be clearly demarcated and blocked off from the 'private open space' area to avoid damage and pollution. → Pre and post construction site preparation should include rehabilitation of the 'private open space' by removing current building rubble and litter from this area. → Long term maintenance of ecological integrity of the 'private open space' is critical. Therefore, measures should be put in place for constant removal of alien vegetation, cleanup of litter and prevention of illegal dumping. Clear legal responsibility for the maintenance of the space should be entrenched to be the responsibility of the homeowners association. → d) The fence traversing the ecological corridor should always be permeable to allow for movement of small sized animals e.g. small antelope, genets, mongoose between the nature reserve and wetland system. → e) Search and Rescue of chameleons and other slow-moving animals is feasible due to the presence of the adjacent nature reserve where they can be released. A search and rescue effort should be implemented before and during construction where animals that are found are released in the adjacent nature reserve. The necessary permission and permits should be attained before this is done. → f) Pets (especially domestic cats) should not be allowed to free-roam the 'private open space'.
Residual impacts:	Loss of all faunal species on the development footprint
Cumulative impact post mitigation:	High Loss of faunal connectivity on site due to post-commencement activities on site.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High negative**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	N/A
Nature of impact:	-
Extent and duration of impact:	-
Consequence of impact or risk:	-
Probability of occurrence:	-
Degree to which the impact may cause irreplaceable loss of resources:	-
Degree to which the impact can be reversed:	-

Indirect impacts:	-
Cumulative impact prior to mitigation:	-
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	-
Degree to which the impact can be avoided:	-
Degree to which the impact can be managed:	-
Degree to which the impact can be mitigated:	-
Proposed mitigation:	-
Residual impacts:	-
Cumulative impact post mitigation:	-
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	-

ALTERNATIVE 2

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**1. Socio-economic impacts**
Potential impact	Job creation during the development /construction phase of the Erven
Nature of impact:	Positive
Extent and duration of impact:	Local; short term
Consequence of impact or risk:	Improved livelihoods of the community
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	N/A
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	Job creation for local community
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High Positive
Degree to which the impact can be avoided:	N/A
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	→ Ensure labour force is sourced locally as far as possible. → A gender balance to be considered during employment.
Residual impacts:	Improved livelihoods Improvement of local economy, skills transfer, investment in the area
Cumulative impact post mitigation:	Job creation and skills transfer to local community
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High Positive**

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**2. Dust**
Potential impact	Dust generated from site clearing and site preparation
Nature of impact:	Negative
Extent and duration of impact:	Local, short term
Consequence of impact or risk:	Visual impacts Nuisance for residents adjacent to the site

Probability of occurrence:	Likely
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	High
Indirect impacts:	Potential for reduced visibility, temporary visual impacts to the general area
Cumulative impact prior to mitigation:	Dust may be generated as a result of earthmoving activities required for construction and development
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High negative
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:	→ Maintain ground cover for as long as possible to reduce the total surface area exposed to wind. Do not clear entire plots and rather clear building sites only → Ensure vehicle speed limits on site are kept to a minimum. → Delivery vehicles to keep loads covered. → Cover fine material stockpiles. → Wet dry and dusty surfaces using non-potable water. → Staff to wear correct PPE if dust is generated for long periods. → Road surfaces to be swept and kept clean of sand and fine materials
Residual impacts:	None
Cumulative impact post mitigation:	Dust generated during construction; mitigation successful
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very-Low Negative
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**3. Noise**
Potential impact	Noise generated from vehicles and machinery during the construction phase.
Nature of impact:	Negative
Extent and duration of impact:	Local, short term
Consequence of impact or risk:	Noise disturbance to transient receptors, i.e. motorists, pedestrians, residents.
Probability of occurrence:	Likely
Degree to which the impact may cause irreplaceable loss of resources:	No resources will be impacted.
Degree to which the impact can be reversed:	High
Indirect impacts:	None
Cumulative impact prior to mitigation:	Noise generated from construction works
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High negative
Degree to which the impact can be avoided:	Medium – High
Degree to which the impact can be managed:	Medium – High

Degree to which the impact can be mitigated:	High
Proposed mitigation:	1. Limit noise levels (e.g. install and maintain silencers on machinery). 2. Provide protective wear for workers i.e. ear plugs. 3. Ensure that construction vehicles and machinery are maintained regularly to reduce noise generation. 4. Restrict construction to normal working hours
Residual impacts:	None
Cumulative impact post mitigation:	Typical noise impacts associated with a construction site
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low Negative**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**4. Visual**
Potential Impact	Visual impacts of construction site and construction activities.
Nature of impact:	Negative
Extent and duration of impact:	Local, short term
Consequence of impact or risk:	Reduce aesthetic value of the site and surrounds
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	High
Indirect impacts:	None
Cumulative impact prior to mitigation:	Short term visual impacts associated with construction
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High negative
Degree to which the impact can be avoided:	Medium
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	→ Good housekeeping of construction site and working areas. → Screen the visual elements of the site camp with netting. → Locate the site camp in a transformed area. → Site officer to walk the site on a daily basis to check for visual impacts and general site aesthetics, particularly prior to weekends and holidays → Officer to ensure that waste and batching areas are correctly screened and secured to prevent spread by wind, rain or animals
Residual impacts:	None
Cumulative impact post mitigation:	Typical visual impacts associated with a construction site
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low Negative

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**5. Ecological Impact**
Potential impact:	During the removal of vegetation for the proposed subdivision and development would be permanent loss of all or most of the existing natural and partly natural vegetation and faunal habitat in the development footprints (most of it gazetted as Endangered vegetation type).
Nature of impact:	Negative
Extent and duration of impact:	Local, Regional; Permanent
Consequence of impact:	Vegetation loss, species loss, diversity loss, connectivity loss Exposure of soil and degradation thereof
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Degree to which the impact can be reversed:	Low
Indirect impacts:	Continued loss of Hangklip Sand Fynbos (CR)
Cumulative impact prior to mitigation:	Loss of natural vegetation and faunal habitat and threatened plant species to ongoing agriculture, urban development and alien plant invasion
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	High
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	→ No erven should intrude significantly into the seasonal wetland portions of the site that support mostly habitat of High ecological sensitivity (as per Figure 4). This means that the following erven should be removed from any authorised layout: 1, 2, 7, 8, 10, 11, 12 and 13. The proposed access road (erf 14) should also be largely removed so that it does not cross the wetland and ecological corridor, and can instead access erf 9 along the southern boundary. → No pipelines, cabling or infrastructure should be installed across the High sensitivity areas or wetlands. → Any boundary fencing used must be permeable to small animals at ground level. → The authorised erf and road boundaries should be surveyed and pegged out and fenced on site prior to any site development. → No areas of natural or partly natural vegetation should be disturbed outside the pegged/fenced out and authorised erven. No vehicular activity or dumping of material may take place outside the authorised erven or roads. → All alien invasive vegetation should be removed from within the natural portions of the project area, prior to any authorised development. Removal of the alien vegetation must be undertaken by a trained and licensed alien

	vegetation removal team and must be undertaken using methodology outlined in the Best Practise Guidelines (see Martens et al 2021). → The Homeowners Association (HoA, or similar) for the proposed development must ensure that all alien invasive vegetation (as per NEMBA legislation) is removed from the Public Open Space area on an annual basis by qualified contractors, using methodology as prescribed in Martens et al (2021; see below for reference).The HoA must ensure that there is adequate funding for this every year. → In order to try and safeguard the ecological integrity of the No Go wetland areas on Erven 1-8 (also shown in Figure 1) these areas that should not be altered, developed, gardened, covered, excavated, drained, infilled or disturbed in any way. Landowners and the HoA must be made aware of these constraints both prior to and after purchase. Alien invasive plant species should be removed from these areas on an annual basis, as part of the management actions required for the adjacent Private Open Space.
Residual impacts	Loss of high sensitivity vegetation
Cumulative impact post mitigation:	Loss of high sensitivity vegetation
Significance rating of impact after mitigation e.g. Low, Medium, MediumHigh, High, or Very-High)	**High negative**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**6. Wetland loss within the delineated UVBW**
Potential impact:	At present, areas of the onsite UVBW will be lost (i.e. complete loss in flow regime, water quality, vegetation, and geomorphic structure) as a result of the private road construction associated with the residential development (minor loss of approximately 0,024 ha (3 %) of the 0,90-ha wetland). The remaining delineated wetland area will be set aside for Private Open Space. The UVBW has a PES score in the D category (Largely Modified), however still offers ecosystem services of moderate importance and exhibits Moderate EIS. The wetland vegetation type is CR and although the fynbos onsite is considered senescent, there could potentially be SoCC. There is also hydrological connection to the Vermont Salt Pan downstream which is an NFEPA designated wetland area.
Nature of impact:	Negative
Extent and duration of impact:	Local; permanent
Consequence of impact:	High loss of ecological infrastructure as well as aquatic species
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	N/A
Indirect impacts:	Loss of High ecological sensitivity and hydrological connectivity
Cumulative impact prior to mitigation:	High
Significance rating of impact prior to mitigation	High

(e.g. Low, Medium, MediumHigh, High, or Very-High)	
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:	→ An Offset, Rehabilitation and Management Plan must be drafted by a suitably qualified specialist.
Residual impacts	Loss of wetland and ecological connectivity as well as the hydrological connectivity.
Cumulative impact post mitigation:	Loss of wetland and ecological connectivity as well as the hydrological connectivity.
Significance rating of impact after mitigation e.g. Low, Medium, MediumHigh, High, or Very-High)	**Medium Negative**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**7. Habitat Disturbance**
Potential impact:	Disturbance of wetland habitat within the UVBW may occur due to the proximity of the proposed residential development, including but not limited to vegetation clearing, infilling, and construction of the housing; as well as the upgrade of the existing sewer pipeline.
Nature of impact:	Negative
Extent and duration of impact:	Local; permanent
Consequence of impact:	Loss of aquatic habitat
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Degree to which the impact can be reversed:	Low – Medium
Indirect impacts:	Reduced habitat areas for animal species as well as foraging
Cumulative impact prior to mitigation:	Medium
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	Medium – High
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low-Medium
Degree to which the impact can be mitigated:	Low- Medium
Proposed mitigation:	– Designate the UVB wetland area as a No Go for construction activities (for both the residential development and the replacement / upgrade of the sewer pipeline). Clearly demarcate the construction footprint (including construction camp, access roads, stockpile areas and working servitudes) with orange hazard tape, fencing or similar prior to the commencement of any activity, and strictly prohibit the movement of construction vehicles and personnel outside of the demarcated areas. – Locate site camps, laydown areas, stockpile areas, construction material, equipment storage areas, vehicle parking areas, bunded vehicle servicing areas and re-fuelling areas in designated areas of already hardened surface or

	disturbed areas located outside of the No Go area. These areas should preferably be located on level ground in a previously disturbed area of vegetation approved by the Environmental Control Officer (ECO). Cut and fill must be avoided where possible during the set-up of the construction site camp. – Demarcation of the construction footprint/working servitude must be signed off by an ECO (or similar). Demarcation should not be removed until construction is complete, and rehabilitation (if applicable) has taken place. – Limit access into the construction footprint to existing access roads. – Prohibit the dumping of excavated material, building materials or removed vegetation within the No Go area. Building material must be stored at the designated storage area located outside of the no-go area. Spoil material must be appropriately disposed of at a registered waste disposal facility. – Undisturbed topsoil and subsoils removed from the construction footprint must be stored separately at the designated stockpile area for future rehabilitation. – Vegetation clearance should be restricted to the relevant development components and indigenous vegetation cover should be maintained as far as practically possible. – Vegetation which is considered suitable for rehabilitation activities after construction (such as indigenous grasses and other herbaceous species) should be carefully removed from the construction footprint and stored at an appropriate facility for use in later rehabilitation activities. – Clear and remove any rubble or litter that may have been accidentally deposited into the no-go area because of construction activities and dispose of at an appropriate registered facility. – An ECO must inspect the construction footprint on a weekly basis and must take immediate measures to address unforeseen disturbances to the wetland. Any disturbed / compacted areas falling outside of the demarcated construction footprint must be immediately rehabilitated. Depending on the extent of damage the method of rehabilitation may require input from an aquatic specialist / suitably qualified contractor. – Once construction has been completed, orange hazard fences as well as all construction waste, rubble, and equipment must be removed from the construction footprint. – In line with the NEMBA, all AIPS listed under the amended AIPS Lists (DEFF: GN1003, 2020) must either be removed or controlled on land under the management of the proponent.

	– An Offset, Rehabilitation and Management Plan must be drafted by a suitably qualified specialist. Rehabilitation must take place as soon as possible after construction is completed, and monitoring of rehabilitated areas must be undertaken. A suitably qualified professional must supervise the rehabilitation and monitoring activities.	
Residual impacts	Loss of wetland habitat and ecological connectivity as well as the hydrological connectivity.	
Cumulative impact post mitigation:	Loss of wetland and ecological connectivity as well as the hydrological connectivity.	
Significance rating of impact after mitigation e.g. Low, Medium, MediumHigh, High, or Very-High)	**Low Negative**	**Medium negative**
PLANNING, DESIGN AND DEVELOPMENT PHASE		
Potential impact:	**8. Altered Flow Regime**	
Nature of impact:	Site clearance, infilling, and compaction will result in alteration of the flow regime of wetland area on the site. Hardened catchment area would result in increased stormwater runoff, velocity and increased flood peaks within the wetland and would also likely result in sedimentation and erosion.	
Nature of impact:	Negative	
Extent and duration of impact:	Local; short-term	
Consequence of impact:	The accumulation of sediments and soil compaction could lead to reduced infiltration capacity, a shift in hydrological functioning, and a loss of habitat suitability for wetland-dependent species.	
Probability of occurrence:	High	
Degree to which the impact may cause irreplaceable loss of resources:	Medium	
Degree to which the impact can be reversed:	Partially reversible	
Indirect impacts:	– Decreased water quality downstream due to increased sedimentation – Disruption of aquatic biodiversity – Impaired ecological services such as flood attenuation and nutrient cycling	
Cumulative impact prior to mitigation:	Medium- High	
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	Medium	
Degree to which the impact can be avoided:	Medium	
Degree to which the impact can be managed:	Medium	
Degree to which the impact can be mitigated:	Medium - High	
Proposed mitigation:	– Designate the wetland area as a No Go for construction activities (for both the residential development and the replacement / upgrade of the sewer pipeline). – The status quo in terms of hydrological connection from Erf 1486 to the downstream system must be maintained /	

	should not be impacted because of the proposed development. – If possible, conduct construction activities of dwellings, associated stormwater infrastructure and any rehabilitation activities during summer months (November to March). – Ensure that effective stormwater management measures are implemented during construction. Stormwater management must ensure that no runoff, which will impair the water quality and lead to increased sedimentation, may enter the downstream wetland area. Additionally, clean SW which does enter the downstream wetland system should do so in a manner that ensures no erosion occurs, specifically during storm events, such as through vegetated swales. – Appropriately designed raft foundations for residential dwellings may significantly reduce the impact on subsurface flow and therefore reduce this impact / risk. – Rainwater harvesting schemes may reduce runoff intensity and thereby mitigate the impact of catchment hardening. – The alien invasive vegetation present within the wetland area must be removed and replanted with indigenous wetland vegetation. – An Offset, Rehabilitation and Management Plan must be drafted by a suitably qualified specialist.
Residual impacts	Minor changes in the timing and magnitude of surface runoff and potential localized compaction near access roads.
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation e.g. Low, Medium, MediumHigh, High, or Very-High)	**Low negative**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact:	**9. Water Quality Impairment**
Nature of impact:	Accidentally spilled cement, construction chemicals, sewage during the upgrade of the pipeline, or petrochemicals from construction vehicles may find their way into the wetland area. Additionally, litter and dumping may occur due to the proximity of the proposed development to the wetland area.
Nature of impact:	Negative
Extent and duration of impact:	Local; short-term
Consequence of impact:	Pollutants such as cement, oils, and sewage can degrade water quality, impact aquatic biodiversity, and reduce the wetland's ecological functioning (e.g., water purification, habitat provision). Toxic substances like cement leachate can be particularly harmful to aquatic flora and fauna, leading to long-term biological stress.
Probability of occurrence:	Likely
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Degree to which the impact can be reversed:	Moderate
Indirect impacts:	– Decline in aquatic biodiversity – Reduced wetland ecosystem services

	– Pollution downstream of the wetland area – Long-term contamination of soil and groundwater if unmanaged.
Cumulative impact prior to mitigation:	Medium to High
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	Medium – High
Degree to which the impact can be avoided:	Medium
Degree to which the impact can be managed:	Medium – High
Degree to which the impact can be mitigated:	Medium- High
Proposed mitigation:	– Designate the wetland area as a No Go for construction activities (for both the residential development and the replacement / upgrade of the sewer pipeline). – The site manager / ECO must check the No Go area for pollution/spills, erosion damage and sedimentation weekly and after every heavy rainfall event. Should pollution, erosion or sedimentation be noted, immediate corrective measures must be undertaken. – Fuel, chemicals, and other hazardous substances should preferably be stored offsite, or as far away as possible from the no-go area. These substances must be stored in suitable secure weather-proof containers with impermeable and bunded floors to limit pilferage, spillage into the environment, flooding, or storm damage. – Inspect all storage facilities, vehicles, and machinery daily for the early detection of deterioration or leaks and strictly prohibit the use of any vehicles or machinery from which leakage has been detected. – Mixing and transferring of chemicals or hazardous substances must take place outside of the No Go area, and must take place on drip trays, shutter boards or other impermeable surfaces. – Drip trays must be utilised at all fuel dispensing areas; and during the maintenance of existing sewer flow as possible. – Vehicles and machinery should preferably be cleaned off site. Should cleaning be required on site it must only take place within designated areas outside of the No Go area and should only occur on bunded areas with a water/oil/grease separator. – Dispose of used oils, wash water from cement and other pollutants at an appropriate licensed landfill site. – Avoid the use of infill material or construction material with pollution / leaching potential. Where possible, in situ earthen materials must be used during construction to reduce the risk of leachate from imported materials contaminating the wetland area. – Concrete should preferably be imported as “ready-mix” concrete from a local supplier. Should onsite concrete mixing be required it must not be done on exposed soils. Concrete

	must be mixed on an impermeable surface in an area of low environmental sensitivity identified by the ECO outside of the no-go area. Surplus or waste concrete must be sent back to the supplier who will dispose of it. – Construct temporary bunds around areas where cement is to be cast in situ. – Dispose of concrete and cement-related mortars in an environmental sensitive manner (can be toxic to aquatic life). Disposal of any of these waste materials into the No Go area is strictly prohibited. – Washout must not be discharged into the no-go area. A washout area should be designated, and wash water should be treated on-site. – Clean up any spillages immediately with the use of a chemical spill kit and dispose of contaminated material at an appropriately registered facility. – Provide portable toilets where work is being undertaken (1 toilet per 10 workers). These toilets must be located within an area designated by the ECO outside of the no-go area and should preferably be located on level ground. Portable toilets must be regularly serviced and maintained. – Provide an adequate number of bins on site and encourage construction personnel to dispose of their waste responsibly. – Waste generated by construction personnel must be removed from the site and disposed of at a registered waste disposal facility on a weekly basis
Residual impacts	Residual impacts may include minor localized contamination from accidental small spills, which can be quickly addressed with spill kits and clean-up procedures.
Cumulative impact post mitigation:	Medium
Significance rating of impact after mitigation e.g. Low, Medium, MediumHigh, High, or Very-High)	**Medium negative**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**10. Faunal impacts**
Potential impact:	Infringement of development footprint on ESA2 corridor and Cape dwarf chameleon, *Bradypodion pumilum* habitat loss and movement impediment.
Nature of impact:	Negative
Extent and duration of impact:	Local and long erm
Consequence of impact:	High
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	Irreversible
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	High

Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	High
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	→ During the construction phase the construction area should be clearly demarcated and blocked off from the 'private open space' area to avoid damage and pollution. → Pre and post construction site preparation should include rehabilitation of the 'private open space' by removing current building rubble and litter from this area. → Long term maintenance of ecological integrity of the 'private open space' is critical. Therefore, measures should be put in place for constant removal of alien vegetation, cleanup of litter and prevention of illegal dumping. Clear legal responsibility for the maintenance of the space should be entrenched to be the responsibility of the homeowners association. → The fence traversing the ecological corridor should always be permeable to allow for movement of small sized animals e.g. small antelope, genets, mongoose between the nature reserve and wetland system. → Search and Rescue of chameleons and other slow-moving animals is feasible due to the presence of the adjacent nature reserve where they can be released. A search and rescue effort should be implemented before and during construction where animals that are found are released in the adjacent nature reserve. The necessary permission and permits should be attained before this is done. → Pets (especially domestic cats) should not be allowed to free-roam the 'private open space'.
Residual impacts:	Loss of all faunal species on the development footprint
Cumulative impact post mitigation:	High Loss of faunal connectivity on site as a result of development footprint
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High negative**
POST-CONSTRUCTION PHASE	
Potential impact and risk:	**1. Socioeconomic**
Potential Impact	Access to employment for the community during the operational phase, Job creation, Provision of residential erven in response to provincial demand, investment in the area
Nature of impact:	Positive
Extent and duration of impact:	Local; long term

Consequence of impact or risk:	Improved livelihoods beneficiaries, influx of people to the area, investment in the area, spending in the area
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	N/A
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	Access to employment for the community during the operational phase, Job creation, Provision of residential erven in response to provincial demand, investment in the area
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High positive
Degree to which the impact can be avoided:	N/A
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	N/A
Proposed mitigation:	-
Residual impacts:	Investment in the area, attraction to the area, spending in the area
Cumulative impact post mitigation:	Investment in the area, attraction to the area, spending in the area Access to employment for the community during the operational phase, Job creation, Provision of residential erven in response to provincial demand, investment in the area
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High positive
POST-CONSTRUCTION PHASE	
Potential impact and risk:	**2. Visual Impact**
Potential Impact	Typical Visual impacts associated with the operational phase of a residential dwelling or group of residential dwellings that may lead to changes in sense of place of the individual from what was there and to what has now changed.
Nature of impact:	Negative – changes in the visual aesthetics of the area during the operational phase. Positive- infill development within an urban area as opposed to the alienation of new land, contributing to more sustainable land use.
Extent and duration of impact:	Long term, local to regional
Consequence of impact or risk:	Risk – visual impact of operation within landscape and suburb
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	High
Indirect impacts:	Loss of sense of place due to the removal of the natural vegetation that is appealing to nature lovers
Cumulative impact prior to mitigation:	Short term impacts associated with changes of the built infrastructure.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High negative

Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	High
Proposed mitigation:	→ Implement landscaping strategies to minimize the visual impact of construction and operational activities. → Incorporate green design principles into the development to enhance aesthetics and mitigate negative visual effects. → Communicate with the community to ensure understanding and acceptance of the changes in the visual character. → Consider the use of native vegetation in landscaping to maintain a natural feel and reduce visual disruptions.
Residual impacts:	None
Cumulative impact post mitigation:	Typical visual impacts associated with operational phase
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**
POST-CONSTRUCTION PHASE	
Potential impact and risk:	**3. Ecological**
Potential impact:	Loss of current moderate levels of ecological connectivity across the site (essentially only W-E connectivity is now available), and associated habitat fragmentation. Loss of ability for natural fires Loss of sensitive botanical areas and vegetation Reduction in natural habitat
Nature of impact:	Negative – ecological impacts Positive – infill development within urban area as opposed to alienation of new land
Extent and duration of impact:	Permanent, local to regional
Consequence of impact:	Loss of all available natural or partly natural faunal habitat on site. Loss of natural spaces, corridors and high ecological species.
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	N/A
Indirect impacts:	Loss of moderate current ecological connectivity across the site and associated habitat fragmentation.
Cumulative impact prior to mitigation:	Loss of all natural spaces, corridors and vegetation on site.
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	Very High
Degree to which the impact can be avoided:	Possible
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	→ No erven should intrude significantly into the seasonal wetland portions of the site that support mostly habitat of High ecological sensitivity (as per Figure 4). This means that the following erven should be removed from any authorised

	layout: 1, 2, 7, 8, 10, 11, 12 and 13. The proposed access road (erf 14) should also be largely removed so that it does not cross the wetland and ecological corridor, and can instead access erf 9 along the southern boundary. → No pipelines, cabling or infrastructure should be installed across the High sensitivity areas or wetlands. → Any boundary fencing used must be permeable to small animals at ground level. → The authorised erf and road boundaries should be surveyed and pegged out and fenced on site prior to any site development. → No areas of natural or partly natural vegetation should be disturbed outside the pegged/fenced out and authorised erven. No vehicular activity or dumping of material may take place outside the authorised erven or roads. → All alien invasive vegetation should be removed from within the natural portions of the project area, prior to any authorised development. Removal of the alien vegetation must be undertaken by a trained and licensed alien vegetation removal team and must be undertaken using methodology outlined in the Best Practise Guidelines (see Martens et al 2021). → The Homeowners Association (HoA, or similar) for the proposed development must ensure that all alien invasive vegetation (as per NEMBA legislation) is removed from the Public Open Space area on an annual basis by qualified contractors, using methodology as prescribed in Martens et al (2021; see below for reference).The HoA must ensure that there is adequate funding for this every year. → In order to try and safeguard the ecological integrity of the No Go wetland areas on Erven 1-8 (also shown in Figure 1) these areas that should not be altered, developed, gardened, covered, excavated, drained, infilled or disturbed in any way. Landowners and the HoA must be made aware of these constraints both prior to and after purchase. Alien invasive plant species should be removed from these areas on an annual basis, as part of the management actions required for the adjacent Private Open Space.
Residual impacts	Loss of sensitive vegetation, open spaces, corridors
Cumulative impact post mitigation:	Loss of natural spaces, loss of ecological connectivity, corridors and vegetation
Significance rating of impact after mitigation e.g. Low, Medium, MediumHigh, High, or Very-High)	**High negative**
POST-CONSTRUCTION PHASE	
Potential impact and risk:	**4. Wetland loss within the delineated UVBW**
Potential impact:	Site clearance, infilling and compaction will result in alteration of the flow regime for the onsite wetland and even loss of the entire wetland. Pollutants may enter the onsite wetland via stormwater or sewage leaks (although highly unlikely).

Nature of impact:	Negative
Extent and duration of impact:	Local; permanent
Consequence of impact:	High loss of ecological infrastructure as well as aquatic species
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	N/A
Indirect impacts:	Loss of High ecological sensitivity and hydrological connectivity
Cumulative impact prior to mitigation:	High
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:	N/A
Degree to which the impact can be managed:	N/A
Degree to which the impact can be mitigated:	N/A
Proposed mitigation:	→ The significance of this impact can be largely mitigated by demarcating the UVBW as No-Go area during construction. → Bunded, impervious areas that are more than 15 m away from the UVBW must be designated by an Environmental Control Officer for temporary toilets, vehicle parking/servicing areas, and for pouring and mixing of concrete/cement, paint, and chemicals. → The significance of this impact can be largely mitigated by ensuring that SW generated onsite flows into the wetland through an appropriately designed broad, vegetated earth swale (to avoid erosion). → If possible, conduct any rehabilitation activities during summer months (November to March). It is recommended that a suitably qualified aquatic specialist compiles detailed method statements once the final layout of the proposed project has been formalized. → Additionally, a suitable Rehabilitation and Management Plan should be drafted for the wetland area onsite.
Residual impacts	Loss of wetland and ecological connectivity as well as the hydrological connectivity.
Cumulative impact post mitigation:	Loss of wetland and ecological connectivity as well as the hydrological connectivity.
Significance rating of impact after mitigation e.g. Low, Medium, MediumHigh, High, or Very-High)	**High Negative**
POST-CONSTRUCTION PHASE	
Potential impact and risk:	**5. Faunal impacts**
Potential impact:	• Infringement of development footprint on ESA2 corridor. • Cape dwarf chameleon, *Bradypodion pumilum* habitat loss and movement impediment.
Nature of impact:	Negative

Extent and duration of impact:	Local and long erm
Consequence of impact:	High
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	Irreversible
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	High
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	High
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	Amending layout
Residual impacts:	Loss of all faunal species on the development footprint
Cumulative impact post mitigation:	High Loss of faunal connectivity on site as a result of development footprint
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High negative**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**N/A**
Nature of impact:	-
Extent and duration of impact:	-
Consequence of impact or risk:	-
Probability of occurrence:	-
Degree to which the impact may cause irreplaceable loss of resources:	-
Degree to which the impact can be reversed:	-
Indirect impacts:	-
Cumulative impact prior to mitigation:	-
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	-
Degree to which the impact can be avoided:	-
Degree to which the impact can be managed:	-
Degree to which the impact can be mitigated:	-
Proposed mitigation:	-
Residual impacts:	-
Cumulative impact post mitigation:	-
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	-

ALTERNATIVE 3 (PREFERRED)

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**1. Socioeconomic impacts**
Potential impact	Job creation during the development /construction phase of the Erven
Nature of impact:	Positive
Extent and duration of impact:	local; short-term
Consequence of impact or risk:	Improved livelihoods of the community
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	N/A
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	Job creation for local community
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High Positive
Degree to which the impact can be avoided:	N/A
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	1. Ensure labour force is sourced locally as far as possible. 2. A gender balance to be considered during employment.
Residual impacts:	1. Improved livelihoods 2. Improvement of local economy, skills transfer, investment in the area
Cumulative impact post mitigation:	Job creation and skills transfer to local community
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High positive

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**2. Dust**
Potential impact	Dust generated from site clearing and site preparation
Nature of impact:	Negative
Extent and duration of impact:	Local, short term
Consequence of impact or risk:	Visual impacts Nuisance for residents adjacent to the site
Probability of occurrence:	Likely
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	High
Indirect impacts:	Potential for reduced visibility, temporary visual impacts to the general area
Cumulative impact prior to mitigation:	Dust may be generated as a result of earthmoving activities required for construction and development
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High negative
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:	→ Maintain ground cover for as long as possible to reduce the total surface area exposed to wind. Do not clear entire plots and rather clear building sites only → Ensure vehicle speed limits on site are kept to a minimum. → Delivery vehicles to keep loads covered. → Cover fine material stockpiles. → Wet dry and dusty surfaces using non-potable water. → Staff to wear correct PPE if dust is generated for long periods. → Road surfaces to be swept and kept clean of sand and fine materials
Residual impacts:	None
Cumulative impact post mitigation:	Dust generated during construction; mitigation successful
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very-Low Negative
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**3. Noise**
Potential impact	Noise generated from vehicles and machinery during the construction phase.
Nature of impact:	Negative
Extent and duration of impact:	Local, short term
Consequence of impact or risk:	Noise disturbance to transient receptors, i.e. motorists, pedestrians, residents.
Probability of occurrence:	Likely
Degree to which the impact may cause irreplaceable loss of resources:	No resources will be impacted.
Degree to which the impact can be reversed:	High
Indirect impacts:	None
Cumulative impact prior to mitigation:	Noise generated from construction works
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High negative
Degree to which the impact can be avoided:	Medium – High
Degree to which the impact can be managed:	Medium – High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	→ Limit noise levels (e.g. install and maintain silencers on machinery). → Provide protective wear for workers i.e. ear plugs. → Ensure that construction vehicles and machinery are maintained regularly to reduce noise generation. → Restrict construction to normal working hours
Residual impacts:	None
Cumulative impact post mitigation:	Typical noise impacts associated with a construction site
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low Negative**

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**4. Visual**
Potential Impact	Visual impacts of construction site and construction activities.
Nature of impact:	Negative
Extent and duration of impact:	Local, short term
Consequence of impact or risk:	Reduce aesthetic value of the site and surrounds
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	High
Indirect impacts:	None
Cumulative impact prior to mitigation:	Short term visual impacts associated with construction
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High negative
Degree to which the impact can be avoided:	Medium
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	→ Good housekeeping of construction site and working areas. → Screen the visual elements of the site camp with netting. → Locate the site camp in a transformed area. → Site officer to walk the site on a daily basis to check for visual impacts and general site aesthetics, particularly prior to weekends and holidays → Officer to ensure that waste and batching areas are correctly screened and secured to prevent spread by wind, rain or animals.
Residual impacts:	None
Cumulative impact post mitigation:	Typical visual impacts associated with a construction site
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low Negative

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**5. Ecological Impact**
Potential impact:	During the removal of vegetation for the proposed subdivision and development would be permanent loss of all or most of the existing natural and partly natural vegetation and faunal habitat in the development footprints (most of it gazetted as Endangered vegetation type). The proposed residential erven with the new alternative layout now exclude most of the High sensitivity areas (as required in my first bullet point of mitigation), and only about 500m^2 of high sensitivity habitat will now be lost.
Nature of impact:	Negative
Extent and duration of impact:	Local, Regional; Permanent
Consequence of impact:	Vegetation loss, species loss, diversity loss, connectivity loss Exposure of soil and degradation thereof
Probability of occurrence:	Definite

Degree to which the impact may cause irreplaceable loss of resources:	Medium
Degree to which the impact can be reversed:	Low
Indirect impacts:	Continued loss of Hangklip Sand Fynbos (CR)
Cumulative impact prior to mitigation:	Loss of natural vegetation and faunal habitat and threatened plant species to ongoing agriculture, urban development and alien plant invasion
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	High
Degree to which the impact can be avoided:	Medium
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	→ No erven should intrude significantly into the seasonal wetland portions of the site that support mostly habitat of High ecological sensitivity. This means that the following erven should be removed from any authorised layout: 1, 2, 7, 8, 10, 11, 12 and 13. The proposed access road (erf 14) should also be largely removed so that it does not cross the wetland and ecological corridor and can instead access erf 9 along the southern boundary. The proposed new layout (Alternative 3) is amended and changed according to the above mitigation measures and thus revolved into an "acceptable" ecological impact rating. → No pipelines, cabling or infrastructure should be installed across the High sensitivity areas or wetlands. → Any boundary fencing used must be permeable to small animals at ground level. → The authorised erf and road boundaries should be surveyed and pegged out and fenced on site prior to any site development. → No areas of natural or partly natural vegetation should be disturbed outside the pegged/fenced out and authorised erven. No vehicular activity or dumping of material may take place outside the authorised erven or roads. → All alien invasive vegetation should be removed from within the natural portions of the project area, prior to any authorised development. Removal of the alien vegetation must be undertaken by a trained and licensed alien vegetation removal team and must be undertaken using methodology outlined in the Best Practise Guidelines (see Martens *et al* 2021). → The Homeowners Association (HoA, or similar) for the proposed development must ensure that all alien invasive vegetation (as per NEMBA legislation) is removed from the Public Open Space area on an annual basis by qualified contractors, using methodology as prescribed in Martens *et al* (2021; see below for reference). The HoA must ensure that there is adequate funding for this every year.

	→ In order to try and safeguard the ecological integrity of the No Go wetland areas on Erven 1-8 (also shown in Figure 1) these areas that should not be altered, developed, gardened, covered, excavated, drained, infilled or disturbed in any way. Landowners and the HoA must be made aware of these constraints both prior to and after purchase. Alien invasive plant species should be removed from these areas on an annual basis, as part of the management actions required for the adjacent Private Open Space.
Residual impacts	Loss of high sensitivity vegetation
Cumulative impact post mitigation:	Loss of high sensitivity vegetation
Significance rating of impact after mitigation e.g. Low, Medium, Medium High, High, or Very-High)	**Medium negative**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**1. Wetland loss within the delineated UVBW**
Potential impact:	Site clearance, infilling and compaction will result in alteration of the flow regime for the onsite wetland and even loss of the entire wetland. Pollutants may enter the onsite wetland via stormwater or sewage leaks (although highly unlikely).
Nature of impact:	Negative
Extent and duration of impact:	Local; permanent
Consequence of impact:	loss of ecological infrastructure as well as aquatic species.
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	Loss of High ecological sensitivity and hydrological connectivity
Cumulative impact prior to mitigation:	Medium
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medum High
Degree to which the impact can be avoided:	Medium
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	→ An Offset, Rehabilitation and Management Plan must be drafted by a suitably qualified specialist.
Residual impacts	Loss of wetland and ecological connectivity as well as the hydrological connectivity.
Cumulative impact post mitigation:	Loss of wetland and ecological connectivity as well as the hydrological connectivity.
Significance rating of impact after mitigation e.g. Low, Medium, Medium High, High, or Very-High)	**Medium negative**

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**2. Disturbance of Wetland Habitat**
Potential impact:	Disturbance of wetland habitat within the UVBW may occur due to the proximity of the proposed residential development, including but not limited to vegetation clearing, infilling, and construction of the housing; as well as the upgrade of the existing sewer pipeline.
Nature of impact:	Negative
Extent and duration of impact:	Local; Short-term
Consequence of impact:	Disturbance to aquatic habitat
Probability of occurrence:	Possible
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Medium
Indirect impacts:	Reduction to aquatic biodiversity
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:	Low-Medium
Degree to which the impact can be managed:	Medium – High
Degree to which the impact can be mitigated:	Medium High
Proposed mitigation:	→ Designate the UVB wetland area as a No Go for construction activities (for both the residential development and the replacement / upgrade of the sewer pipeline). Clearly demarcate the construction footprint (including construction camp, access roads, stockpile areas and working servitudes) with orange hazard tape, fencing or similar prior to the commencement of any activity, and strictly prohibit the movement of construction vehicles and personnel outside of the demarcated areas. → Locate site camps, laydown areas, stockpile areas, construction material, equipment storage areas, vehicle parking areas, bunded vehicle servicing areas and re-fuelling areas in designated areas of already hardened surface or disturbed areas located outside of the No Go area. These areas should preferably be located on level ground in a previously disturbed area of vegetation approved by the Environmental Control Officer (ECO). Cut and fill must be avoided where possible during the set-up of the construction site camp. → Demarcation of the construction footprint/working servitude must be signed off by an ECO (or similar). Demarcation should not be removed until construction is complete, and rehabilitation (if applicable) has taken place. → Limit access into the construction footprint to existing access roads. → Prohibit the dumping of excavated material, building materials or removed vegetation within the No Go area. Building material must be stored at the designated storage area located outside of the no-go area. Spoil material must be

	appropriately disposed of at a registered waste disposal facility. → Undisturbed topsoil and subsoils removed from the construction footprint must be stored separately at the designated stockpile area for future rehabilitation. → Vegetation clearance should be restricted to the relevant development components and indigenous vegetation cover should be maintained as far as practically possible. → Vegetation which is considered suitable for rehabilitation activities after construction (such as indigenous grasses and other herbaceous species) should be carefully removed from the construction footprint and stored at an appropriate facility for use in later rehabilitation activities. → Clear and remove any rubble or litter that may have been accidentally deposited into the no-go area because of construction activities and dispose of at an appropriate registered facility. → An ECO must inspect the construction footprint on a weekly basis and must take immediate measures to address unforeseen disturbances to the wetland. Any disturbed / compacted areas falling outside of the demarcated construction footprint must be immediately rehabilitated. Depending on the extent of damage the method of rehabilitation may require input from an aquatic specialist / suitably qualified contractor. → Once construction has been completed, orange hazard fences as well as all construction waste, rubble, and equipment must be removed from the construction footprint. → In line with the NEMBA, all AIPS listed under the amended AIPS Lists (DEFF: GN1003, 2020) must either be removed or controlled on land under the management of the proponent. → An Offset, Rehabilitation and Management Plan must be drafted by a suitably qualified specialist. Rehabilitation must take place as soon as possible after construction is completed, and monitoring of rehabilitated areas must be undertaken. A suitably qualified professional must supervise the rehabilitation and monitoring activities.
Residual impacts	Possible decline in aquatic fauna.
Cumulative impact post mitigation:	Low – restoration of the aquatic habitat through rehabilitation of the wetland area on site.
Significance rating of impact after mitigation e.g. Low, Medium, Medium High, High, or Very-High)	**Low (-)**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**3. Altered flow regime**
Potential impact:	Site clearance, infilling, and compaction will result in alteration of the flow regime of wetland area on the site. Hardened catchment area would result in increased stormwater runoff, velocity and increased flood peaks within the wetland and would also likely result in sedimentation and erosion.

Nature of impact:	Negative
Extent and duration of impact:	Local; Short-term
Consequence of impact:	Disruption of wetland hydrology, increased erosion and sedimentation, degradation of aquatic habitat
Probability of occurrence:	Likely
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Degree to which the impact can be reversed:	Medium
Indirect impacts:	Altered sediment transport dynamics, loss of wetland function, downstream ecological impacts
Cumulative impact prior to mitigation:	Medium – High
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:	Medium
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium – High
Proposed mitigation:	→ Designate the wetland area as a No Go for construction activities (for both the residential development and the replacement / upgrade of the sewer pipeline). → The site manager / ECO must check the No Go area for pollution/spills, erosion damage and sedimentation weekly and after every heavy rainfall event. Should pollution, erosion or sedimentation be noted, immediate corrective measures must be undertaken. → Fuel, chemicals, and other hazardous substances should preferably be stored offsite, or as far away as possible from the no-go area. These substances must be stored in suitable secure weather-proof containers with impermeable and bunded floors to limit pilferage, spillage into the environment, flooding, or storm damage. → Inspect all storage facilities, vehicles, and machinery daily for the early detection of deterioration or leaks and strictly prohibit the use of any vehicles or machinery from which leakage has been detected. → Mixing and transferring of chemicals or hazardous substances must take place outside of the No Go area, and must take place on drip trays, shutter boards or other impermeable surfaces. → Drip trays must be utilised at all fuel dispensing areas; and during the maintenance of existing sewer flow as possible. → Vehicles and machinery should preferably be cleaned off site. Should cleaning be required on site it must only take place within designated areas outside of the No Go area and should only occur on bunded areas with a water/oil/grease separator. → Dispose of used oils, wash water from cement and other pollutants at an appropriate licensed landfill site. → Avoid the use of infill material or construction material with pollution / leaching potential. Where possible, in situ earthen materials must be used during construction to reduce the risk of leachate from imported materials contaminating the wetland area. → Concrete should preferably be imported as “ready-mix” concrete from a local supplier. Should onsite concrete mixing be required it must not be done on exposed soils. Concrete must be mixed on an impermeable surface in an area of low

	environmental sensitivity identified by the ECO outside of the no-go area. Surplus or waste concrete must be sent back to the supplier who will dispose of it. → Construct temporary bunds around areas where cement is to be cast in situ. → Dispose of concrete and cement-related mortars in an environmental sensitive manner (can be toxic to aquatic life). Disposal of any of these waste materials into the No Go area is strictly prohibited. → Washout must not be discharged into the no-go area. A washout area should be designated, and wash water should be treated on-site. → Clean up any spillages immediately with the use of a chemical spill kit and dispose of contaminated material at an appropriately registered facility. → Provide portable toilets where work is being undertaken (1 toilet per 10 workers). These toilets must be located within an area designated by the ECO outside of the no-go area and should preferably be located on level ground. Portable toilets must be regularly serviced and maintained. → Provide an adequate number of bins on site and encourage construction personnel to dispose of their waste responsibly. → Waste generated by construction personnel must be removed from the site and disposed of at a registered waste disposal facility on a weekly basis.
Residual impacts	Altered runoff characteristics, potential for minor ongoing erosion if vegetation fails to establish
Cumulative impact post mitigation:	Low – altered runoff characteristics may occur during the flooding event. However, the impact will be managed through proposed mitigation measures.
Significance rating of impact after mitigation e.g. Low, Medium, Medium High, High, or Very-High)	**Low (-)**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**4. Faunal impact**
Potential impact:	• Infringement on ESA2 corridor which will influence connectivity facilitating animal movement. • Cape dwarf chameleon, *Bradypodion pumilum* habitat loss and movement impediment
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term
Consequence of impact:	Medium
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Degree to which the impact can be reversed:	Irreversible
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	Medium - Disturbance and loss of faunal habitat
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	Medium
Degree to which the impact can be avoided:	Medium

Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	High
Proposed mitigation:	→ The fence traversing the ecological corridor should be permeable to allow for movement of small sized animals e.g. otters, small antelope between the nature reserve and wetland system. → Search and Rescue of chameleons and other slow-moving animals is feasible due to the presence of the adjacent nature reserve. A search and rescue effort should be implemented before and during construction where animals that are found are released in the adjacent nature reserve. → Long term maintenance of ecological integrity of the 'private open space' is critical. Therefore, measures should be put in place for constant removal of alien vegetation, cleanup of litter and prevention of illegal dumping. → Pre and post construction site preparation should include rehabilitation of the 'private open space' by removing current building rubble and litter from this area.
Residual impacts	Medium
Cumulative impact post mitigation:	Medium - It is likely that some of their habitat will be lost on the development footprint and the disturbance during construction phase
Significance rating of impact after mitigation e.g. Low, Medium, Medium High, High, or Very-High)	**Medium negative**
POST CONSTRUCTION	
Potential impact and risk:	**1. Socioeconomic**
Potential Impact	Access to employment for the community during the operational phase, Job creation, Provision of residential erven in response to provincial demand, investment in the area
Nature of impact:	Positive
Extent and duration of impact:	Local; long term
Consequence of impact or risk:	Improved livelihoods beneficiaries, influx of people to the area, investment in the area, spending in the area
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	N/A
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	Access to employment for the community during the operational phase, Job creation, Provision of residential erven in response to provincial demand, investment in the area
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High positive
Degree to which the impact can be avoided:	N/A
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	N/A
Proposed mitigation:	-
Residual impacts:	Investment in the area, attraction to the area, spending in the area
Cumulative impact post mitigation:	Investment in the area, attraction to the area, spending in the area

	Access to employment for the community during the operational phase, Job creation, Provision of residential erven in response to provincial demand, investment in the area
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High positive
POST CONSTRUCTION	
Potential impact and risk:	**2. Visual Impact**
Potential Impact	Typical Visual impacts associated with the operational phase of a residential dwelling or group of residential dwellings that may lead to changes in sense of place of the individual from what was there and to what has now changed.
Nature of impact:	Negative – changes in the visual aesthetics of the area during the operational phase. Positive- infill development within an urban area as opposed to the alienation of new land, contributing to more sustainable land use.
Extent and duration of impact:	Long term, local to regional
Consequence of impact or risk:	Risk – visual impact of operation within landscape and suburb
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	High
Indirect impacts:	Loss of sense of place due to the removal of the natural vegetation that is appealing to nature lovers
Cumulative impact prior to mitigation:	Short term impacts associated with changes of the built infrastructure.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High negative
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	High
Proposed mitigation:	• Implement landscaping strategies to minimize the visual impact of construction and operational activities. • Incorporate green design principles into the development to enhance aesthetics and mitigate negative visual effects. • Communicate with the community to ensure understanding and acceptance of the changes in the visual character. • Consider the use of native vegetation in landscaping to maintain a natural feel and reduce visual disruptions.
Residual impacts:	None
Cumulative impact post mitigation:	Typical visual impacts associated with operational phase
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**
POST CONSTRUCTION	
Potential impact and risk:	**3. Ecological**

Potential impact:	Loss of current moderate levels of ecological connectivity across the site (essentially only W-E connectivity is now available), and associated habitat fragmentation. Loss of ability for natural fires Loss of sensitive botanical areas and vegetation Reduction in natural habitat
Nature of impact:	Negative – ecological impacts Positive – infill development within urban area as opposed to alienation of new land
Extent and duration of impact:	Permanent, local to regional
Consequence of impact:	Loss of all available natural or partly natural faunal habitat on site. Loss of natural spaces, corridors and high ecological species.
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	N/A
Indirect impacts:	Loss of moderate current ecological connectivity across the site and associated habitat fragmentation.
Cumulative impact prior to mitigation:	Loss of all natural spaces, corridors and vegetation on site.
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	Medium
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	• No areas of natural or partly natural vegetation should be disturbed outside the pegged/fenced out and authorised erven. No vehicular activity or dumping of material may take place outside the authorised erven or roads. • All alien invasive vegetation should be removed from within the natural portions of the project area, prior to any authorised development. Removal of the alien vegetation must be undertaken by a trained and licensed alien vegetation removal team and must be undertaken using methodology outlined in the Best Practise Guidelines (see Martens et al 2021). • The Homeowners Association (HoA, or similar) for the proposed development must ensure that all alien invasive vegetation (as per NEMBA legislation) is removed from the Public Open Space area on an annual basis by qualified contractors, using methodology as prescribed in Martens et al (2021; see below for reference). The HoA must ensure that there is adequate funding for this every year. • In order to try and safeguard the ecological integrity of the No Go wetland areas on Erven 1-8 (also shown in Figure 1) these areas that should not be altered, developed, gardened, covered, excavated, drained, infilled or disturbed in any way. Landowners and the HoA must be made aware of these constraints both prior to and after purchase. Alien invasive plant species should be removed from these areas on an

	annual basis, as part of the management actions required for the adjacent Private Open Space.
Residual impacts	Loss of sensitive vegetation, open spaces, corridors
Cumulative impact post mitigation:	Loss of natural spaces, loss of ecological connectivity, corridors and vegetation
Significance rating of impact after mitigation e.g. Low, Medium, MediumHigh, High, or Very-High)	Medium negative
POST CONSTRUCTION	
Potential impact and risk:	**4. Habitat Disturbance**
Potential impact:	Disturbance of wetland habitat within the UVBW may occur due to the proximity of the proposed residential development, including but not limited to vegetation clearing, infilling, and construction of the housing; as well as the upgrade of the existing sewer pipeline.
Nature of impact:	Negative
Extent and duration of impact:	Local; short-term
Consequence of impact:	Continued loss of wetland habitat species due to footprint.
Probability of occurrence:	Likely
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low-Medium
Indirect impacts:	Reduction in wetland habitat.
Cumulative impact prior to mitigation:	High
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	Low
Degree to which the impact can be avoided:	Medium
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium – High
Proposed mitigation:	→ Prohibit littering and dumping within the wetland area. Clear and remove any rubble or litter that may have been accidentally deposited into the wetland and dispose of at an appropriate registered facility. Monitoring of litter/dumping within the wetland must be managed by a Homeowners Association (HoA). → In line with the NEMBA, all AIPS listed under the amended AIPS Lists (DEFF: GN1003, 2020) must either be removed or controlled on land under the management of the proponent. → Vegetation which needs to be re-planted (if applicable) within each northern Erf (Figure 7-1) should be planted with indigenous vegetation, which would be considered an adequate buffer during operational phase considering the nature of development (single residential dwellings).
Residual impacts	Wetland d ecosystem recovery due to introduction of indigenous wetland species during rehabilitation.
Cumulative impact post mitigation:	Low-

Significance rating of impact after mitigation e.g. Low, Medium, Medium High, High, or Very-High)	**Low negative**
POST CONSTRUCTION	
Potential impact and risk:	**5. Altered flow regime**
Potential impact:	Site clearance, infilling and compaction will result in alteration of the flow regime for the UVBW. Site clearance, infilling, and compaction will result in alteration of the flow regime of wetland area. Hardened catchment area would result in increased stormwater runoff, velocity and increased flood peaks within the wetland and would also likely result in sedimentation and erosion.
Nature of impact:	Negative
Extent and duration of impact:	Local; short-term
Consequence of impact:	Accumulation of sediment material and sand to stormwater culverts and permeable swales due to stormwater runoff during flooding event contributing to altered hydrological flow in some areas.
Probability of occurrence:	Likely
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Medium
Indirect impacts:	→ Disruption of natural drainage patterns → Increased maintenance requirements for stormwater infrastructure → Possible degradation of wetland habitat integrity → Risk of downstream flooding impacts
Cumulative impact prior to mitigation:	Medium
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	Medium
Degree to which the impact can be avoided:	Medium
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	→ Vegetation which needs to be re-planted (if applicable) within each northern Erf (Figure 7-1 of the Aquatic Biodiversity Assessment) should be planted with indigenous vegetation, which would be considered an adequate buffer during operational phase considering the nature of development (single residential dwellings). → Runoff from the proposed development must not increase from the pre-development to the post-development scenario. → The status quo in terms of hydrological connection from Erf 1486 to the downstream system must be maintained / should not be impacted because of the proposed development. → Discharge stormwater from rooftops into rain harvesting tanks. This will limit the volumes of stormwater runoff that will reach the wetland area. Where possible, water collected in

	rain harvesting tanks can be utilized for flushing of toilets, washing etc. → Stormwater runoff should preferably be discharged as diffuse flow into well vegetated areas outside of the wetland. → Energy dissipaters / erosion protection measures (such as lining with stones, grass, reno-mattresses, or gabions) must be constructed where stormwater is released to reduce the runoff velocity and therefore erosion. → Sheet runoff from hardened surfaces must be intercepted and the treatment and infiltration of runoff must be promoted. → Sediment traps should be incorporated into stormwater drains / swales upstream of any discharge points. → Monitor the wetland area for erosion and sedimentation after heavy rainfall events. Any erosion noted must be immediately addressed. Rehabilitation measures may include the removal of accumulated sediment by hand, filling of erosion gullies and rills, the stabilisation of gullies with silt fences, riprap, and the revegetation of stabilised areas. → Stormwater systems will require ongoing maintenance. Any build-up of silt or debris within stormwater drains or swales will need to be cleared to ensure the continued functioning of the systems. → Any damage to stormwater infrastructure, and any flaws identified in the functionality of stormwater infrastructure, must be rectified immediately. → Appropriately designed raft foundations for residential dwellings may significantly reduce the impact on subsurface flow and therefore reduce risk. → Rainwater harvesting schemes may reduce runoff intensity and thereby mitigate the impact of catchment hardening.	
Residual impacts	Possible minor alterations to local hydrology; some stormwater infrastructure may require long-term monitoring and adaptation	
Cumulative impact post mitigation:	Low	
Significance rating of impact after mitigation e.g. Low, Medium, Medium High, High, or Very-High)	**Low (-)**	**Medium (-)**
POST CONSTRUCTION		
Potential impact and risk:	**6. Water Quality impairment**	
Potential impact:	Vegetation which needs to be re-planted (if applicable) within each northern Erf (Figure 7-1 of the Aquatic Biodiversity Assessment) should be planted with indigenous vegetation, which would be considered an adequate buffer during operational phase considering the nature of development (single residential dwellings). Pollutants may enter the wetland via stormwater or sewage leaks (although highly unlikely). However, with the inclusion of stormwater design measures which allow for the infiltration and treatment of stormwater this impact can be greatly reduced	
Nature of impact:	Negative	
Extent and duration of impact:	Local; short-term	

Consequence of impact:	Degradation of water quality in the UVBW wetland system; increased nutrient loads may promote algal growth, reduce dissolved oxygen levels, and harm aquatic biota.
Probability of occurrence:	Likely
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Medium
Indirect impacts:	• Reduction in aquatic species diversity • Bioaccumulation of pollutants in wetland fauna • Loss of ecosystem services such as water purification and nutrient cycling • Impacts on downstream water users and aquatic habitats
Cumulative impact prior to mitigation:	Medium (when considered in combination with other regional developments and climate change-related runoff changes)
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	Medium
Degree to which the impact can be avoided:	Medium
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	→ Design a SWMP which will allow for the infiltration and treatment of stormwater. All stormwaters must receive basic filtering and treatment prior to its release. → Incorporate measures into the stormwater design to trap solid waste, debris and sediment carried by stormwater. Measures may include the use of curb inlet drain grates and debris baskets/bags. → Stormwater generated from areas with a higher risk of contamination such as parking areas and roads (as applicable) must receive basic filtering and treatment prior to its release into surrounding areas. → Stormwater systems must be monitored and maintained into perpetuity and collections of debris and solid waste removed from grates and baskets. The developer must confirm who will be responsible for this monitoring and maintenance as well as their roles (likely HoA). → Operational phase mitigation implemented during the design/construction phase: o Construct sewage pipelines in accordance with the relevant SANS / SABS specifications. o Design the pipelines to accommodate the operating and surge pressures. o Provide surge protection e.g. air valves. o Allow for scour valves along pipelines to ensure sewage pipelines can be emptied in a controlled manner if required. o Allow for surcharge containment and emergency storage of 2 hours of peak flow at manholes located within areas upslope of the wetland. Containment/emergency storage may include a concrete box or earthen bund surrounding the manholes. The backup storage capacity of manholes may also be improved by raising the manholes by one meter. → The sewage system must be monitored and maintained into perpetuity. The developer must confirm who will be

	responsible for this monitoring and maintenance as well as their roles. → The wetland area must be regularly inspected for waste. Any waste or litter noted must be immediately removed and disposed of at a registered waste disposal facility. The developer must confirm who will be responsible for this monitoring of the wetland area (HoA).
Residual impacts	Minimal if infrastructure and mitigation are effectively implemented and maintained.
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation e.g. Low, Medium, Medium High, High, or Very-High)	**Low negative**
POST CONSTRUCTION	
Potential impact and risk:	**7. Faunal impact**
Potential impact:	• Infringement on ESA2 corridor which will influence connectivity facilitating animal movement. • Cape dwarf chameleon, *Bradypodion pumilum* habitat loss and movement impediment
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term
Consequence of impact:	Medium
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Medium-Low
Degree to which the impact can be reversed:	Irreversible
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	Disturbance and loss of faunal habitat
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	Medium
Degree to which the impact can be avoided:	Medium- Low
Degree to which the impact can be managed:	Medium- Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	→ The fence traversing the ecological corridor should be permeable to allow for movement of small sized animals e.g. otters, small antelope between the nature reserve and wetland system. → Search and Rescue of chameleons and other slow-moving animals is feasible due to the presence of the adjacent nature reserve. A search and rescue effort should be implemented before and during construction where animals that are found are released in the adjacent nature reserve. → Long term maintenance of ecological integrity of the 'private open space' is critical. Therefore, measures should be put in place for constant removal of alien vegetation, cleanup of litter and prevention of illegal dumping. → Pre and post construction site preparation should include rehabilitation of the 'private open space' by removing current building rubble and litter from this area.

	→ Pets (especially domestic cats) should not be allowed to free-roam the 'private open space'.
Residual impacts	Medium- Low
Cumulative impact post mitigation:	It is likely that some of their habitat will be lost on the development footprint and the disturbance during construction phase
Significance rating of impact after mitigation e.g. Low, Medium, Medium High, High, or Very-High)	**Medium (-)**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	N/A
Nature of impact:	-
Extent and duration of impact:	-
Consequence of impact or risk:	-
Probability of occurrence:	-
Degree to which the impact may cause irreplaceable loss of resources:	-
Degree to which the impact can be reversed:	-
Indirect impacts:	-
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	-
Degree to which the impact can be avoided:	--
Degree to which the impact can be managed:	-
Degree to which the impact can be mitigated:	-
Proposed mitigation:	-
Residual impacts:	-
Cumulative impact post mitigation:	-
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	-

NO-GO

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**1. Ecological impact**
Potential impact	No development and status quo remain.
Nature of impact:	Positive
Extent and duration of impact:	Local; long term
Consequence of impact or risk:	Risk of alien vegetation due to landscaping and poor Management Loss of other natural spaces, corridors and vegetation
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	High
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	Risk of alien vegetation due to landscaping and poor Management Loss of natural spaces, corridors and vegetation
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:	High
Proposed mitigation:	by placing biodiversity offsets in areas of high ecological sensitivity during the construction.
Residual impacts:	Loss of other natural vegetation and species
Cumulative impact post mitigation:	Less negative impacts associated with the clearance of sensitive vegetation.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High positive**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**2. Socioeconomic impacts**
Potential impact	No scope of available job creation, skills transfer and investments
Nature of impact:	Negative
Extent and duration of impact:	Local, short-term
Consequence of impact or risk:	No job creation for communities in the area. No opportunities for investment in the area or provision of residential erven for growth of the area.
Probability of occurrence:	Definite

Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	N/A
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	High
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:	N/A
Degree to which the impact can be managed:	low
Degree to which the impact can be mitigated:	low
Proposed mitigation:	Change layout
Residual impacts:	N/A
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High negative- no development may take place
OPERATIONAL PHASE	
Potential impact and risk:	**1. Socioeconomic impacts**
Potential impact	No access to employment for the community
Nature of impact:	Negative- few people employed
Extent and duration of impact:	Local to provincial, long term
Consequence of impact or risk:	Improved livelihood beneficiaries, low number of people to the area, few investment opportunities,
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	N/A
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	No employment or investments on the site because there will be no development taking place.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High negative
Degree to which the impact can be avoided:	N/A
Degree to which the impact can be managed:	Low
Degree to which the impact can be mitigated:	Low
Proposed mitigation:	
Residual impacts:	N/A
Cumulative impact post mitigation:	No access to jobs, no development and no investments
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High negative**
OPERATIONAL PHASE	
Potential impact and risk:	**2. Ecological**
Potential impact:	Status quo remains
Nature of impact:	--
Extent and duration of impact:	-
Consequence of impact:	-

Probability of occurrence:	-
Degree to which the impact may cause irreplaceable loss of resources:	-
Degree to which the impact can be reversed:	-
Indirect impacts:	-
Cumulative impact prior to mitigation:	-
Significance rating of impact prior to mitigation (e.g. Low, Medium, MediumHigh, High, or Very-High)	-
Degree to which the impact can be avoided:	-
Degree to which the impact can be managed:	-
Degree to which the impact can be mitigated:	-
Proposed mitigation:	-
Residual impacts	-
Cumulative impact post mitigation:	-
Significance rating of impact after mitigation e.g. Low, Medium, MediumHigh, High, or Very-High)	High Positive
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Not Applicable**
Nature of impact:	-
Extent and duration of impact:	-
Consequence of impact or risk:	-
Probability of occurrence:	-
Degree to which the impact may cause irreplaceable loss of resources:	-
Degree to which the impact can be reversed:	-
Indirect impacts:	-
Cumulative impact prior to mitigation:	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	-
Degree to which the impact can be avoided:	--
Degree to which the impact can be managed:	-
Degree to which the impact can be mitigated:	-
Proposed mitigation:	-
Residual impacts:	-
Cumulative impact post mitigation:	-
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	-

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.

Terrestrial Biodiversity Impact Assessment Summary:

- → The site comprises Hangklip Sand Fynbos, a Critically Endangered vegetation type. However, much of the vegetation is senescent and degraded due to the absence of natural fire cycles.
- → Disturbed areas dominated by alien species (e.g., Kikuyu grass) were identified, especially around the existing building, wetland edge, and gardened southwestern portion.
- → No plants Species of Conservation Concern (SoCC) were recorded on-site, and many red-listed species flagged by the Screening Tool, only one may likely occur on site (*Disa hallackii*: Endangered).
- → Two species of frogs were heard calling on site, and populations on site are probably viable and significant. *Hyperolius marmoratus* (painted reed frogs) were calling from the standing water, whilst *Strongylopus grayii* (clicking stream frogs) were calling across most of the site. *Cacosternum australis* may also occur here, but was not heard.
- → *Bradypodion pumilum* (Cape Dwarf Chameleon) has been regularly recorded from similar nearby habitat (iNaturalist.org) and is likely to be present on site.
- → No other Redlisted reptiles are likely to be present.
- → In terms of birds two threatened harrier species may occasionally visit this site. African Marsh Harrier (*Circus ranivorus*; Endangered) and the Black Harrier (*Circus maurus*; Endangered) are both known from the general area, and travel widely.
- → Tracks and scat of mammal species were observed onsite, this includes porcupine (*Hystrix africaeaustralis*), vlei rat (*Otomys unisulcatus*), Cape Grey Mongoose (*Herpestes pulverulentus*) and Water Mongooose (*Atilax paludinosus*), and other likely species include Large Grey Mongoose (*Herpestes ichneumon*), Striped Fieldmouse (*Rhabdomys pumilio*) and Cape Genet (*Genetta tigrina*).
- → No threatened butterflies are likely to utilise the site.
- → The proposed residential erven now exclude most of the High sensitivity areas, and only about 500m^2 of high sensitivity habitat will now be lost.
- → Alternative 3 was endorsed as a good compromise and has substantially lower ecological impacts than the alternatives assessed previously. The proposed residential erven now exclude most high-sensitivity areas and only about 500m^2 of high sensitive vegetation will be lost.
- → The private access road now does not need to cross the wetland, as there will now be two access roads instead of one (also a requirement in bullet points one of the botanical specialist mitigation section).
- → Some 52% of the total erf will now be conservation area (Private Open Space), up from about 36%.
- → The private access road now does not need to cross the wetland, as there will now be two access roads instead of one.
- → Ecological impact was reduced from High negative (Alt 2) to Medium negative (Alt 3).

Impact management measures:

- → No erven should intrude significantly into the seasonal wetland portions of the site that support mostly habitat of High ecological sensitivity.
- → No pipelines, cabling or infrastructure should be installed across the High sensitivity areas or wetlands.
- → Any boundary fencing used must be permeable to small animals at ground level.

- → The authorised erf and road boundaries should be surveyed and pegged out and fenced on site prior to any site development.
- → No areas of natural or partly natural vegetation should be disturbed outside the pegged/fenced out and authorised erven. No vehicular activity or dumping of material may take place outside the authorised erven or roads.
- → All alien invasive vegetation should be removed from within the natural portions of the project area, prior to any authorised development. Removal of the alien vegetation must be undertaken by a trained and licensed alien vegetation removal team and must be undertaken using methodology outlined in the Best Practise Guidelines (see Martens et al 2021).
- → The Homeowners Association (HoA, or similar) for the proposed development must ensure that all alien invasive vegetation (as per NEMBA legislation) is removed from the Public Open Space area on an annual basis by qualified contractors, using methodology as prescribed in Martens et al (2021; see below for reference). The HoA must ensure that there is adequate funding for this every year.
- → In order to try and safeguard the ecological integrity of the No Go wetland areas on Erven 1-8 (also shown in Figure 1) these areas that should not be altered, developed, gardened, covered, excavated, drained, infilled or disturbed in any way. Landowners and the HoA must be made aware of these constraints both prior to and after purchase. Alien invasive plant species should be removed from these areas on an annual basis, as part of the management actions required for the adjacent Private Open Space.

Aquatic Biodiversity Impact Assessment:

Wetland Presence and Status

- → A natural Unchanneled Valley-Bottom (UVB) wetland was delineated onsite.
- → The wetland is part of a 1.4 km system that connects to the Vermont Pan and has been disturbed by excavation, infill, alien vegetation, and urban runoff.
- → The wetland has a Present Ecological State (PES) of Category D (largely modified), with moderate Ecological Importance and Sensitivity (EIS) and moderately high Wetland Ecosystem Services (WES) scores, indicating ecological significance despite degradation.
- → Vegetation within the erf was extensively disturbed, with a mixture of indigenous species such as *Senecio halimifolius,* the wetland obligate *Juncus kraussi,* and *Typha capensis.*
- → Alien vegetation is also present alongside invasive species such as Kikuyu grass (*Cenchrus clandestinum*) and pampas grass (*Cortaderia selloana*).
- → Terrestrial soils within the study area are dark grey, sandy and appear to be well drained.
- → Soils that were sampled in wetter areas near the depression did not differ markedly from terrestrial soils, aside from appearing darker and with a higher organic content than the terrestrial baseline.

Impact Assessment Summary

- → Wetland loss is rated as Medium
- → Altered flow regime is Very low
- → Water quality impairment is rated as Very low
- → The No-Go option would result in the continuation of impact to the wetland due to adjacent land uses – and would therefore still result in negative impact to the wetland onsite.

Risk Assessment

- → The moderate risk class for wetland loss confirms the need for a Water Use Licence (WUL).
- → A Wetland Offset, Rehabilitation, and Management Plan is required to align with the "no net loss" policy.

Hydrology:

- → The natural flow regime of the UVB Wetland (UVBW) has been altered as a result of disturbances such as the excavation to create the centre depressional area on the erf itself, historical vegetation clearing and infilling, and catchment hardening associated with the roads, dirt tracks, residential areas.
- → Although there is an overflow pipe that crosses beneath Lynx Road and flows into the wetland on the far side, the construction of Lynx Road, and excavation within the centre of the site, has created a dam within the centre of the UVBW.
- → The hydrology of the UVBW has been impacted by the presence of urban residential land use within the wetland itself, and in the wetland's immediate catchment area. Urban land use such as residential areas and tarred roads has resulted in flow diversion and catchment hardening which is associated with increased runoff and storm peak flows.
- → The wetland has been canalized, leading to concentration of flow, and likely the drying out of the wetland in various locations.

- → Additionally, a stormwater outlet is in the southeast corner of the erf, which discharges runoff from the neighbouring housing development into the wetland. Additional stormwater outlets into the wetland are observed downstream of the erf.

Vegetation:

- → Several indigenous hydrophytic species were noted, and there is moderate disturbance within the wetland area as a result of:
  - Excavation of the dam on the subject property.
  - Large areas of the UVBW were brush cut during 2004, and the large area down was cleared.
  - Construction activities associated with the derelict houses on the erf, and downstream residential areas;
  - Dumping of rubble within the wetland area.
- → The vegetation present within the wetland is characterised by a mixture of alien and indigenous vegetation. Alien invasive species noted onsite include dense clumps of Kikuyu grass (*Cenchrus clandestinum*) and pampas grass (*Cortaderia selloana*).
- → No species of conservation concern were noted. According to the Botanist appointed for the proposed project, at least one plant SoCC *(Disa hallackii*) may be present in low numbers (Nick Helme Botanical Surveys, 2023).

Geomorphology:

- → The geomorphology of the UVBW wetland was largely modified by the excavation of the depressional / dam area in the centre of the erf.
- → Additionally, historical vegetation clearing, infilling, and hardening across large areas of the wetland has resulted in extensive disturbance to its natural geomorphic state.

- → The wetland system extends from the study area in a south-easterly direction and ultimately augments the Vermont Salt Pan. The construction of Lynx Road, Kolgans Close Road, and numerous other roads, has seriously altered this portion of the UVBW's geomorphology.

Water Quality:

- → The water quality within the UVB wetland has been disturbed because of the adjacent infilling and compaction of the southern portion of the Erf; along with large portions which have been infilled downstream within the wetland due to residential development, which has resulted in:
  - Leaching of toxicants and nutrients from the infilling materials such as hydroxyl ions from cement particles and nitrates from laterite.
- → The water quality within the wetland is likely to be impacted by the residential nature of the catchment.

- → It is likely that runoff entering the wetland through the stormwater outlets is likely polluted by the surrounding catchment area for example, runoff from roads is likely to contain contaminants such as laterite, oil, fuel, rubber from car tires and other pollutants.

Impact management measures

- → An Offset, Rehabilitation and Management Plan must be drafted by a suitably qualified specialist.
- → Designate the UVB wetland area as a No Go for construction activities (for both the residential development and the replacement / upgrade of the sewer pipeline). Clearly demarcate the construction footprint (including construction camp, access roads, stockpile areas and working servitudes) with orange hazard tape, fencing or similar prior to the commencement of any activity, and strictly prohibit the movement of construction vehicles and personnel outside of the demarcated areas.
- → Locate site camps, laydown areas, stockpile areas, construction material, equipment storage areas, vehicle parking areas, bunded vehicle servicing areas and re-fuelling areas in designated areas of already hardened surface or disturbed areas located outside of the No Go area. These areas should preferably be located on level ground in a previously disturbed area of vegetation approved by the Environmental Control Officer (ECO). Cut and fill must be avoided where possible during the set-up of the construction site camp.
- → Demarcation of the construction footprint/working servitude must be signed off by an ECO (or similar). Demarcation should not be removed until construction is complete, and rehabilitation (if applicable) has taken place.
- → Limit access into the construction footprint to existing access roads.
- → Prohibit the dumping of excavated material, building materials or removed vegetation within the No Go area. Building material must be stored at the designated storage area located outside of the no-go area. Spoil material must be appropriately disposed of at a registered waste disposal facility.
- → Undisturbed topsoil and subsoils removed from the construction footprint must be stored separately at the designated stockpile area for future rehabilitation.
- → Vegetation clearance should be restricted to the relevant development components and indigenous vegetation cover should be maintained as far as practically possible.
- → Vegetation which is considered suitable for rehabilitation activities after construction (such as indigenous grasses and other herbaceous species) should be carefully removed from the construction footprint and stored at an appropriate facility for use in later rehabilitation activities.
- → Clear and remove any rubble or litter that may have been accidentally deposited into the no-go area because of construction activities and dispose of at an appropriate registered facility.
- → An ECO must inspect the construction footprint on a weekly basis and must take immediate measures to address unforeseen disturbances to the wetland. Any disturbed / compacted areas falling outside of the demarcated construction footprint must be immediately rehabilitated. Depending on the extent of damage the method of rehabilitation may require input from an aquatic specialist / suitably qualified contractor.
- → Once construction has been completed, orange hazard fences as well as all construction waste, rubble, and equipment must be removed from the construction footprint.
- → In line with the NEMBA, all AIPS listed under the amended AIPS Lists (DEFF: GN1003, 2020) must either be removed or controlled on land under the management of the proponent.
- → An Offset, Rehabilitation and Management Plan must be drafted by a suitably qualified specialist. Rehabilitation must take place as soon as possible after construction is completed, and monitoring of rehabilitated areas must be undertaken. A suitably qualified professional must supervise the rehabilitation and monitoring activities.
- → Designate the wetland area as a No Go for construction activities (for both the residential development and the replacement / upgrade of the sewer pipeline).
- → The status quo in terms of hydrological connection from Erf 1486 to the downstream system must be maintained / should not be impacted because of the proposed development.

- → If possible, conduct construction activities of dwellings, associated stormwater infrastructure and any rehabilitation activities during summer months (November to March).
- → Ensure that effective stormwater management measures are implemented during construction. Stormwater management must ensure that no runoff, which will impair the water quality and lead to increased sedimentation, may enter the downstream wetland area. Additionally, clean SW which does enter the downstream wetland system should do so in a manner that ensures no erosion occurs, specifically during storm events, such as through vegetated swales.
- → Appropriately designed raft foundations for residential dwellings may significantly reduce the impact on subsurface flow and therefore reduce this impact / risk.
- → Rainwater harvesting schemes may reduce runoff intensity and thereby mitigate the impact of catchment hardening.
- → The alien invasive vegetation present within the wetland area must be removed and replanted with indigenous wetland vegetation.
- → An Offset, Rehabilitation and Management Plan must be drafted by a suitably qualified specialist.
- → Designate the wetland area as a No Go for construction activities (for both the residential development and the replacement / upgrade of the sewer pipeline).
- → The site manager / ECO must check the No Go area for pollution/spills, erosion damage and sedimentation weekly and after every heavy rainfall event. Should pollution, erosion or sedimentation be noted, immediate corrective measures must be undertaken.
- → Fuel, chemicals, and other hazardous substances should preferably be stored offsite, or as far away as possible from the no-go area. These substances must be stored in suitable secure weather-proof containers with impermeable and bunded floors to limit pilferage, spillage into the environment, flooding, or storm damage.
- → Inspect all storage facilities, vehicles, and machinery daily for the early detection of deterioration or leaks and strictly prohibit the use of any vehicles or machinery from which leakage has been detected.
- → Mixing and transferring of chemicals or hazardous substances must take place outside of the No Go area, and must take place on drip trays, shutter boards or other impermeable surfaces.
- → Drip trays must be utilised at all fuel dispensing areas; and during the maintenance of existing sewer flow as possible.
- → Vehicles and machinery should preferably be cleaned off site. Should cleaning be required on site it must only take place within designated areas outside of the No Go area and should only occur on bunded areas with a water/oil/grease separator.
- → Dispose of used oils, wash water from cement and other pollutants at an appropriate licensed landfill site.
- → Avoid the use of infill material or construction material with pollution / leaching potential. Where possible, in situ earthen materials must be used during construction to reduce the risk of leachate from imported materials contaminating the wetland area.
- → Concrete should preferably be imported as “ready-mix” concrete from a local supplier. Should onsite concrete mixing be required it must not be done on exposed soils. Concrete must be mixed on an impermeable surface in an area of low environmental sensitivity identified by the ECO outside of the no-go area. Surplus or waste concrete must be sent back to the supplier who will dispose of it.
- → Construct temporary bunds around areas where cement is to be cast in situ.
- → Dispose of concrete and cement-related mortars in an environmental sensitive manner (can be toxic to aquatic life). Disposal of any of these waste materials into the No Go area is strictly prohibited.
- → Washout must not be discharged into the no-go area. A washout area should be designated, and wash water should be treated on-site.
- → Clean up any spillages immediately with the use of a chemical spill kit and dispose of contaminated material at an appropriately registered facility.

- → Provide portable toilets where work is being undertaken (1 toilet per 10 workers). These toilets must be located within an area designated by the ECO outside of the no-go area and should preferably be located on level ground. Portable toilets must be regularly serviced and maintained.
- → Provide an adequate number of bins on site and encourage construction personnel to dispose of their waste responsibly.
- → Waste generated by construction personnel must be removed from the site and disposed of at a registered waste disposal facility on a weekly basis.
- → Prohibit littering and dumping within the wetland area. Clear and remove any rubble or litter that may have been accidentally deposited into the wetland and dispose of at an appropriate registered facility. Monitoring of litter/dumping within the wetland must be managed by a Homeowners Association (HoA).
- → In line with the NEMBA, all AIPS listed under the amended AIPS Lists (DEFF: GN1003, 2020) must either be removed or controlled on land under the management of the proponent.
- → Vegetation which needs to be re-planted (if applicable) within each northern Erf (Figure 7-1) should be planted with indigenous vegetation, which would be considered an adequate buffer during operational phase considering the nature of development (single residential dwellings).
- → Vegetation which needs to be re-planted (if applicable) within each northern Erf (Figure 7-1) should be planted with indigenous vegetation, which would be considered an adequate buffer during operational phase considering the nature of development (single residential dwellings).
- → Runoff from the proposed development must not increase from the pre-development to the post-development scenario.
- → The status quo in terms of hydrological connection from Erf 1486 to the downstream system must be maintained / should not be impacted because of the proposed development.
- → Discharge stormwater from rooftops into rain harvesting tanks. This will limit the volumes of stormwater runoff that will reach the wetland area. Where possible, water collected in rain harvesting tanks can be utilized for flushing of toilets, washing etc.
- → Stormwater runoff should preferably be discharged as diffuse flow into well vegetated areas outside of the wetland.
- → Energy dissipaters / erosion protection measures (such as lining with stones, grass, reno-mattresses, or gabions) must be constructed where stormwater is released to reduce the runoff velocity and therefore erosion.
- → Sheet runoff from hardened surfaces must be intercepted and the treatment and infiltration of runoff must be promoted.
- → Sediment traps should be incorporated into stormwater drains / swales upstream of any discharge points.
- → Monitor the wetland area for erosion and sedimentation after heavy rainfall events. Any erosion noted must be immediately addressed. Rehabilitation measures may include the removal of accumulated sediment by hand, filling of erosion gullies and rills, the stabilisation of gullies with silt fences, riprap, and the revegetation of stabilised areas.
- → Stormwater systems will require ongoing maintenance. Any build-up of silt or debris within stormwater drains or swales will need to be cleared to ensure the continued functioning of the systems.
- → Any damage to stormwater infrastructure, and any flaws identified in the functionality of stormwater infrastructure, must be rectified immediately.
- → Appropriately designed raft foundations for residential dwellings may significantly reduce the impact on subsurface flow and therefore reduce risk.
- → Rainwater harvesting schemes may reduce runoff intensity and thereby mitigate the impact of catchment hardening.
- → Design a SWMP which will allow for the infiltration and treatment of stormwater. All stormwaters must receive basic filtering and treatment prior to its release.
- → Incorporate measures into the stormwater design to trap solid waste, debris and sediment carried by stormwater. Measures may include the use of curb inlet drain grates and debris baskets/bags.

- → Stormwater generated from areas with a higher risk of contamination such as parking areas and roads (as applicable) must receive basic filtering and treatment prior to its release into surrounding areas.
- → Stormwater systems must be monitored and maintained into perpetuity and collections of debris and solid waste removed from grates and baskets. The developer must confirm who will be responsible for this monitoring and maintenance as well as their roles (likely HoA).
- → Operational phase mitigation implemented during the design/construction phase:
    - Construct sewage pipelines in accordance with the relevant SANS / SABS specifications.
    - Design the pipelines to accommodate the operating and surge pressures.
    - Provide surge protection e.g. air valves.
    - Allow for scour valves along pipelines to ensure sewage pipelines can be emptied in a controlled manner if required.
    - Allow for surcharge containment and emergency storage of 2 hours of peak flow at manholes located within areas upslope of the wetland. Containment/emergency storage may include a concrete box or earthen bund surrounding the manholes. The backup storage capacity of manholes may also be improved by raising the manholes by one meter.
- → The sewage system must be monitored and maintained into perpetuity. The developer must confirm who will be responsible for this monitoring and maintenance as well as their roles.
- → The wetland area must be regularly inspected for waste. Any waste or litter noted must be immediately removed and disposed of at a registered waste disposal facility. The developer must confirm who will be responsible for this monitoring of the wetland area (HoA).

Terrestrial Animal Site Sensitivity Verification Report and Species Specialist Assessment Report:

- → The presence of an ecological corridor that supports movement of ground-dwelling species between the Hoek van der Berg Private Nature Reserve and wetlands is crucial.
- → Maintaining the 'private open space' and its ecological integrity in the current development plan (Alternative 3) is essential. The development footprint does still infringe on the ESA2 corridor by a slight infringement or the footprint of the residential erven as well a slightly more prominent infringement of the access road.
- → From a faunal connectivity perspective, the proposed development risk is rated as 'medium'
- → The survey confirmed the presence of several faunal species (e.g., Cape Spurfowl, Yellow-billed Duck, Cape Weaver, amphibians, and mammals).
- → No animal species of conservation concern identified. The Cape Dwarf Chameleon, though not observed on site, is likely present due to nearby records and suitable habitat.
- → The overall SEI for the Project Area of Influence (PAOI) is rated 'Medium,' primarily due to the ecological corridor (ESA2) and potential habitat for the Cape Dwarf Chameleon.
- → The small size of the proposed development and the provision of 'private open space' offer sufficient forage habitat for black harriers. Given their wide range, the minor loss of forage habitat is unlikely to significantly affect them. Additionally, the development does not notably impact potential breeding sites or prey species. Consequently, the potential impact on Black Harrier (Circus maurus) is assessed as 'low'.
- → Similarly, the small development footprint and 'private open space' provide adequate forage habitat for marsh harriers. With their extensive range, the minor loss of forage habitat is not expected to have a significant effect. The development site does not significantly influence breeding sites or prey species. Thus, the potential impact on African Marsh Harrier (*Circus ranivorus*) is also classified as 'low'.
- → The habitat within the development site is unsuitable for Denham's bustard (Neotis denhami), so the impact of the development on this species is considered 'low'.
- → The dense wetland vegetation on the site does not provide suitable habitat for the Hottentot Buttonquail (*Turnix hottentotus*). Therefore, the likelihood of this species occurring at the site is low, and the impact of the development on it is also expected to be 'low'.

- → While the habitat at the site is not ideal for Stiped Flufftail (*Sarothrura affinis*), its presence cannot be ruled out entirely. If present, some habitat loss is possible, and construction disturbances might cause temporary displacement. However, the adjacent nature reserve and wetland system could offer refuge. Hence, the potential impact on Stiped Flufftail is classified as 'low'.
- → The dense wetland vegetation and strata at the development site are unsuitable for the Southern Adder (Bitis armata). The likelihood of this species occurring at the site is low, leading to a likely 'low' impact from the development.
- → The habitat at the site is deemed highly suitable for the Cape Dwarf Chameleon (*Bradypodion pumilum*). While some habitat loss is expected and construction disturbances may have a negative impact, the adjacent nature reserve and wetland system offer space for the species to relocate. A search and rescue operation for this species before construction could mitigate some impacts. The potential impact on Cape Dwarf Chameleon is therefore classified as 'medium'.
- → The proposed development is assessed as having a 'low' impact on the Agile Grasshopper (*Aneuryphymus montanus*) due to the lack of species data from the area, absence of direct evidence, unsuitability of the habitat, the small size of the development relative to surrounding vegetation, and the wide regional distribution of the species.

Impact mitigation measures

- → During the construction phase the construction area should be clearly demarcated and blocked off from the 'private open space' area to avoid damage and pollution.
- → Pre and post construction site preparation should include rehabilitation of the 'private open space' by removing current building rubble and litter from this area.
- → Long term maintenance of ecological integrity of the 'private open space' is critical. Therefore, measures should be put in place for constant removal of alien vegetation, cleanup of litter and prevention of illegal dumping. Clear legal responsibility for the maintenance of the space should be entrenched to be the responsibility of the homeowners association.
- → The fence traversing the ecological corridor should always be permeable to allow for movement of small sized animals e.g. small antelope, genets, mongoose between the nature reserve and wetland system.
- → Search and Rescue of chameleons and other slow-moving animals is feasible due to the presence of the adjacent nature reserve where they can be released. A search and rescue effort should be implemented before and during construction where animals that are found are released in the adjacent nature reserve. The necessary permission and permits should be attained before this is done.
- → Pets (especially domestic cats) should not be allowed to free-roam the 'private open space'.

Wetland Offset, Rehabilitation, and Management Plan

- → A 0.9-ha UVB wetland covers 60% of the 1.5-ha site, classified as 'Very High' aquatic sensitivity despite its disturbed state (Present Ecological State [PES] Category D, largely modified)
- → The preferred layout (Alternative 3) results in the loss of 0.024 ha (3%) of the wetland due to eastern and southern boundary access roads.
- → The total development footprint (0.7 ha, 47% of the site) cannot avoid wetland encroachment entirely, as the wetland dominates the site.
- → Using Macfarlane et al. (2016) guidelines, the lost wetland portion is valued at 0.0139 Hectare Equivalents (HE) of function and 0.1323 HE of habitat.
- → The remaining 0.876 ha of wetland is suitable for rehabilitation, potentially yielding 0.1214 HE of function and 1.3841 HE of habitat, resulting in a surplus of 0.1075 HE (function) and 1.2518 HE (habitat), satisfying offset requirements.

- → The wetland is degraded by foreign fill material, alien invasive species (e.g*., kikuyu grass, pampas grass, Acacia saligna, Acacia cyclops*), and garden plants.
- → Rehabilitation aims to improve the PES from Category D to upper Category C (minimum PES score of 79%).

Wetland Loss and Mitigation Opportunities

Rehabilitation mitigations

- → Application of maximum viable rehabilitation effort to increase the PES of the onsite offset wetland area to upper category C with a minimum PES Score of 79 %.
- → Removal of dumped rubble and fill material within the wetland. Reshaping of the wetland specifically in the areas where infill has been removed to ensure very slight gradual decline towards the permanent zone.
- → Removal of all Alien Invasive vegetation Species (AIS) from this offset wetland area such as Kikuyu grass (*Cenchrus clandestinum*), Pampas grass (*Cortaderia selloana*), Australian myrtle (*Leptospermum laevigatum*), sweet needlebush (*Hakea drupacea*), Port Jackson (*Acacia saligna*) and rooikrans (*Acacia cyclops*), as well as all planted garden species in the southwest corner of the Erf coinciding with the wetland.
- → Establishment of a healthy and moderately diverse indigenous vegetation community within any areas that have been cleared (areas historically cleared of indigenous vegetation and cleared of AIS) as well as the areas where infill / rubble has been removed within the offset wetland area. Revegetate with indigenous wetland plant species based on the relevant species list (refer to **Table 8-1** of the Wetland Offset, Rehabilitation and Management Plan);
- → Implementation of the Stormwater Mitigation measures outlined in the Wetland Offset, Rehabilitation and Management Plan.
- → Ensuring that the onsite offset area is managed in accordance with this plan, such that the rehabilitated state is maintained in perpetuity.

Recommended mitigation measures to be included in the Stormwater Management Plan:

- → Discharge stormwater from rooftops into rain harvesting tanks. This will limit the volumes of stormwater runoff that will reach the wetland. Where possible, water collected in rain harvesting tanks can be utilised for flushing of toilets, washing etc.
- → Vegetated swales must be utilised rather than concrete drains or underground stormwater pipes in order to encourage infiltration, particularly next to roadways.
- → Energy dissipaters / erosion protection measures (such as lining with stones, grass, reno-mattresses, or gabions) must be constructed where stormwater is released in order to reduce the runoff velocity and therefore erosion.
- → Sheet runoff from hardened surfaces must be intercepted and the treatment and infiltration of runoff must be promoted.
- → Sediment traps should be incorporated into stormwater drains / swales upstream of all discharge points into the wetland.
- → All stormwater draining into the wetland must receive basic filtering and treatment prior to its release.
- → Incorporate measures into the stormwater design to trap solid waste, debris and sediment carried by stormwater. Measures may include the use of curb inlet drain grates and debris baskets/bags.
- → Stormwater generated from areas with a higher risk of contamination such as parking areas and roads must receive basic filtering and treatment prior to its release into surrounding areas. Treatment methods may include sand filter traps and oil-water separators which will require maintenance.
- → The extent of hardened surfaces must be minimised. E.g. where required permeable paving must be used.
- → Homeowners must be encouraged to landscape their gardens with the use of indigenous species to decrease the area of hardened surface and increase infiltration.
- → Homeowners should store any potential pollutants in such a way that pollution will not occur to the wetland (such as any fuel, etc.). Potential pollutants should be stored in an adequately bunded area.

- → The use of herbicides, pesticides and any other poisons within private gardens must be strictly prohibited. The home owner's association must be responsible for ensuring that residents are compliant with this.
- → Backwashing of swimming pools directly into the wetland must be strictly prohibited. Backwash water can be collected in settling tanks where dirt and debris settle to the bottom. The cleaner water can then be reused for non-potable purposes or even filtered back into the pool system. Backwash water can be diverted to greywater tanks.
- → Monitor the proposed development and adjacent wetland for erosion and sedimentation after heavy rainfall events. Any erosion noted must be immediately addressed. Rehabilitation measures may include the removal of accumulated sediment by hand, filling of erosion gullies and rills, the stabilisation of gullies with silt fences, riprap, and the revegetation of stabilised areas.
- → Stormwater systems will require ongoing maintenance. Any build-up of silt or debris within stormwater drains or swales will need to be cleared to ensure the continued functioning of the systems.
- → Any damage to stormwater infrastructure, and any flaws identified in the functionality of stormwater infrastructure, must be rectified immediately.
- → Stormwater systems must be monitored and maintained into perpetuity and collections of debris and solid waste removed from grates and baskets. The developer must confirm who will be responsible for this monitoring and maintenance as well as their roles.
- → The stormwater system must be designed by a suitably qualified engineer with input from an aquatic specialist.

Stormwater Management Plan

- → The site is in a winter rainfall region (591 mm MAP), with flat terrain draining east to the Vermont Salt Pan.
- → The catchment includes a steep northern mountainous area (CA1) and the site (CA2).
- → Post-development runoff slightly increases (e.g., Q100: 3.211 m^3/s vs. 3.107 m^3/s pre-development), with minimal wetland water level rise (e.g., Q100: 0.69 m vs. 0.67 m).

Mitigation measures through Low Impact Development (LID)

- → **Permeable Paving** (South of Wetland): 2114 m^2 area, reduces runoff (e.g., Q100: 3.10 m^3/s) and treats water (50% TP, 65% TN, 60% heavy metals reduction).
- → **Enhanced Swale** (North of Wetland): 5283 m^2 area, further reduces runoff and matches water quality targets.
- → **Culvert Management**: Control runoff from CA1 through a 2x900 mm pipe or 1.3x0.7 m trapezoidal channel to prevent flooding.

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

Terrestrial Biodiversity Impact Assessment:

- → No erven should intrude significantly into the seasonal wetland portions of the site that support mostly habitat of High ecological sensitivity.
- → No pipelines, cabling or infrastructure should be installed across the High sensitivity areas or wetlands.
- → Any boundary fencing used must be permeable to small animals at ground level.
- → The authorised erf and road boundaries should be surveyed and pegged out and fenced on site prior to any site development.
- → No areas of natural or partly natural vegetation should be disturbed outside the pegged/fenced out and authorised erven. No vehicular activity or dumping of material may take place outside the authorised erven or roads.
- → All alien invasive vegetation should be removed from within the natural portions of the project area, prior to any authorised development. Removal of the alien vegetation must be undertaken by a trained and licensed alien

vegetation removal team, and must be undertaken using methodology outlined in the Best Practise Guidelines (see Martens et al 2021).

→ The Homeowners Association (HoA, or similar) for the proposed development must ensure that all alien invasive vegetation (as per NEMBA legislation) is removed from the Public Open Space area on an annual basis by qualified contractors, using methodology as prescribed in Martens et al (2021; see below for reference). The HoA must ensure that there is adequate funding for this every year.

→ In order to try and safeguard the ecological integrity of the No Go wetland areas on Erven 1-8 (also shown in Figure 1) these areas that should not be altered, developed, gardened, covered, excavated, drained, infilled or disturbed in any way. Landowners and the HoA must be made aware of these constraints both prior to and after purchase. Alien invasive plant species should be removed from these areas on an annual basis, as part of the management actions required for the adjacent Private Open Space.

Aquatic Biodiversity Impact Assessment:

The following mitigation measures are recommended by the specialist:

→ An Offset, Rehabilitation and Management Plan must be drafted by a suitably qualified specialist.

→ Designate the UVB wetland area as a No Go for construction activities (for both the residential development and the replacement / upgrade of the sewer pipeline). Clearly demarcate the construction footprint (including construction camp, access roads, stockpile areas and working servitudes) with orange hazard tape, fencing or similar prior to the commencement of any activity, and strictly prohibit the movement of construction vehicles and personnel outside of the demarcated areas.

→ Locate site camps, laydown areas, stockpile areas, construction material, equipment storage areas, vehicle parking areas, bunded vehicle servicing areas and re-fuelling areas in designated areas of already hardened surface or disturbed areas located outside of the No Go area. These areas should preferably be located on level ground in a previously disturbed area of vegetation approved by the Environmental Control Officer (ECO). Cut and fill must be avoided where possible during the set-up of the construction site camp.

→ Demarcation of the construction footprint/working servitude must be signed off by an ECO (or similar). Demarcation should not be removed until construction is complete, and rehabilitation (if applicable) has taken place.

→ Limit access into the construction footprint to existing access roads.

→ Prohibit the dumping of excavated material, building materials or removed vegetation within the No Go area. Building material must be stored at the designated storage area located outside of the no-go area. Spoil material must be appropriately disposed of at a registered waste disposal facility.

→ Undisturbed topsoil and subsoils removed from the construction footprint must be stored separately at the designated stockpile area for future rehabilitation.

→ Vegetation clearance should be restricted to the relevant development components and indigenous vegetation cover should be maintained as far as practically possible.

→ Vegetation which is considered suitable for rehabilitation activities after construction (such as indigenous grasses and other herbaceous species) should be carefully removed from the construction footprint and stored at an appropriate facility for use in later rehabilitation activities.

→ Clear and remove any rubble or litter that may have been accidentally deposited into the no-go area because of construction activities and dispose of at an appropriate registered facility.

→ An ECO must inspect the construction footprint on a weekly basis and must take immediate measures to address unforeseen disturbances to the wetland. Any disturbed / compacted areas falling outside of the demarcated construction footprint must be immediately rehabilitated. Depending on the extent of damage the method of rehabilitation may require input from an aquatic specialist / suitably qualified contractor.

→ Once construction has been completed, orange hazard fences as well as all construction waste, rubble, and equipment must be removed from the construction footprint.

- → In line with the NEMBA, all AIPS listed under the amended AIPS Lists (DEFF: GN1003, 2020) must either be removed or controlled on land under the management of the proponent.
- → An Offset, Rehabilitation and Management Plan must be drafted by a suitably qualified specialist. Rehabilitation must take place as soon as possible after construction is completed, and monitoring of rehabilitated areas must be undertaken. A suitably qualified professional must supervise the rehabilitation and monitoring activities.
- → Designate the wetland area as a No Go for construction activities (for both the residential development and the replacement / upgrade of the sewer pipeline).
- → The status quo in terms of hydrological connection from Erf 1486 to the downstream system must be maintained / should not be impacted because of the proposed development.
- → If possible, conduct construction activities of dwellings, associated stormwater infrastructure and any rehabilitation activities during summer months (November to March).
- → Ensure that effective stormwater management measures are implemented during construction. Stormwater management must ensure that no runoff, which will impair the water quality and lead to increased sedimentation, may enter the downstream wetland area. Additionally, clean SW which does enter the downstream wetland system should do so in a manner that ensures no erosion occurs, specifically during storm events, such as through vegetated swales.
- → Appropriately designed raft foundations for residential dwellings may significantly reduce the impact on subsurface flow and therefore reduce this impact / risk.
- → Rainwater harvesting schemes may reduce runoff intensity and thereby mitigate the impact of catchment hardening.
- → The alien invasive vegetation present within the wetland area must be removed and replanted with indigenous wetland vegetation.
- → An Offset, Rehabilitation and Management Plan must be drafted by a suitably qualified specialist.
- → Designate the wetland area as a No Go for construction activities (for both the residential development and the replacement / upgrade of the sewer pipeline).
- → The site manager / ECO must check the No Go area for pollution/spills, erosion damage and sedimentation weekly and after every heavy rainfall event. Should pollution, erosion or sedimentation be noted, immediate corrective measures must be undertaken.
- → Fuel, chemicals, and other hazardous substances should preferably be stored offsite, or as far away as possible from the no-go area. These substances must be stored in suitable secure weather-proof containers with impermeable and bunded floors to limit pilferage, spillage into the environment, flooding, or storm damage.
- → Inspect all storage facilities, vehicles, and machinery daily for the early detection of deterioration or leaks and strictly prohibit the use of any vehicles or machinery from which leakage has been detected.
- → Mixing and transferring of chemicals or hazardous substances must take place outside of the No Go area, and must take place on drip trays, shutter boards or other impermeable surfaces.
- → Drip trays must be utilised at all fuel dispensing areas; and during the maintenance of existing sewer flow as possible.
- → Vehicles and machinery should preferably be cleaned off site. Should cleaning be required on site it must only take place within designated areas outside of the No Go area and should only occur on bunded areas with a water/oil/grease separator.
- → Dispose of used oils, wash water from cement and other pollutants at an appropriate licensed landfill site.
- → Avoid the use of infill material or construction material with pollution / leaching potential. Where possible, in situ earthen materials must be used during construction to reduce the risk of leachate from imported materials contaminating the wetland area.
- → Concrete should preferably be imported as “ready-mix” concrete from a local supplier. Should onsite concrete mixing be required it must not be done on exposed soils. Concrete must be mixed on an impermeable surface in an area of low environmental sensitivity identified by the ECO outside of the no-go area. Surplus or waste concrete must be sent back to the supplier who will dispose of it.

- → Construct temporary bunds around areas where cement is to be cast in situ.
- → Dispose of concrete and cement-related mortars in an environmental sensitive manner (can be toxic to aquatic life). Disposal of any of these waste materials into the No Go area is strictly prohibited.
- → Washout must not be discharged into the no-go area. A washout area should be designated, and wash water should be treated on-site.
- → Clean up any spillages immediately with the use of a chemical spill kit and dispose of contaminated material at an appropriately registered facility.
- → Provide portable toilets where work is being undertaken (1 toilet per 10 workers). These toilets must be located within an area designated by the ECO outside of the no-go area and should preferably be located on level ground. Portable toilets must be regularly serviced and maintained.
- → Provide an adequate number of bins on site and encourage construction personnel to dispose of their waste responsibly.
- → Waste generated by construction personnel must be removed from the site and disposed of at a registered waste disposal facility on a weekly basis.
- → Prohibit littering and dumping within the wetland area. Clear and remove any rubble or litter that may have been accidentally deposited into the wetland and dispose of at an appropriate registered facility. Monitoring of litter/dumping within the wetland must be managed by a Homeowners Association (HoA).
- → In line with the NEMBA, all AIPS listed under the amended AIPS Lists (DEFF: GN1003, 2020) must either be removed or controlled on land under the management of the proponent.
- → Vegetation which needs to be re-planted (if applicable) within each northern Erf (Figure 7-1) should be planted with indigenous vegetation, which would be considered an adequate buffer during operational phase considering the nature of development (single residential dwellings).
- → Vegetation which needs to be re-planted (if applicable) within each northern Erf (Figure 7-1) should be planted with indigenous vegetation, which would be considered an adequate buffer during operational phase considering the nature of development (single residential dwellings).
- → Runoff from the proposed development must not increase from the pre-development to the post-development scenario.
- → The status quo in terms of hydrological connection from Erf 1486 to the downstream system must be maintained / should not be impacted because of the proposed development.
- → Discharge stormwater from rooftops into rain harvesting tanks. This will limit the volumes of stormwater runoff that will reach the wetland area. Where possible, water collected in rain harvesting tanks can be utilized for flushing of toilets, washing etc.
- → Stormwater runoff should preferably be discharged as diffuse flow into well vegetated areas outside of the wetland.
- → Energy dissipaters / erosion protection measures (such as lining with stones, grass, reno-mattresses, or gabions) must be constructed where stormwater is released to reduce the runoff velocity and therefore erosion.
- → Sheet runoff from hardened surfaces must be intercepted and the treatment and infiltration of runoff must be promoted.
- → Sediment traps should be incorporated into stormwater drains / swales upstream of any discharge points.
- → Monitor the wetland area for erosion and sedimentation after heavy rainfall events. Any erosion noted must be immediately addressed. Rehabilitation measures may include the removal of accumulated sediment by hand, filling of erosion gullies and rills, the stabilisation of gullies with silt fences, riprap, and the revegetation of stabilised areas.
- → Stormwater systems will require ongoing maintenance. Any build-up of silt or debris within stormwater drains or swales will need to be cleared to ensure the continued functioning of the systems.
- → Any damage to stormwater infrastructure, and any flaws identified in the functionality of stormwater infrastructure, must be rectified immediately.

- → Appropriately designed raft foundations for residential dwellings may significantly reduce the impact on subsurface flow and therefore reduce risk.
- → Rainwater harvesting schemes may reduce runoff intensity and thereby mitigate the impact of catchment hardening.
- → Design a SWMP which will allow for the infiltration and treatment of stormwater. All stormwaters must receive basic filtering and treatment prior to its release.
- → Incorporate measures into the stormwater design to trap solid waste, debris and sediment carried by stormwater. Measures may include the use of curb inlet drain grates and debris baskets/bags.
- → Stormwater generated from areas with a higher risk of contamination such as parking areas and roads (as applicable) must receive basic filtering and treatment prior to its release into surrounding areas.
- → Stormwater systems must be monitored and maintained into perpetuity and collections of debris and solid waste removed from grates and baskets. The developer must confirm who will be responsible for this monitoring and maintenance as well as their roles (likely HoA).
- → Operational phase mitigation implemented during the design/construction phase:
    - Construct sewage pipelines in accordance with the relevant SANS / SABS specifications.
    - Design the pipelines to accommodate the operating and surge pressures.
    - Provide surge protection e.g. air valves.
    - Allow for scour valves along pipelines to ensure sewage pipelines can be emptied in a controlled manner if required.
    - Allow for surcharge containment and emergency storage of 2 hours of peak flow at manholes located within areas upslope of the wetland. Containment/emergency storage may include a concrete box or earthen bund surrounding the manholes. The backup storage capacity of manholes may also be improved by raising the manholes by one meter.
- → The sewage system must be monitored and maintained into perpetuity. The developer must confirm who will be responsible for this monitoring and maintenance as well as their roles.
- → The wetland area must be regularly inspected for waste. Any waste or litter noted must be immediately removed and disposed of at a registered waste disposal facility. The developer must confirm who will be responsible for this monitoring of the wetland area (HoA).

Terrestrial Faunal compliance statement:

The following mitigation measures are recommended for this development.

- → During the construction phase the construction area should be clearly demarcated and blocked off from the 'private open space' area to avoid damage and pollution.
- → Pre and post construction site preparation should include rehabilitation of the 'private open space' by removing current building rubble and litter from this area.
- → Long term maintenance of ecological integrity of the 'private open space' is critical. Therefore, measures should be put in place for constant removal of alien vegetation, cleanup of litter and prevention of illegal dumping. Clear legal responsibility for the maintenance of the space should be entrenched to be the responsibility of the homeowners association.
- → The fence traversing the ecological corridor should always be permeable to allow for movement of small sized animals e.g. small antelope, genets, mongoose between the nature reserve and wetland system.
- → Search and Rescue of chameleons and other slow-moving animals is feasible due to the presence of the adjacent nature reserve where they can be released. A search and rescue effort should be implemented before and during construction where animals that are found are released in the adjacent nature reserve. The necessary permission and permits should be attained before this is done.
- → Pets (especially domestic cats) should not be allowed to free-roam the 'private open space'.

Wetland Offset, Rehabilitation and Management Plan

Recommended Mitigation Measures

Rehabilitation mitigations

- → Application of maximum viable rehabilitation effort to increase the PES of the onsite offset wetland area to upper category C with a minimum PES Score of 79 %.
- → Removal of dumped rubble and fill material within the wetland. Reshaping of the wetland specifically in the areas where infill has been removed to ensure very slight gradual decline towards the permanent zone.
- → Removal of all Alien Invasive vegetation Species (AIS) from this offset wetland area such as Kikuyu grass (*Cenchrus clandestinum*), Pampas grass (*Cortaderia selloana*), Australian myrtle (*Leptospermum laevigatum*), sweet needlebush (*Hakea drupacea*), Port Jackson (*Acacia saligna*) and rooikrans (*Acacia cyclops*), as well as all planted garden species in the southwest corner of the Erf coinciding with the wetland.
- → Establishment of a healthy and moderately diverse indigenous vegetation community within any areas that have been cleared (areas historically cleared of indigenous vegetation and cleared of AIS) as well as the areas where infill / rubble has been removed within the offset wetland area. Revegetate with indigenous wetland plant species based on the relevant species list (refer to **Table 8-1** of the Wetland Offset, Rehabilitation and Management Plan);
- → Implementation of the Stormwater Mitigation measures outlined in the Wetland Offset, Rehabilitation and Management Plan.
- → Ensuring that the onsite offset area is managed in accordance with this plan, such that the rehabilitated state is maintained in perpetuity.

Recommended mitigation measures to be included in the Stormwater Management Plan:

- → Discharge stormwater from rooftops into rain harvesting tanks. This will limit the volumes of stormwater runoff that will reach the wetland. Where possible, water collected in rain harvesting tanks can be utilised for flushing of toilets, washing etc.
- → Vegetated swales must be utilised rather than concrete drains or underground stormwater pipes in order to encourage infiltration, particularly next to roadways.
- → Energy dissipaters / erosion protection measures (such as lining with stones, grass, reno-mattresses, or gabions) must be constructed where stormwater is released in order to reduce the runoff velocity and therefore erosion.
- → Sheet runoff from hardened surfaces must be intercepted and the treatment and infiltration of runoff must be promoted.
- → Sediment traps should be incorporated into stormwater drains / swales upstream of all discharge points into the wetland.
- → All stormwater draining into the wetland must receive basic filtering and treatment prior to its release.
- → Incorporate measures into the stormwater design to trap solid waste, debris and sediment carried by stormwater. Measures may include the use of curb inlet drain grates and debris baskets/bags.
- → Stormwater generated from areas with a higher risk of contamination such as parking areas and roads must receive basic filtering and treatment prior to its release into surrounding areas. Treatment methods may include sand filter traps and oil-water separators which will require maintenance.
- → The extent of hardened surfaces must be minimised. E.g. where required permeable paving must be used.
- → Homeowners must be encouraged to landscape their gardens with the use of indigenous species to decrease the area of hardened surface and increase infiltration.
- → Homeowners should store any potential pollutants in such a way that pollution will not occur to the wetland (such as any fuel, etc.). Potential pollutants should be stored in an adequately bunded area.
- → The use of herbicides, pesticides and any other poisons within private gardens must be strictly prohibited. The homeowner's association must be responsible for ensuring that residents are compliant with this.
- → Backwashing of swimming pools directly into the wetland must be strictly prohibited. Backwash water can be collected in settling tanks where dirt and debris settle to the bottom. The cleaner water can then be reused for

non-potable purposes or even filtered back into the pool system. Backwash water can be diverted to greywater tanks.

→ Monitor the proposed development and adjacent wetland for erosion and sedimentation after heavy rainfall events. Any erosion noted must be immediately addressed. Rehabilitation measures may include the removal of accumulated sediment by hand, filling of erosion gullies and rills, the stabilisation of gullies with silt fences, riprap, and the revegetation of stabilised areas.

→ Stormwater systems will require ongoing maintenance. Any build-up of silt or debris within stormwater drains or swales will need to be cleared to ensure the continued functioning of the systems.

→ Any damage to stormwater infrastructure, and any flaws identified in the functionality of stormwater infrastructure, must be rectified immediately.

→ Stormwater systems must be monitored and maintained into perpetuity and collections of debris and solid waste removed from grates and baskets. The developer must confirm who will be responsible for this monitoring and maintenance as well as their roles.

→ The stormwater system must be designed by a suitably qualified engineer with input from an aquatic specialist.

Stormwater Management Plan

Mitigation measures through Low Impact Development (LID)

→ Installation of Permeable Paving (South of Wetland): 2114 m² area, reduces runoff (e.g., Q100: 3.10 m³/s) and treats water (50% TP, 65% TN, 60% heavy metals reduction).

→ Installation of Enhanced Swale (North of Wetland): 5283 m² area, further reduces runoff and matches water quality targets.

→ Culvert Management: Control runoff from CA1 through a 2x900 mm pipe or 1.3x0.7 m trapezoidal channel to prevent flooding.

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.

N/A

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

→ The subdivision and development will create new residential erven. This responds to the growing demand for housing in the Vermont area, a coastal region within the Overstrand Municipality experiencing population growth and tourism-driven development pressures.

→ The development will attract new residents, including permanent residents, retirees, or seasonal homeowners, contributing to the area's demographic diversity. This aligns with regional planning goals to accommodate urban expansion in the Western Cape.

→ The development will create temporary jobs during construction, including opportunities for unskilled labour (e.g., site clearing, landscaping, general labour) and skilled roles (e.g., builders, engineers). This benefits unemployed or underemployed individuals in nearby communities like Hermanus, Hawston, and Zwelihle, where unemployment rates are significant.

→ Post-construction, the Homeowners Association (HOA) and ongoing maintenance (e.g., wetland rehabilitation, alien vegetation control, stormwater system upkeep) will generate jobs for local workers, such as gardeners, cleaners, and maintenance staff.

→ Wages earned by local workers will circulate in the community, supporting local businesses (e.g., shops, transport) and improving household livelihoods.

→ The development will increase the supply of residential properties, attracting investors interested in Vermont's coastal appeal and proximity to Hermanus. This could boost property values in the area, benefiting existing homeowners and stimulating the real estate market.

→ The development will generate property rates and service fees for the Overstrand Municipality, potentially funding community infrastructure improvements (e.g sewer upgrades, roads).

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.

Extract from the Aquatic Biodiversity Impact Assessment "The wetland in question does not contain peat, however the soils present do contain high amounts of carbon. However, the wetland is small and degraded in nature. The wetland is therefore unlikely to contribute significantly towards climatic-change resilience and limited construction within the seasonal wetland is unlikely to lead to a significant release of carbon into the atmosphere. No further assessment of potential climate impact is necessary."

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

N/A

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.

The development proposal for Erf 1486 has been informed by a comprehensive suite of specialist studies, including freshwater ecology, faunal, botany, and environmental planning assessments. The specialist studies collectively highlight the site's ecological and hydrological significance, including its role as part of an Ecological Support Area (ESA2), its proximity to the Vermont Salt Pan, and the presence of a degraded but functionally important wetland on site. Each study has contributed critical insights into the ecological sensitivity of the site and the necessary strategies to avoid, minimize, or offset potential environmental impacts. These findings have been systematically integrated into the design process and have directly shaped the proposed mitigation measures.

The freshwater specialist studies, including the most recent assessment by Delta Ecology (2025), confirmed the presence of a seasonal unchanneled valley-bottom (UVB) wetland on the site. Although degraded by historical infilling and alien vegetation, the wetland remains functionally important, particularly in maintaining hydrological connectivity to the Vermont Salt Pan. In response, the preferred layout (Alternative 3) was designed to avoid direct encroachment into wetland areas by excluding all development in the permanent wetland and marking the seasonal areas which extend into residential erven, as no development zones (See **Appendix G2** for the No Go development plan).

A key mitigation measure arising from this is the establishment of a conservation servitude to protect and rehabilitate the wetland corridor and the rezoning of this area to Open Space 3. Additionally, the recommendation for a Wetland Offset, Rehabilitation and Management Plan will ensure that the degraded portions of the wetland are actively restored and maintained.

The Botanical Assessment identified remnants of Hangklip Sand Fynbos on the property a vegetation type listed as Critically Endangered. Although much of the natural vegetation has been historically disturbed, pockets of ecologically significant vegetation remain, especially within the wetland zone. To mitigate loss of this vegetation, the layout was revised to reduce the number and footprint of erven, thereby retaining a greater portion of the vegetated areas within designated open space. Restoration of the corridor through alien vegetation clearing and indigenous replanting forms part of the mitigation strategy, aligning with biodiversity conservation objectives and improving the functioning of the ecological corridor.

Together, the integration of these specialist findings has resulted in a coordinated and holistic mitigation strategy. This includes the redesign of infrastructure to avoid sensitive areas, implementation of ecological buffers and servitudes, development of detailed management and offset plans, and a commitment to ongoing ecological monitoring. These measures collectively ensure that the development proceeds in a manner that is environmentally responsible, legally compliant, and aligned with sustainable land-use principles.

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

The mitigation hierarchy were applied in assessing and ultimately selecting the best practicable environmental option for the proposed development. The process applied the concept of avoidance, minimisation, rehabilitation, and offset, ensuring that all alternatives were assessed against the goal of reducing environmental harm while achieving sustainable development outcomes.

A range of factors informed the evolution of layout alternatives on the site, ultimately leading to the development of the new preferred alternative layout (Alternative 3). The location of the site adjacent to the Hoek van der Berg Nature Reserve, and the presence of a central wetland that forms part of a broader ecological corridor, were key considerations in the planning process. These ecological features significantly influenced the layout evolution. Although the site is relatively small and complete avoidance of all sensitive areas is not feasible, careful site planning has enabled substantial improvements and avoidance of most wetland area. These considerations formed the basis of the preferred layout, based on the recommendations of the specialists. While some of the residual impact ratings were classified as medium after mitigation, it is important to note that the proposed mitigation measures are practical and implementable on site. As such, these measures are expected to result in the most favourable outcome for biodiversity and ecosystem functioning.

The application of the mitigation hierarchy began with avoidance, aiming to preserve the most critical environmental areas on site. Where avoidance was not entirely possible, minimisation strategies were applied to reduce the extent and intensity of unavoidable impacts. These were then followed by proposed rehabilitation efforts, particularly in areas affected by necessary infrastructure. Finally, a strategy for offset was developed as a last resort, to compensate for the residual impact, particularly concerning wetland functionality and loss

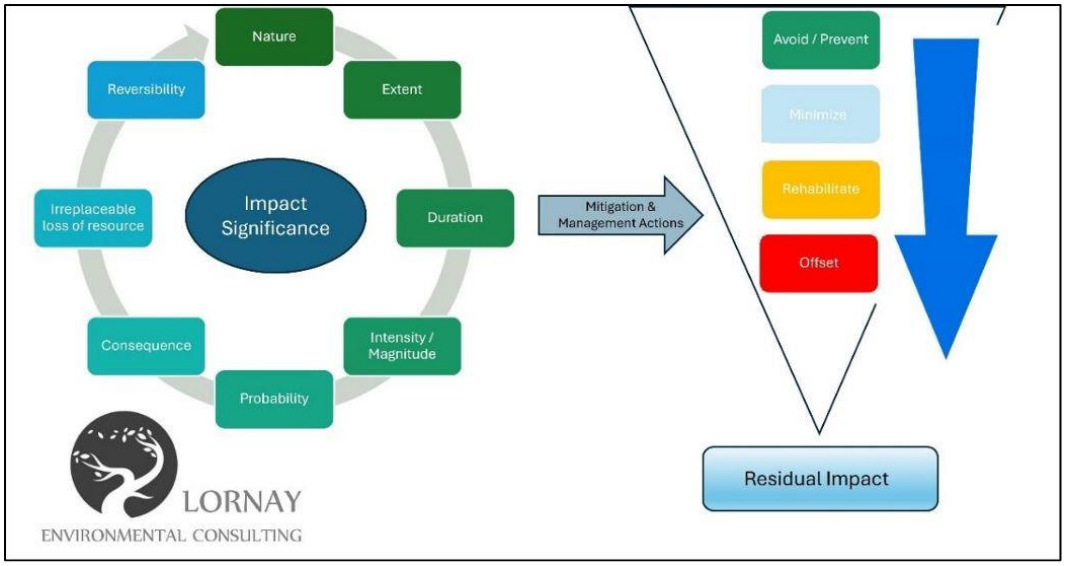


Figure 24a: Mitigation hierarchy

Avoidance

At the outset of the planning process, several site-specific sensitivities were identified that warranted avoidance. These included the wetland area and by default the ecological corridor linking the Hoek van der Berg Nature Reserve to the Vermont Salt Pan in the southeast. Initially, Alternative 2 was presented as the previous preferred layout during the initial rounds of public participation. Although it attempted to avoid the permanent wetland, further site analysis revealed that some erven were still encroaching into the wetland zone. This would have compromised wetland functioning and faunal movement.

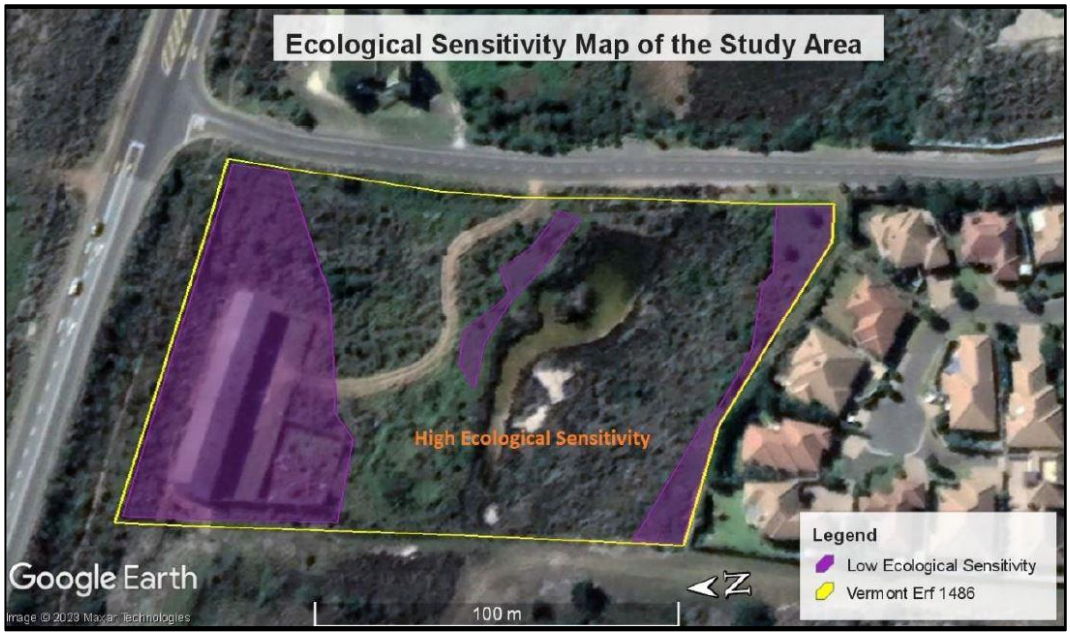
Additional assessment of the wetland and a Full Freshwater Impact Assessment was undertaken. It was confirmed that the impact of the intrusion into the wetland, as presented in Alternative 2, was not acceptable, prompting a reconsideration of the layout. In addition, the Terrestrial Impact Assessment recommended a reduction in number of units to reduce the impact on high sensitivity areas (this was implemented for Alterative 3).

Given the likelihood of faunal movement through the site and the potential presence of species of conservation concern (e.g., Cape Dwarf Chameleon), a faunal assessment was commissioned to inform Alternative 3 and mitigation measures provided to minimise the faunal impact of the development.

A revised Site Development Plan, Alternative 3, has been formulated in direct response to specialist findings and concerns raised during the public participation process. These concerns primarily related to the functionality of the wetland and its hydrological connectivity with the adjacent Vermont Salt Pan. Under the revised layout (Alternative 3), all proposed residential erven are located outside the delineated permanent wetland area. While some portions of the erven extend slightly into the outer edge of the seasonal and temporary wetland zones, these portions will be designated as no-go areas and will be excluded from any development activities. The layout of the access roads under Alternative 3 will result in a minor loss of approximately 0.024 hectares of wetland area, this is significantly reduced compared to the previous alternatives and is considered acceptable by the freshwater specialist, provided that mitigation measures and a comprehensive Wetland Offset and Rehabilitation Management Plan are implemented.

The presence of the ecological corridor remains a vital consideration, as it serves as a movement route for ground-dwelling fauna between the nearby nature reserve and the salt pan. The inclusion of a large portion of the site (58%) as private open space within the current layout (Alternative 3) is regarded as the final preferred layout option for the site.

Nonetheless, the proposed access road does slightly encroach into high sensitivity areas, contributing to the loss of approximately 500 m² of indigenous vegetation. While no plant species of conservation concern were recorded during surveys, there is a moderate likelihood that Disa *hallackii* (Endangered) may occur in low numbers. Therefore, while some impact remains unavoidable, the shift from Alternative 2 to Alternative 3 has reduced the ecological significance of the development from an unacceptable High negative impact to an acceptable Medium negative impact.



Minimisation

Where complete avoidance of impact was not possible, every effort was made to minimise adverse effects. The Western Cape Biodiversity Spatial Plan (2017), referenced during the assessment, classifies the entire site as Ecological Support Area 2 (ESA2) due to its role in maintaining ecological processes and connectivity between the nature reserve and the salt pan. According to the updated WCBSP Handbook and Guidelines (2023), ESA2 areas are not essential for meeting biodiversity targets but are crucial for supporting the functionality of Protected Areas and Critical Biodiversity Areas. The

guidelines state that such areas should be maintained in at least a functional, preferably natural-state, though limited habitat loss may be acceptable.

Under Alternative 3, the number of erven were reduced to nine, with smaller erf sizes and a smaller development footprint. This version also incorporates two access roads instead of the single road originally proposed in Alternative 2. These adjustments help minimise the extent of wetland encroachment, limiting wetland loss to approximately 0.024 ha. According to the freshwater specialist, this is an acceptable level of loss, given that it has been reduced as far as practicably possible. Additionally, the total loss of high-sensitivity indigenous vegetation has been significantly reduced to just 500 m². This is a marked improvement compared to Alternative 1 and Alternative 2, and the botanical specialist confirms that this loss is within acceptable limits, particularly because it avoids areas with confirmed conservation priority.

Engineering alternatives have also been included to minimise the impact of development on this site.

Rehabilitation

Despite minimisation efforts, the proposed access road in Alternative 3 will still result in the loss of 0.024 ha of seasonal/temporary wetland. This impact cannot be entirely mitigated on-site through design changes, as the wetland occupies much of the central and southern portions of the property. The freshwater specialist (van Zyl, 2024) confirms that further footprint reduction is not viable. Given this, wetland rehabilitation is proposed as a key mitigation measure.

The preferred and only viable approach is to implement a Wetland Offset, Rehabilitation, and Management Plan. This plan seeks to improve the Present Ecological State (PES) score of the wetland from Category D (largely modified) to Category C (moderately modified). It includes measures such as alien clearing, indigenous replanting, stormwater swale construction, and erosion control. If fully implemented, these interventions will enhance the functionality and biodiversity value of both the wetland and the surrounding open space. The freshwater specialist has deemed this an acceptable offset and rehabilitation strategy.

Offset

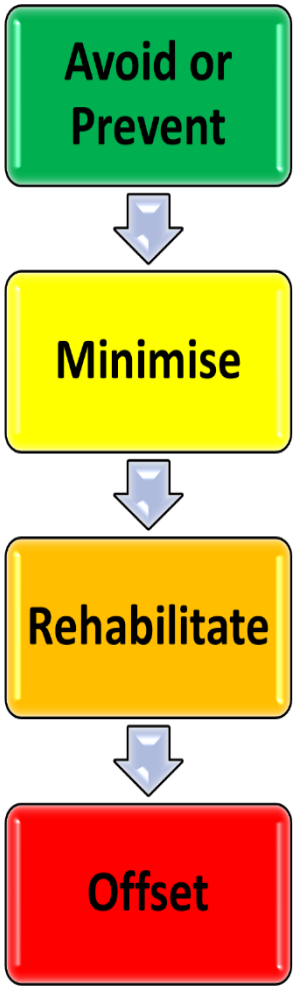
The Terrestrial Biodiversity Impact Assessment indicated that most vegetation on site is in a state of senescence, with many species declining due to the absence of natural ecological processes such as fire. The vegetation has not burned in over 20 years, which has altered its structure and species composition. While large areas are considered natural or semi-natural, many are no longer in optimal ecological condition.

Under the preferred layout (Alternative 3), the development now avoids all high sensitivity areas, with only about 500 m² of such habitat lost primarily due to road construction. The majority of development occurs on low sensitivity areas, which are already disturbed. Importantly, the revised layout preserves 58% of the site as Private Open Space, a substantial increase from the 36% in earlier layouts. This space will function both as a buffer and an ecological corridor, contributing to biodiversity conservation and connectivity on site.

Therefore, based on the limited scale of vegetation loss, the effective application of the mitigation hierarchy, and the implementation of on-site ecological restoration, a formal biodiversity offset is not warranted in this case. The focus will remain on in-situ conservation, restoration, and long-term maintenance under the management of the Homeowners' Association (HoA).

It is important to note that the commitment of rehabilitation and long-term protection of the central wetland system of site allows for opportunity to reinstate the broader ecological corridor linking Hoek van der Berg to the Vermont Salt Plan and this could provide an opportunity for collaboration with adjacent landowners and local conservation groups.

Summary of the Application of the mitigation hierarchy to reach the final preferred layout Alternative 3:



- Avoid all permanent wetland
- Avoid most of the seasonal wetland

- Use of raft foundations to minimize impact on wetlands &groundwater flow
- Minimize vegetation loss within High botanical sensitive areas – reduction of erven
- Stormwater management plan must be implemented on site to reduce post-construction stormwater flows.
- Search and rescue for animal species pre-construction.
- Avoiding need for extensive excavations and terracing for large scale construction in one space
- Avoiding sensitive areas identified by specialists (Aquatic, Botanical, Faunal)

- Continue with long term Alien Vegetation Management
- Implement Wetland Offset, Rehabilitation and Management Plan
- Implementation of the Stormwater Management Plan
- Rehabilitation and restoration of the ecological corridor connecting the Private Nature Reserve to the Vermont Salt Pan

- Implement Wetland Offset, Rehabilitation and Management Plan
- Long term protection and reinstatement of Ecological corridor btw Hoek van der Berg & Vermont Salt Pan

SECTION J: GENERAL

1. Environmental Impact Statement

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

The proposed development on Erf 1486, Vermont, involves the construction of residential erven, roads, and an open space on a 15069 m². The site is characterized by Hangklip Sand Fynbos, a critically endangered ecosystem gazetted under national legislation, and features a wetland delineated by the Freshwater specialist. The wetland comprises permanent and seasonal / temporary zones, with approximately 70 % of the site classified as having high ecological sensitivity due to its biodiversity and hydrological value.

Previously preferred (Alternative 2)

During the first round of public participation, Alternative 2 was the preferred layout. However, it faced significant opposition due to its high ecological impact. Erven 1, 2, 7, 8, 10, 11, 12, and 13 encroached near the permanent wetland zone, while Erf 14 (a road) crossed the wetland, resulting in an unacceptably high negative ecological significance. The Freshwater Specialist's assessment, including wetland delineation and a risk assessment matrix, rated the impact of wetland loss as medium to high under Alternative 2. Mitigation measures recommended removing the encroaching erven and rerouting the road to avoid crossing the wetland, which would reduce the impact to an acceptable level.

Revised Preferred Layout (Alternative 3)

In response to specialist findings from the Freshwater Ecologist and Terrestrial Biodiversity assessments, the layout evolved into Alternative 3, now the preferred option. This evolution sees the reduction of development within the areas of high ecological sensitivity, complete avoidance of the permanent wetland, and avoidance of the majority of the seasonal wetland, reducing wetland loss to 0.024 ha of a degraded portion, as noted by the aquatic specialist (van Zyl et al., 2023). This layout saw the reduction in erf numbers as well as the realignment of the internal roads. A mechanism for a conservation servitude and development exclusion zones on residential erven provide further avoidance of sensitive areas. While wetland loss typically carries a 'high' impact rating, the limited extent and degraded condition of the affected area lower the significance to an acceptable level. The residential erven now largely avoid high-sensitivity areas, with only approximately 500 m² of high-sensitivity habitat lost shifting from an unacceptable high negative impact (Alternative 2) to an acceptable medium impact (Alternative 3). The private access road no longer crosses the wetland, replaced by two separate access roads. The remaining delineated wetland area is designated as Private Open Space to preserve its ecological function.

Aquatic Biodiversity Impact Assessment

- A natural Unchanneled Valley-Bottom (UVB) wetland, confirmed and delineated over the years by various experts, most recently by van Zyl (2023). This wetland, part of a 1.4 km system feeding into the Vermont Salt Pan, has been shaped through excavated depression with an overflow pipe under Lynx Road, a stormwater outlet from the neighbouring residential development, and patches of alien Kikuyu grass crowding out native plants.
- The assessment utilised WET-Health tools to assess the wetland Present Ecological State (PES) which was found to fall under Category D indicating largely modified state, with a combined score of 58%. Past excavations, vegetation clearing, and urban runoff have altered its flow, geomorphology, and water quality, though some wetland plants like *Juncus kraussi* and *Typha capensis* still persist.
- The wetland Ecological Importance and Sensitivity (EIS) scored a moderate 2.0, reflecting its role in a Critically Endangered Southwest Sand Fynbos system and potential as a habitat for species like the Vulnerable Cape Dwarf Chameleon, even though no rare species were spotted onsite.
- The Wetland Ecosystem Services (WES) assessment showed moderately high value of the wetland for trapping sediment and toxins though its small size and condition limit broader benefits like flood control. The

Recommended Ecological Category (REC) suggests maintaining its current D status, though rehabilitation efforts if feasible may promote its REC to C status.

- The development's impacts were scrutinized across construction and operational phases, focusing on the preferred layout (Alternative 3), which minimizes wetland encroachment to about 0.024 hectares (3%) of the seasonal/temporary zone.
- Impacts from Alternative 3, including Medium-rated wetland loss and Low-rated flow and water quality changes post-mitigation, are addressed through measures such as No-Go zones during construction, swales, and invasive species removal, replanting of indigenous vegetation, rehabilitation efforts as well as stormwater management plan.
- Operation phase activities such as sewage leaks or runoff pollutants are manageable with quick repairs regular pipe checks, supported by rehabilitation efforts that could avoid such effects.
- The No-Go scenario would result to Very-low negative impact as the wetland slowly degrades under existing pressures due to invasion by alien plants, and stormwater runoff.
- The Moderate risk rating of the development for wetland loss requires a Water Use License under GN509, plus an on-site wetland offset plat to align with the "no net loss" policy. The Wetland Offset, Rehabilitation, and Management Plan targets the remaining 0.876 ha, projecting a net gain in function (0.1075 Hectare Equivalents) and habitat (1.2518 HE) via rehabilitation, aiming to elevate the PES to Category C and secure "no net loss" compliance.

Terrestrial Animal Site Sensitivity Verification Report and Species Specialist Assessment Report

- The site visit, supported by a desktop study using iNaturalist and GBIF records, aimed to confirm the presence of eight Species of Conservation Concern (SCC) identified by the screening tool which includes five birds (Black Harrier, African Marsh Harrier, Martial Eagle, Denham's Bustard, Hottentot Buttonquail), one additional bird (Striped Flufftail), one reptile (Southern Adder), and one invertebrate (Yellow-winged Agile Grasshopper) plus an additional near-threatened species, the Cape Dwarf Chameleon, identified during the desktop review.
- The Terrestrial Animal Site Sensitivity Verification rated the site's overall Site Ecological Importance (SEI) as Medium, driven by connectivity functions and habitat suitability for the Vulnerable Cape Dwarf Chameleon, though no Species of Conservation Concern (SCC) were observed onsite.
- Limited bird and reptile observations, 14 common species (e.g., Cape Spurfowl, Yellow-billed Duck, Cape River Frog, Four-striped Field Mouse) were recorded, none of which are SCC. The desktop study, however, confirmed regional records of the listed SCC, suggesting potential use of the site by some species. The project area of influence (PAOI) was set at a 100-meter buffer around the development footprint, excluding buildings and main roads, to assess impacts on herpetofauna, particularly the Cape Dwarf Chameleon.
- Applying the Site Ecological Importance (SEI) methodology from SANBI (2020), the report evaluated the site's biodiversity importance (BI) and receptor resilience (RR) for each SCC and connectivity functions. The overall SEI for the PAOI was rated "Medium," driven primarily by two factors: connectivity for animal species and habitat suitability for the Cape Dwarf Chameleon, which was not observed on site.
- The proposed layout (Alternative 3) slightly infringes on this corridor with residential erven and an access road, though impacts are reduced compared to earlier site development plan (Alternative 2). This connectivity was rated "Medium" SEI due to its moderate conservation importance and low resilience to further fragmentation, suggesting a need for mitigation to maintain faunal movement.
- For the SCC birds, the assessment found minimal impact. The Black Harrier, African Marsh Harrier, and Martial Eagle, all endangered, may forage onsite, but the small development footprint and retained open space mean habitat loss is insignificant relative to their wide ranges, earning a "Low" SEI rating.
- Denham's Bustard and Hottentot Buttonquail, also endangered, are unlikely to occur due to unsuitable dense wetland vegetation, resulting in a "Very Low" SEI.
- The Striped Flufftail, rated "Low" SEI, has marginally suitable habitat, but its presence couldn't be confirmed (call playbacks were inconclusive due to wind), and adjacent habitats offer refuge if present.

- The Southern Adder and Yellow-winged Agile Grasshopper, both vulnerable, were deemed absent due to unsuitable wetland-dominated conditions, also receiving a "Very Low" SEI.
- In contrast, the Cape Dwarf Chameleon, confirmed in the immediate vicinity, faces a "Medium" SEI due to suitable breeding and foraging habitat onsite, with permanent habitat loss and construction disturbance posing risks, though nearby reserves provide escape routes.
- Recommended mitigation measures include demarcating construction zones to protect the open space, rehabilitating it by removing rubble and alien vegetation, ensuring permeable fencing for small animal movement, and conducting a pre-construction search-and-rescue for chameleons and slow-moving species, with releases into the adjacent nature reserve.
- Long-term maintenance by a homeowners' association and restrictions on free-roaming pets (e.g., cats) were also advised. Post-mitigation, residual impacts remain "Medium," but the measures enhance ecological functionality.

Terrestrial Biodiversity Impact Assessment

- The site originally supports Hangklip Sand Fynbos, a Critically Endangered vegetation type with less than 68% of its historical extent remaining and under 18% conserved nationally.
- The site visit on 23 May 2023 revealed a landscape shaped by a central, unchanneled valley-bottom wetland covering about 70% of the property, bordered by senescent fynbos unburnt for over 20 years and disturbed patches dominated by alien invasive Kikuyu grass. This wetland, mapped as an Ecological Support Area (ESA2) in the CapeNature Spatial Biodiversity Plan, serves as a vital ecological corridor linking the Hoek van der Berg Private Nature Reserve to the west with the Vermont Salt Pan to the east, a role underscored by its role as a primary water source for the pan.
- The initial botanical survey identified no plant Species of Conservation Concern (SoCC) onsite, though *Disa hallackii* (Endangered) may occur, given records from nearby similar habitats and its fire-dependent nature, potentially masked by the site's long unburnt state.
- Faunal observations included common species like painted reed frogs (*Hyperolius marmoratus*) and clicking stream frogs (*Strongylopus grayii*), with the Cape Dwarf Chameleon (*Bradypodion pumilum*, Vulnerable) likely present based on regional iNaturalist records.
- Two endangered birds, such as African Marsh Harrier (*Circus ranivorus*) and Black Harrier (*Circus maurus*) may forage onsite occasionally, though their wide ranges suggest minimal reliance on this small area.
- The Southern Adder (*Bitis armata*, Vulnerable), flagged by the DFFE Screening Tool, was deemed unlikely due to unsuitable wetland conditions.
- About 70% of the site was classified as High ecological sensitivity, driven by its Critically Endangered vegetation, wetland presence, and corridor function.
- The original layout assessed in May 2023 (Alternative 2) proposed erven and an access road encroaching significantly into High sensitivity areas, including the wetland, leading to a High negative ecological impact rating for both construction and operational phases before mitigation.
- Construction impacts included permanent loss of Critically Endangered vegetation and faunal habitat across eight erven (1, 2, 7, 8, 10, 11, 12, 13) and the access road (erf 14), affecting slow-moving species like frogs and the Cape Dwarf Chameleon, which may occur onsite.
- The No-Go alternative maintaining the status quo with minor alien vegetation management was strongly preferred, which is rated Neutral to Low negative.
- The specialist recommendations emphasised avoidance, requiring removal of erven 1, 2, 7, 8, 10, 11, 12, and 13 and rerouting the access road to avoid the wetland, reducing direct impacts to an acceptable Medium negative. Additional mitigation included prohibiting infrastructure across High sensitivity areas, using permeable fencing, pegging boundaries to limit disturbance, and removing alien invasives pre-construction using best practices (Martens et al., 2021). Without these changes, the project was deemed ecologically unacceptable. The report concluded that while the site's High sensitivity warranted protection, a revised layout adhering to these measures could balance development and conservation.

- The addendum, dated 15 November 2023, reviewed Alternative 3, a refined layout responding to the initial concerns. This version excludes most High sensitivity areas from residential erven, limiting habitat loss to about 500 m², and introduces two access roads to avoid crossing the wetland, aligning with Helme's mitigation requirements.
- The private open space increases to 58% of the erf (up from 36%), enhancing conservation potential. Consequently, the ecological significance drops from an unacceptable High negative (Alternative 2) to an acceptable Medium negative (Alternative 3), making the project viable with proper mitigation.
- All prior mitigation measures remain, with an added requirement: the Homeowners Association (HoA) must annually remove alien invasive vegetation from the open space, per NEMBA legislation and Martens et al. (2021) guidelines, with adequate funding secured.
- The specialist supports proceeding with Alternative 3, provided these measures are fully implemented.

Stormwater Management Findings

- The Stormwater Management Plan for Erf 1486 prepared by DECA Consulting Engineers provides a comprehensive approach to managing stormwater for the proposed residential development.
- The site is located at the corner of the R43 and Lynx Avenue in Vermont, in a notably flat terrain, with a wetland area present on site and drains eastward into the Vermont Salt Pan (wetland area). Given its position within a larger catchment that includes steep mountainous terrain to the north, the report emphasizes the need to address both the quantity and quality of stormwater runoff in order to protect the proposed development and the receiving environment. This is particularly critical as the site forms only a small part of the broader catchment, meaning upstream flows significantly influence local conditions.
- One of the most noticeable results is the minimum difference between pre- and post-development peak flow runoff for the site in question (Catchment Area 2, south of the R43), where numbers show only slight reductions post-development (e.g., Q50 from 0.76 m³/s to 0.75 m³/s).
- However, when considering the natural attenuation provided by the wetland (approximately 10,000 m²), the report highlights a slight increase in runoff through the Lynx Avenue culvert post-development (e.g., Q50 rising from 2.491 m³/s to 2.575 m³/s). To address this, the plan proposes Low Impact Development (LID) methods, specifically permeable paving to the south of the wetland area and an enhanced swale system to the north of the wetland, which will effectively reduce post-development runoff to pre-development levels or lower (e.g., Q50 reduced to 2.45 m³/s with LID).
- This complies with the policy of the City of Cape Town to have a 50-year return interval peak flow equal to existing conditions.
- The report also covers water quality, a key consideration as the site is located next to the wetland. The City of Cape Town Management of Urban Stormwater Impacts Policy stipulates an 80% removal of suspended solids (SS) and a 45% removal of total phosphorus (TP) for a 1-in-2-year storm event.
- The proposed permeable paving and upgraded swale systems meet these requirements, offering a 50% reduction in TP, 65% in total nitrogen, and 60% in heavy metals, although specific SS reduction figures are not provided. These systems, detailed with technical specifications like a 400 mm storage height and 43% void ratio, are designed to filter runoff effectively, balancing on-site and regional treatment as required by the policy.
- Another critical finding is the management of stormwater crossing the R43 from the northern mountainous catchment (Catchment Area 1). This area, unaffected by the development, discharges stormwater through culverts into the site, posing a flood risk.
- The plan includes controlling this flow with either twin 900 mm diameter pipes or a 1.3 m wide by 0.7 m high trapezoidal channel through Erf 1486, ensuring safe passage of stormwater to the wetland. Furthermore, it recommends elevating properties by a minimum of 1.0 m above the wetland elevation to offer flood protection, a practical measure given the slight water level increases post-development (e.g., Q100 rising from 0.67 m to 0.69 m) which would be reduced back to 0.67 m with LID.
- Lastly, the plan emphasises the importance of ongoing maintenance to sustain these systems. For the permeable paving, monthly checks and vacuum sweeping three to four times a year are advised, while the enhanced swale

requires regular inspection of vegetation, soil filtration, and debris removal. These measures ensure long-term functionality and environmental protection.

Wetland Offset, Rehabilitation and Management Plan

- After exploring various layout options, the preferred development plan (Alternative 3) minimizes wetland impact by limiting encroachment to the eastern and southern boundary access roads, resulting in a loss of approximately 0.024 hectares or 3% of the wetland. However, the assessment found that completely avoiding wetland loss was unfeasible due to the wetland's extensive coverage across the site, even with a reduced footprint.
- Applying the mitigation hierarchy fully, specialists determined that some wetland loss was unavoidable, though it had been reduced as far as practically possible. To address this, Delta Ecology was tasked with developing a comprehensive Wetland Offset, Rehabilitation, and Management Plan. This plan identifies the remaining 0.876 hectares of the onsite wetland as the offset area, detailing rehabilitation and management actions to compensate for the loss while aligning with national offset guidelines (Macfarlane et al., 2016).
- Using the Macfarlane et al. (2016) wetland offset calculator, the lost wetland portion was valued at 0.0139 Hectare Equivalents (HE) of function and 0.1323 HE of habitat. Rehabilitation of the remaining wetland, through measures like removing foreign fill material, controlling alien invasive species (e.g., Kikuyu and Pampas grass), and revegetating with indigenous species, is projected to yield a gain of 0.1214 HE of function and 1.3841 HE of habitat. This results in a net surplus of 0.1075 HE of function and 1.2518 HE of habitat, exceeding the offset requirements.
- At the time of assessment, the wetland's Present Ecological State (PES) was Category D (largely modified), but the proposed interventions aim to elevate it to an upper Category C (moderately modified), enhancing its ecological health and functionality.
- The rehabilitation measures include practical steps such as clearing dumped rubble, reshaping the wetland profile, and implementing stormwater management to mitigate runoff impacts from the development.
- Revegetation will involve planting locally indigenous species, targeting 80% vegetation cover within 8-12 months, while ongoing management will ensure these gains are sustained.
- The plan also recommends formal protection of the wetland via a conservation servitude, preventing future development.
- Specialists concluded that this approach is implementable without compromising the development's feasibility, offering substantial biodiversity gains.

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)

See Appendix D.

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.

ALTERNATIVE ONE

Positive:

- Alternative 1 offers socio-economic advantages by supplying residential erven to meet the high demand for housing in Vermont and Hermanus, fostering infill development within a growing urban area.
- Investment in the local economy, including potential upgrades or contributions to service infrastructure such as water and sewer systems.
- Job creation during construction and related activities would provide short-term employment opportunities, benefiting the community.

Negative:

- This alternative is severely flawed due to its complete disregard for the onsite wetland, a critical feature delineated as part of a 1.4 km system feeding the Vermont Salt Pan.
- The layout lacks any provision for wetland protection, risking total loss of its hydrological and ecological functions, including sediment trapping and habitat provision for species like the Vulnerable Cape Dwarf Chameleon.
- It offers no opportunity for wetland rehabilitation or long-term management to enhance connectivity with adjacent freshwater ecosystems, such as the Salt Pan and Hoek van der Berg Private Nature Reserve. This approach would likely result in a High negative ecological impact, contravening NEMA principles and triggering significant regulatory hurdles, including the need for a Water Use Licence (GN509) without mitigation or offset feasibility.

ALTERNATIVE TWO

Positive:

- Supply of residential erven to Vermont and Hermanus in response to large demand for residential opportunities.
- Investment in the area
- Upgrade and / or contribution to service infrastructure in the area
- Job creation
- Opportunity to rehabilitate the wetland and provide long term management as well as facilitate connection with the surrounding freshwater ecosystems
- Management of activities on site and not adhoc use as currently experienced

Negative:

- Erven 1, 2, 7, 8, 10, 11, 12, and 13 encroach into the wetland's seasonal/temporary zone, while erf 14 (a private road) crosses its permanent zone, earning a High negative ecological impact rating from Helme (2023) and a Medium to High wetland loss risk from van Zyl et al. (2023). This crossing disrupts hydrological connectivity to the Salt Pan, altering flow regimes and impairing ecosystem services like water quality regulation.
- Permanent loss of Critically Endangered Hangklip Sand Fynbos and habitat for slow-moving fauna (e.g., frogs, Cape Dwarf Chameleon) is a major concern, with the Terrestrial Biodiversity Assessment noting a 50% reduction in the wetland corridor's width, exacerbating fragmentation.
- Community risks include potential flooding or water quality issues downstream if mitigation fails, though these are less pronounced than ecological impacts.

ALTERNATIVE THREE (PREFERRED)

Positive:

- Alternative 3 delivers socio-economic gains, providing housing for new residents amid high demand, attracting investment, and creating jobs during construction and operational phases.
- Infrastructure upgrades, notably a sewer system upgrade from 110 mm to 160 mm diameter pipelines, enhance service capacity for the surrounding area.
- The layout excludes most High ecological sensitivity areas, limiting wetland loss to 0.024 ha and conserving a total of 0.876 ha erf as Private Open Space.
- This design, shaped by specialist input, supports wetland rehabilitation targeting a PES shift from Category D to C and long-term management, including alien vegetation removal and stormwater control via permeable paving and vegetated swales.
- The Wetland Offset Plan ensures a net ecological gain (0.1075 Hectare Equivalents function, 1.2518 HE habitat), aligning with the "no net loss" policy and enhancing connectivity to the Salt Pan and nature reserve.
- Community benefits include improved environmental quality and potential flood protection from elevated properties and Low Impact Development (LID) measures.

- Opportunity for reinstatement of the broader ecological corridor and link between the Vermont Salt Pan and Hoek van der Berg in conjunction with the neighbouring landowners and local conservation bodies.

Negative:

- Despite its refinements, Alternative 3 entails a minimal wetland loss of 0.024 ha (seasonal zone), rated Medium post-mitigation due to the affected area's degraded state.
- The Terrestrial Biodiversity Assessment notes a loss of 500 m² of High sensitivity habitat which is far less than Alternative 2 impact, potentially affecting the Cape Dwarf Chameleon, though mitigated by search-and-rescue and permeable fencing (Venter, 2024).
- Construction-phase risks include temporary disturbance to fauna and water quality, manageable with No-Go zones and swales.
- Post-construction phase impacts such as sewage leaks or runoff pollutants pose Low risks, which are addressed by regular maintenance and rehabilitation efforts.
- While the Terrestrial Animal Sensitivity Report rates connectivity impacts as Medium, the retained open space mitigates fragmentation compared to Alternative 2.

Community risks are minimal, though long-term success hinges on Homeowners Association diligence in managing the open space.

NO GO – STATUS QUO REMAINS

Positive:

- The No-Go alternative avoids direct development impacts, preserving the site's current ecological footprint.

Negative:

- The No-Go scenario offers no active management or rehabilitation of the wetland, which is currently degraded (PES Category D) due to past excavations, alien Kikuyu grass dominance, and urban runoff.
- The Aquatic Biodiversity Assessment predicts a Very Low negative impact from continued degradation, as unregulated activities, e.g., dumping and invasive species spread persist unchecked.
- The Terrestrial Biodiversity Assessment reinforces continued degradation, noting the absence of alien vegetation control that would diminish the site's ecological value over time.
- The lack of formal conservation measures limits long-term ecological benefits, leaving the site vulnerable to incremental harm.
-

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

Terrestrial Biodiversity Impact Assessment:

Terrestrial Biodiversity Impact Assessment and its Addendum to be implemnted to mitigate habitat loss, protect ecological connectivity, and manage invasive species, ensuring the development aligns with ecological sustainability principles.

Outcome:

Avoidance of High Sensitivity Areas to Minimize Habitat Loss. The objective is to prevent significant loss of High sensitivity habitats, limiting terrestrial vegetation loss to approximately 500 m² as achieved in Alternative 3, avoiding the unacceptable High negative ecological impact of the original layout.

Recommended mitigation measures:

- → No erven should intrude significantly into the seasonal wetland portions – no development zones on some erven as per the Regulated Areas Management Plan
- → No pipelines, cabling or infrastructure should be installed across the High sensitivity areas or wetlands.
- → Any boundary fencing used must be permeable to small animals at ground level.
- → The authorised erf and road boundaries should be surveyed and pegged out and fenced on site prior to any site development.
- → No areas of natural or partly natural vegetation should be disturbed outside the pegged/fenced out and authorised erven. No vehicular activity or dumping of material may take place outside the authorised erven or roads.
- → All alien invasive vegetation should be removed from within the natural portions of the project area, prior to any authorised development. Removal of the alien vegetation must be undertaken by a trained and licensed alien vegetation removal team and must be undertaken using methodology outlined in the Best Practise Guidelines (see Martens et al 2021).
- → The Homeowners Association (HoA, or similar) for the proposed development must ensure that all alien invasive vegetation (as per NEMBA legislation) is removed from the Public Open Space area on an annual basis by qualified contractors, using methodology as prescribed in Martens *et al* (2021; see below for reference). The HoA must ensure that there is adequate funding for this every year.
- → In order to try and safeguard the ecological integrity of the No Go wetland areas on Erven 1-8 (also shown in Figure 1) these areas that should not be altered, developed, gardened, covered, excavated, drained, infilled or disturbed in any way. Landowners and the HoA must be made aware of these constraints both prior to and after purchase. Alien invasive plant species should be removed from these areas on an annual basis, as part of the management actions required for the adjacent Private Open Space.

Aquatic Biodiversity Impact Assessment:

Outcome

Rehabilitation and Long-Term Management of the Wetland and Natural Vegetation. The objective is to enhance the wetland's Present Ecological State (PES) from Category D to Category C and maintain ecological functionality of the conserved 58% Private Open Space. The below measures address the impacts associated with the Wetland loss, Altered flow regime, and Water Quality Impairment, within the UVB wetland.

Recommended mitigation measures:

Construction phase

Impact 1: Wetland Loss

→ An Offset, Rehabilitation and Management Plan must be drafted by a suitably qualified specialist – Complete, See Appendix F8.

Impact 2: Disturbance to Wetland Habitat

→ Designate the UVB wetland area as a No Go for construction activities (for both the residential development and the replacement / upgrade of the sewer pipeline). Clearly demarcate the construction footprint (including construction camp, access roads, stockpile areas and working servitudes) with orange hazard tape, fencing or similar prior to the commencement of any activity, and strictly prohibit the movement of construction vehicles and personnel outside of the demarcated areas.
→ Locate site camps, laydown areas, stockpile areas, construction material, equipment storage areas, vehicle parking areas, bunded vehicle servicing areas and re-fuelling areas in designated areas of already hardened surface or disturbed areas located outside of the No Go area. These areas should preferably be located on level ground in a previously disturbed area of vegetation approved by the Environmental Control Officer (ECO). Cut and fill must be avoided where possible during the set-up of the construction site camp.
→ Demarcation of the construction footprint/working servitude must be signed off by an ECO (or similar). Demarcation should not be removed until construction is complete, and rehabilitation (if applicable) has taken place.
→ Limit access into the construction footprint to existing access roads.
→ Prohibit the dumping of excavated material, building materials or removed vegetation within the No Go area. Building material must be stored at the designated storage area located outside of the no-go area. Spoil material must be appropriately disposed of at a registered waste disposal facility.
→ Undisturbed topsoil and subsoils removed from the construction footprint must be stored separately at the designated stockpile area for future rehabilitation.
→ Vegetation clearance should be restricted to the relevant development components and indigenous vegetation cover should be maintained as far as practically possible.
→ Vegetation which is considered suitable for rehabilitation activities after construction (such as indigenous grasses and other herbaceous species) should be carefully removed from the construction footprint and stored at an appropriate facility for use in later rehabilitation activities.
→ Clear and remove any rubble or litter that may have been accidentally deposited into the no-go area because of construction activities and dispose of at an appropriate registered facility.
→ An ECO must inspect the construction footprint on a weekly basis and must take immediate measures to address unforeseen disturbances to the wetland. Any disturbed / compacted areas falling outside of the demarcated construction footprint must be immediately rehabilitated. Depending on the extent of damage the method of rehabilitation may require input from an aquatic specialist / suitably qualified contractor.
→ Once construction has been completed, orange hazard fences as well as all construction waste, rubble, and equipment must be removed from the construction footprint.
→ In line with the NEMBA, all AIPS listed under the amended AIPS Lists (DEFF: GN1003, 2020) must either be removed or controlled on land under the management of the proponent.

- → An Offset, Rehabilitation and Management Plan must be drafted by a suitably qualified specialist. Rehabilitation must take place as soon as possible after construction is completed, and monitoring of rehabilitated areas must be undertaken. A suitably qualified professional must supervise the rehabilitation and monitoring activities.

Impact 3: Altered flow regime

- → Designate the wetland area as a No Go for construction activities (for both the residential development and the replacement / upgrade of the sewer pipeline).
- → The status quo in terms of hydrological connection from Erf 1486 to the downstream system must be maintained / should not be impacted because of the proposed development.
- → If possible, conduct construction activities of dwellings, associated stormwater infrastructure and any rehabilitation activities during summer months (November to March).
- → Ensure that effective stormwater management measures are implemented during construction. Stormwater management must ensure that no runoff, which will impair the water quality and lead to increased sedimentation, may enter the downstream wetland area. Additionally, clean SW which does enter the downstream wetland system should do so in a manner that ensures no erosion occurs, specifically during storm events, such as through vegetated swales.
- → Appropriately designed raft foundations for residential dwellings may significantly reduce the impact on subsurface flow and therefore reduce this impact / risk.
- → Rainwater harvesting schemes may reduce runoff intensity and thereby mitigate the impact of catchment hardening.
- → The alien invasive vegetation present within the wetland area must be removed and replanted with indigenous wetland vegetation.
- → An Offset, Rehabilitation and Management Plan must be drafted by a suitably qualified specialist.

Impact 4: Water Quality Impairment

- → Designate the wetland area as a No Go for construction activities (for both the residential development and the replacement / upgrade of the sewer pipeline).
- → The site manager / ECO must check the No Go area for pollution/spills, erosion damage and sedimentation weekly and after every heavy rainfall event. Should pollution, erosion or sedimentation be noted, immediate corrective measures must be undertaken.
- → Fuel, chemicals, and other hazardous substances should preferably be stored offsite, or as far away as possible from the no-go area. These substances must be stored in suitable secure weather-proof containers with impermeable and bunded floors to limit pilferage, spillage into the environment, flooding, or storm damage.
- → Inspect all storage facilities, vehicles, and machinery daily for the early detection of deterioration or leaks and strictly prohibit the use of any vehicles or machinery from which leakage has been detected.
- → Mixing and transferring of chemicals or hazardous substances must take place outside of the No Go area, and must take place on drip trays, shutter boards or other impermeable surfaces.
- → Drip trays must be utilised at all fuel dispensing areas; and during the maintenance of existing sewer flow as possible.
- → Vehicles and machinery should preferably be cleaned off site. Should cleaning be required on site it must only take place within designated areas outside of the No Go area and should only occur on bunded areas with a water/oil/grease separator.
- → Dispose of used oils, wash water from cement and other pollutants at an appropriate licensed landfill site.
- → Avoid the use of infill material or construction material with pollution / leaching potential. Where possible, in situ earthen materials must be used during construction to reduce the risk of leachate from imported materials contaminating the wetland area.

- → Concrete should preferably be imported as "ready-mix" concrete from a local supplier. Should onsite concrete mixing be required it must not be done on exposed soils. Concrete must be mixed on an impermeable surface in an area of low environmental sensitivity identified by the ECO outside of the no-go area. Surplus or waste concrete must be sent back to the supplier who will dispose of it.
- → Construct temporary bunds around areas where cement is to be cast in situ.
- → Dispose of concrete and cement-related mortars in an environmental sensitive manner (can be toxic to aquatic life). Disposal of any of these waste materials into the No Go area is strictly prohibited.
- → Washout must not be discharged into the no-go area. A washout area should be designated, and wash water should be treated on-site.
- → Clean up any spillages immediately with the use of a chemical spill kit and dispose of contaminated material at an appropriately registered facility.
- → Provide portable toilets where work is being undertaken (1 toilet per 10 workers). These toilets must be located within an area designated by the ECO outside of the no-go area and should preferably be located on level ground. Portable toilets must be regularly serviced and maintained.
- → Provide an adequate number of bins on site and encourage construction personnel to dispose of their waste responsibly.
- → Waste generated by construction personnel must be removed from the site and disposed of at a registered waste disposal facility on a weekly basis.

Post-construction phase

Impact 5: Disturbance of Wetland Habitat

- → Prohibit littering and dumping within the wetland area. Clear and remove any rubble or litter that may have been accidentally deposited into the wetland and dispose of at an appropriate registered facility. Monitoring of litter/dumping within the wetland must be managed by a Homeowners Association (HoA).
- → In line with the NEMBA, all AIPS listed under the amended AIPS Lists (DEFF: GN1003, 2020) must either be removed or controlled on land under the management of the proponent.
- → Vegetation which needs to be re-planted (if applicable) within each northern Erf should be planted with indigenous vegetation, which would be considered an adequate buffer during operational phase considering the nature of development (single residential dwellings).

Impact 6: Altered flow

- → Vegetation which needs to be re-planted (if applicable) within each northern Erf (Figure 7-1) should be planted with indigenous vegetation, which would be considered an adequate buffer during operational phase considering the nature of development (single residential dwellings).
- → Runoff from the proposed development must not increase from the pre-development to the post-development scenario.
- → The status quo in terms of hydrological connection from Erf 1486 to the downstream system must be maintained / should not be impacted because of the proposed development.
- → Discharge stormwater from rooftops into rain harvesting tanks. This will limit the volumes of stormwater runoff that will reach the wetland area. Where possible, water collected in rain harvesting tanks can be utilized for flushing of toilets, washing etc.
- → Stormwater runoff should preferably be discharged as diffuse flow into well vegetated areas outside of the wetland.
- → Energy dissipaters / erosion protection measures (such as lining with stones, grass, reno-mattresses, or gabions) must be constructed where stormwater is released to reduce the runoff velocity and therefore erosion.

- → Sheet runoff from hardened surfaces must be intercepted and the treatment and infiltration of runoff must be promoted.
- → Sediment traps should be incorporated into stormwater drains / swales upstream of any discharge points.
- → Monitor the wetland area for erosion and sedimentation after heavy rainfall events. Any erosion noted must be immediately addressed. Rehabilitation measures may include the removal of accumulated sediment by hand, filling of erosion gullies and rills, the stabilisation of gullies with silt fences, riprap, and the revegetation of stabilised areas.
- → Stormwater systems will require ongoing maintenance. Any build-up of silt or debris within stormwater drains or swales will need to be cleared to ensure the continued functioning of the systems.
- → Any damage to stormwater infrastructure, and any flaws identified in the functionality of stormwater infrastructure, must be rectified immediately.
- → Appropriately designed raft foundations for residential dwellings may significantly reduce the impact on subsurface flow and therefore reduce risk.
- → Rainwater harvesting schemes may reduce runoff intensity and thereby mitigate the impact of catchment hardening.

Impact 7: Water quality impairment

- Design a SWMP which will allow for the infiltration and treatment of stormwater. All stormwaters must receive basic filtering and treatment prior to its release – Complete, See Appendix F7.
- Incorporate measures into the stormwater design to trap solid waste, debris and sediment carried by stormwater. Measures may include the use of curb inlet drain grates and debris baskets/bags.
- Stormwater generated from areas with a higher risk of contamination such as parking areas and roads (as applicable) must receive basic filtering and treatment prior to its release into surrounding areas.
- Stormwater systems must be monitored and maintained into perpetuity and collections of debris and solid waste removed from grates and baskets. The developer must confirm who will be responsible for this monitoring and maintenance as well as their roles (likely HoA).
- Operational phase mitigation implemented during the design/construction phase:
    - Construct sewage pipelines in accordance with the relevant SANS / SABS specifications.
    - Design the pipelines to accommodate the operating and surge pressures.
    - Provide surge protection e.g. air valves.
    - Allow for scour valves along pipelines to ensure sewage pipelines can be emptied in a controlled manner if required.
    - Allow for surcharge containment and emergency storage of 2 hours of peak flow at manholes located within areas upslope of the wetland. Containment/emergency storage may include a concrete box or earthen bund surrounding the manholes. The backup storage capacity of manholes may also be improved by raising the manholes by one meter.
- The sewage system must be monitored and maintained into perpetuity. The developer must confirm who will be responsible for this monitoring and maintenance as well as their roles.
- The wetland area must be regularly inspected for waste. Any waste or litter noted must be immediately removed and disposed of at a registered waste disposal facility. The developer must confirm who will be responsible for this monitoring of the wetland area (HoA).

Terrestrial Animal Site Sensitivity Verification Report and Species Specialist Assessment Report

Outcome:

The outcome of this report involves the provision of open space of to facilitate a more functional corridor for Terrestrial fauna. The objective involves maintaining functional connectivity within the Ecological Support Area (ESA2) corridor linking

the Hoek van der Berg Private Nature Reserve to the Vermont Salt Pan, reducing the 'Medium' SEI risk to animal movement from development infringement.

Recommended mitigation measures

The following animal impact related mitigation measures are recommended for this development.

- → During the construction phase the construction area should be clearly demarcated and blocked off from the 'private open space' area to avoid damage and pollution.
- → Pre and post construction site preparation should include rehabilitation of the 'private open space' by removing current building rubble and litter from this area.
- → Long term maintenance of ecological integrity of the 'private open space' is critical. Therefore, measures should be put in place for constant removal of alien vegetation, cleanup of litter and prevention of illegal dumping. Clear legal responsibility for the maintenance of the space should be entrenched to be the responsibility of the homeowners association.
- → The fence traversing the ecological corridor should always be permeable to allow for movement of small sized animals e.g. small antelope, genets, mongoose between the nature reserve and wetland system.
- → Search and Rescue of chameleons and other slow-moving animals is feasible due to the presence of the adjacent nature reserve where they can be released. A search and rescue effort should be implemented before and during construction where animals that are found are released in the adjacent nature reserve. The necessary permission and permits should be attained before this is done. Search and Rescue to be done in collaboration with Whale Coast Conservation (Sheraine van Wyk).
- → Pets (especially domestic cats) should not be allowed to free-roam the 'private open space'.

Stormwater Management Plan

Objectives

- → Control of Stormwater Quantity and Rate of Runoff
- → Improve Quality rate of Runoff.

To achieve the above objectives, stormwater quantity and rate of runoff, the following Low Impact Development (LID) is proposed:

- → Permeable Paving for a section of the road for the section south of the wetland (refer to **Table 9** of the Stormwater management plan for criteria).
- → Enhanced swale for the section North of the wetland area (refer to **Table 10** of the Stormwater management plan for criteria).

Recommended mitigation measures

- → It is proposed that the stormwater runoff through the above 2 x 600mm diameter pipe culvert be controlled by the provision of a channel or lined channel through Erf 1486, Vermont at the following position (indicated with red arrow above):
- → The size of the pipe system or lined channel system is proposed to be as follows:
  - 2 x 900mm dia. Pipes, OR
  - 1.3m(b) x 0.7m(h) trapezoidal channel with 1:1 side slope.
- → That the proposed development be protected from flooding by ensuring that the properties are above at least 1.0m from the wetland area.

Mitigation measures recommended by the Freshwater specialist in addition to Stormwater Management Plan

- → Discharge stormwater from rooftops into rain harvesting tanks. This will limit the volumes of stormwater runoff that will reach the wetland. Where possible, water collected in rain harvesting tanks can be utilised for flushing of toilets, washing etc.
- → Vegetated swales must be utilised rather than concrete drains or underground stormwater pipes in order to encourage infiltration, particularly next to roadways.
- → Energy dissipaters / erosion protection measures (such as lining with stones, grass, reno-mattresses, or gabions) must be constructed where stormwater is released in order to reduce the runoff velocity and therefore erosion.
- → Sheet runoff from hardened surfaces must be intercepted and the treatment and infiltration of runoff must be promoted.
- → Sediment traps should be incorporated into stormwater drains / swales upstream of all discharge points into the wetland.
- → All stormwater draining into the wetland must receive basic filtering and treatment prior to its release.
- → Incorporate measures into the stormwater design to trap solid waste, debris and sediment carried by stormwater. Measures may include the use of curb inlet drain grates and debris baskets/bags.
- → Stormwater generated from areas with a higher risk of contamination such as parking areas and roads must receive basic filtering and treatment prior to its release into surrounding areas. Treatment methods may include sand filter traps and oil-water separators which will require maintenance.
- → The extent of hardened surfaces must be minimised. E.g. where required permeable paving must be used.

- → Homeowners must be encouraged to landscape their gardens with the use of indigenous species to decrease the area of hardened surface and increase infiltration.
- → Homeowners should store any potential pollutants in such a way that pollution will not occur to the wetland (such as any fuel, etc.). Potential pollutants should be stored in an adequately bunded area.
- → The use of herbicides, pesticides and any other poisons within private gardens must be strictly prohibited. The home owner's association must be responsible for ensuring that residents are compliant with this.
- → Backwashing of swimming pools directly into the wetland must be strictly prohibited. Backwash water can be collected in settling tanks where dirt and debris settle to the bottom. The cleaner water can then be reused for non-potable purposes or even filtered back into the pool system. Backwash water can be diverted to greywater tanks.
- → Monitor the proposed development and adjacent wetland for erosion and sedimentation after heavy rainfall events. Any erosion noted must be immediately addressed. Rehabilitation measures may include the removal of accumulated sediment by hand, filling of erosion gullies and rills, the stabilisation of gullies with silt fences, riprap, and the revegetation of stabilised areas.
- → Stormwater systems will require ongoing maintenance. Any build-up of silt or debris within stormwater drains or swales will need to be cleared to ensure the continued functioning of the systems.
- → Any damage to stormwater infrastructure, and any flaws identified in the functionality of stormwater infrastructure, must be rectified immediately.
- → Stormwater systems must be monitored and maintained into perpetuity and collections of debris and solid waste removed from grates and baskets. The developer must confirm who will be responsible for this monitoring and maintenance as well as their roles.
- → The stormwater system must be designed by a suitably qualified engineer with input from an aquatic specialist.

Wetland Offset, Rehabilitation, and Management Plan

The development, comprising single residential erven, will result in the loss of 0.024 ha (3%) of the wetland due to eastern and southern boundary access roads, despite efforts to minimize encroachment through layout adjustments.

Outcomes

- → Offset of Wetland Loss to Achieve No Net Loss of Function and Habitat.
- → Restoration of Wetland Habitat Integrity through Rehabilitation
- → Enhancement of Wetland Functionality through Stormwater Management
- → Long-Term Maintenance of Wetland Offset Gains

Objectives

- → The objective is to compensate for the unavoidable loss of 0.024 ha of UVB wetland (0.0139 HE function, 0.1323 HE habitat) through onsite rehabilitation, achieving a net gain in wetland value as per Macfarlane et al. (2016) guidelines.
- → Restore the ecological integrity of the 0.876-ha offset wetland by removing disturbances and re-establishing indigenous vegetation, enhancing habitat quality from a largely modified (Category D) to a moderately modified (upper Category C) state.
- → Protect the hydrology and water quality of the offset wetland by mitigating increased runoff and contamination risks from the development's hardened surfaces
- → Ensure the rehabilitated wetland's PES (upper Category C) and biodiversity gains are sustained in perpetuity through active management and monitoring.

Recommended mitigation measures

- → Discharge stormwater from rooftops into rain harvesting tanks. This will limit the volumes of stormwater runoff that will reach the wetland. Where possible, water collected in rain harvesting tanks can be utilised for flushing of toilets, washing etc.
- → Vegetated swales must be utilised rather than concrete drains or underground stormwater pipes in order to encourage infiltration, particularly next to roadways.
- → Energy dissipaters / erosion protection measures (such as lining with stones, grass, reno-mattresses, or gabions) must be constructed where stormwater is released in order to reduce the runoff velocity and therefore erosion.
- → Sheet runoff from hardened surfaces must be intercepted and the treatment and infiltration of runoff must be promoted.
- → Sediment traps should be incorporated into stormwater drains / swales upstream of all discharge points into the wetland.
- → All stormwater draining into the wetland must receive basic filtering and treatment prior to its release.
- → Incorporate measures into the stormwater design to trap solid waste, debris and sediment carried by stormwater. Measures may include the use of curb inlet drain grates and debris baskets/bags.
- → Stormwater generated from areas with a higher risk of contamination such as parking areas and roads must receive basic filtering and treatment prior to its release into surrounding areas. Treatment methods may include sand filter traps and oil-water separators which will require maintenance.
- → The extent of hardened surfaces must be minimised. E.g. where required permeable paving must be used.
- → Homeowners must be encouraged to landscape their gardens with the use of indigenous species to decrease the area of hardened surface and increase infiltration.
- → Homeowners should store any potential pollutants in such a way that pollution will not occur to the wetland (such as any fuel, etc.). Potential pollutants should be stored in an adequately bunded area.
- → The use of herbicides, pesticides and any other poisons within private gardens must be strictly prohibited. The home owner's association must be responsible for ensuring that residents are compliant with this.
- → Backwashing of swimming pools directly into the wetland must be strictly prohibited. Backwash water can be collected in settling tanks where dirt and debris settle to the bottom. The cleaner water can then be reused for non-potable purposes or even filtered back into the pool system. Backwash water can be diverted to greywater tanks.
- → Monitor the proposed development and adjacent wetland for erosion and sedimentation after heavy rainfall events. Any erosion noted must be immediately addressed. Rehabilitation measures may include the removal of accumulated sediment by hand, filling of erosion gullies and rills, the stabilisation of gullies with silt fences, riprap, and the revegetation of stabilised areas.
- → Stormwater systems will require ongoing maintenance. Any build-up of silt or debris within stormwater drains or swales will need to be cleared to ensure the continued functioning of the systems.
- → Any damage to stormwater infrastructure, and any flaws identified in the functionality of stormwater infrastructure, must be rectified immediately.
- → Stormwater systems must be monitored and maintained into perpetuity and collections of debris and solid waste removed from grates and baskets. The developer must confirm who will be responsible for this monitoring and maintenance as well as their roles.
- → The stormwater system must be designed by a suitably qualified engineer with input from an aquatic specialist.

The following recommendations are made for removal of Alien Invasive Species:

Hand Pulling
Use: Seedlings with a stem diameter of <5cm

Hand pulling should be implemented as the preferred clearing technique as far as possible. When implemented correctly, this method is extremely effective, yet its application is limited to seedlings. Thus, regular monitoring and follow-up treatments are important to ensure successful and economical eradication using this technique. The procedure to be implemented is as follows:

- Wearing gloves, grip the plant firmly at the base of the stem and pull hard to remove the entire plant, including the rootstocks.
- If the roots of the plant break off during removal, use a spade to dig them out.
- Shake the plant to remove excess soils and dispose of the plant material at an appropriate waste disposal site.

Tree Popping

Use: Seedlings/Saplings with a stem diameter of approximately 5 cm.
This technique is used for medium tree specimens and involves the use of an implement referred to as a "Tree-Popper". This tool consists of a base plate and a leaver that are joined to form a small pair of jaws (Figure A1). The tree is placed in the jaws of the tool and the leaver is used to pull the entire tree, including the roots, out. This tool is extremely useful for trees that are too large to be effectively removed by hand pulling yet are not yet large enough to require felling. The method to be used is similar as outlined for hand pulling, however the Tree-Popper is used instead of pulling.

Felling

Use: Trees with a stem diameter of >5 cm
Once the stems of trees reach a diameter of greater than 5 cm felling will need to be implemented to remove the individual. Felling can be undertaken using chain saws and bow saws. It is important that trees are cut with a neat straight cut to reduce the chance of resprouting and improve the effectiveness of stump herbicide treatment. Trees must be cut down as close to the ground as possible (between 5cm and 30cm above the ground). Felling must be undertaken by appropriately trained individuals that possess and make use of the required Personal Protective Equipment (PPE) for the task at hand.

Herbicide Stump Treatment

Use: Resprouting species that have undergone felling treatment
Port Jackson requires the use of poisan, whilst the Rooikrans usually dies when cut below the lowest branch. To prevent resprouting of Port Jackson, a herbicide treatment needs to be applied post felling. Once the tree has been cut down to create a smooth surface that exposes the outer rings of the stem where the trunk grows (the cambium) a 3% Tryclopyr herbicide solution must be applied to the freshly cut surface. All side branches should also be removed and treated with herbicide. The herbicide treatment should be applied as soon as possible after felling (preferably within 3 minutes) to ensure effective treatment. Where trees with a diameter of greater than 10cm are felled, only the outer rings need to be treated with herbicide. Due to the potentially hazardous nature of herbicides, the precautions outlined in the Foliar Treatment section above should also be applied during herbicide stump treatment.

Herbicides can kill indigenous plant species, and some are toxic to people and animals. It is therefore important to prevent environmental contamination with herbicide. The following measures are therefore recommended:

- → Do not apply herbicide while it is raining and take care to prevent it from spilling, spraying, or spreading onto the ground or onto non-target species.
- → Rain may wash herbicide into watercourses and spread it downstream, or across banks that need to be revegetated.
- → Never wash herbicide equipment or dispose of waste spray mixture in or near watercourses where contamination can occur.

The introduction of the acacia gall rust fungus (*Uromycladium tepperianum*) can be introduced onsite if the Port Jackson trees persist to be a problem. Consultation with a Botanist and/or Entomologist prior to introduction is recommended.

Additional considerations include:

- → Conditions of EMP to be adhered to
- → Appropriately designed raft foundations may significantly reduce the impact on subsurface flow and therefore reduce risk
- → Rainwater harvesting schemes that may reduce runoff intensity and thereby mitigate the impact of catchment hardening
- → Stormwater polishing infrastructure such as artificial wetlands that may mitigate water quality impacts.
- → Search and Rescue for possible faunal and floral species of conservation concern (SOCC) as indicated in the Terrestrial / botanical report, should be implemented prior to groundbreaking.

The following recommendation are made for Revegetation

Planting

To ensure adequate rehabilitation, planting must be done at a reasonable density of approximately 4 plants per square meter. Vegetation that has recently been planted is generally susceptible to being washed away until it has become well established. Transplanting of whole plants with well-established roots in a growing medium is one of the most reliable revegetation techniques. While several species suggested for revegetation can be grown from seeds and propagules, it is recommended that the majority of revegetation activities are focused on the introduction of whole plants, particularly into areas that are vulnerable to erosion.

The recommended general planting procedures are as follows:

- → Use a spade to dig a square hole that is 1.5 times the depth and 2 times the width of the bag containing the plant.
- → Remove the plant from its container and carefully loosen the soil by hand, being careful to not damage the roots and maintain as much of the soil as possible.
- → Place the plant and associated soil in the hole.
- → Replace the soil originally removed and ensure that it forms a slight depression (1-3 cm below the level of the surrounding soil) with the plant in the centre of the depression.
- → Compress the soil firmly by hand.
- → For plants placed in the temporary zone watering should be done approximately once every three days for the first six months after planting unless rain has fallen within the preceding 24 hours. Rainfall during the winter months (June – August for the proposed site) can substantially reduce the required watering effort. However, given that revegetation within the onsite offset wetland needs to be undertaken as rapidly as possible planting should be initiated as soon as the infill has been removed from the wetland area, and the remnant wetland has been appropriately shaped along with sufficient watering efforts.
- → The best time for planting is autumn (March-May). This allows for the plants to establish roots before being subjected to heavy rains. Planting in autumn therefore reduces the risk of erosion / sedimentation, having plants wash away and will reduce watering requirements.

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 following aspects were identified as conditional to the assessment's findings and must be enforced as conditions of authorisation to ensure the project's environmental sustainability and legal compliance:

Aspects that were conditional

1. *Implementation of the Wetland Offset, Rehabilitation, and Management Plan*

→ The specialists conclude that the development is acceptable only if the full wetland offset, rehabilitation, and management plan is implemented as detailed in the report. This includes offsetting the loss of 0.0139 Hectare Equivalents (HE) of function and 0.1323 HE of habitat with gains of 0.1214 HE (function) and 1.3841 HE (habitat) through onsite rehabilitation of the 0.876-ha wetland.

→ The rehabilitation of the remaining 0.876-ha wetland to a PES of upper Category C (minimum 79% PES score) from its current Category D state is a cornerstone of the offset strategy . The specialists assert that this improvement is necessary to achieve the required functional and habitat gains, and it must be maintained in perpetuity.

→ The specialists stipulate that the 0.876-ha offset wetland must be formally protected to ensure long-term ecological gains, recommending a conservation servitude as a title deed restriction to prevent future development (Van Zyl & Morton, 2024). As this is critical to securing the offset's permanence and meeting DWS's 'no net loss' policy.

→ The specialists highlight that appropriate stormwater management is essential to prevent hydrological and water quality impacts on the offset wetland from increased runoff due to catchment hardening.

→ The removal of AIS (e.g., *Cenchrus clandestinum, Cortaderia selloana, Acacia saligna*) from the offset wetland and sustained control are prerequisites for achieving the target PES and preventing ecological degradation.

→ The specialists condition the offset's success on revegetating the offset wetland with indigenous species (e.g., *Bolboschoenus maritimus*, *Cyperus textilis*) at 4 plants/m², achieving 80% vegetation cover within 8-12 months to restore habitat and function.

Conditions of Authorisation

→ The developer must implement the Wetland Offset, Rehabilitation, and Management Plan) in its entirety as a condition of approval. Any deviation from the plan's specifications (e.g., rehabilitation methods, offset targets) requires prior approval from DWS and the competent environmental authority, supported by a specialist motivation demonstrating no net loss of wetland value.

→ The developer must rehabilitate the offset wetland to achieve a PES of upper Category C within 12 months of completing revegetation, verified by a SACNASP-registered freshwater specialist.

→ A conservation servitude must be registered over the 0.876-ha offset wetland area within 6 months of WUA issuance, prohibiting any future development or disturbance.

→ All stormwater management measures outlined in Section 8.3 of the report must be incorporated into the development's design by a qualified engineer, with input from an aquatic specialist, and implemented during construction. The Homeowners Association (HoA) must maintain these systems in perpetuity, with quarterly inspections and immediate repairs of any damage.

→ All AIS must be removed from the 0.876-ha offset area prior to revegetation, using methods specified in Section 8.4 of the Wetland Offset, Rehabilitation and Management Plan (e.g., manual pulling, herbicide application), under supervision of a freshwater specialist. Post-rehabilitation, the HoA must conduct quarterly AIS clearing for 5-10 years.

→ In order to try and safeguard the ecological integrity of the seasonal wetland areas on Erven 1-8 (also shown in Figure 1) these areas that should not be altered, developed, gardened, covered, excavated, drained, infilled or disturbed in any way. Landowners and the HoA must be made aware of these constraints both prior to and after purchase. Alien invasive plant species should be removed from these areas on an annual basis, as part of the management actions required for the adjacent Private Open Space. Refer to Regulated Areas Management Plan.

→ A Full Water Use License will be required for this project due to the encroachment into the onsite wetland.

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, specifically Layout Alternative 3, should be authorized, provided that certain conditions are met. This recommendation is based on a careful evaluation of the environmental, social, and regulatory context of the project. The mitigation hierarchy has been appropriately applied, with Alternative 3 emerging as the preferred option due to its ability to avoid sensitive features, notably the seasonal and permanent wetland areas on site, minimize environmental impacts, and align with surrounding land uses, municipal policies, and provincial guidelines. The iterative design process, informed by specialist impact assessments and authority input, demonstrates a commitment to balancing development needs with environmental stewardship.

The inclusion of a Stormwater Management Plan and a Wetland Offset, Rehabilitation, and Management Plan further strengthens the case for authorization. These plans indicate proactive measures to mitigate potential impacts on hydrology, water quality, and biodiversity, which are critical in the context of wetland delineated on site. However, to ensure the development's long-term sustainability and compliance with environmental best practices, the following conditions must be incorporated into the Environmental Authorisation:

Conditions of Authorisation

- The EMP and Regulated Areas MP, must be strictly followed during all phases of the project (construction, operation, and post-construction). Regular monitoring and reporting should be mandated to ensure compliance with environmental safeguards.
- The use of appropriately designed raft foundations is recommended so that the foundations do not impact the subsurface water flow as per conventional foundations.
- To protect the development from flooding it must be ensured that the properties are raised above at least 1.0m from the wetland area.
- A Full Water Use License will be required for this project due to the encroachment into the onsite wetland.
- The inclusion of rainwater tanks in house designs should be mandatory to capture excess runoff. This measure will reduce the intensity of stormwater discharge.
- The Stormwater Management Plan must be fully implemented on site to mitigate the risk associated with stormwater runoff through construction of Permeable Paving System and Enhanced Swale System. These systems shall be regularly inspected and maintained as required to ensure effective stormwater attenuation, infiltration, and quality control.
- The Wetland Offset, Rehabilitation, and Management Plan must be fully implemented, with clear timelines and accountability measures. This includes ongoing monitoring of the wetland's health and the success of offset measures, with adaptive management measures in place if targets are not met.
- A conservation servitude must be registered over the 0.876-ha offset wetland area within 6 months of WUA issuance, prohibiting any future development or disturbance. This servitude should be recorded as a title deed restriction, ensuring that no future development can occur within the wetland.
- A program for the removal and ongoing control of invasive alien plant species must be implemented, particularly in and around the wetland area, to protect native biodiversity and ecosystem functionality.
- Homeowners must be encouraged to landscape their gardens with the use of indigenous species indicated in **Table 8-1** of the Wetland Offset, Rehabilitation and Management Plan to decrease the area of hardened surface and increase infiltration.
- The establishment of a Homeowners Association will be required, with a mandate to enforce environmental conditions (e.g., maintenance of rainwater tanks, stormwater infrastructure, and alien clearing) post-construction as well as the management of the No Development Zones on private erven. See **Appendix G1** and **G2** for the EMP and No-go MP.
- The use of herbicides, pesticides and any other poisons within private gardens must be strictly prohibited. The homeowner's association must be responsible for ensuring that residents are compliant with this.

- Search and Rescue for possible faunal and floral species of conservation concern (SOCC) as indicated in the Terrestrial Biodiversity Impact Assessment (2023) and Terrestrial Animal Site Sensitivity Verification Report and Species Specialist Assessment Report, should be implemented prior to construction. Nighttime Search and Rescue for faunal species is mandatory prior to ground works. Sheraine van Wyk from Whale Coast Conservation Chameleon project must be contacted to facilitate the Search and Rescue (sheraine.wcc@gmail.com 0834840202).
- All alien invasive vegetation should be removed from within the natural portions of the project area, prior to any authorised development. Removal of the alien vegetation must be undertaken by a trained and licensed alien vegetation removal team and must be undertaken using methodology outlined in the Best Practise Guidelines (see Martens et al 2021).
- In order to try and safeguard the ecological integrity of the No Go wetland areas on Erven 1-8 (also shown in Figure 1) these areas that should not be altered, developed, gardened, covered, excavated, drained, infilled or disturbed in any way. Landowners and the HoA must be made aware of these constraints both prior to and after purchase. Alien invasive plant species should be removed from these areas on an annual basis, as part of the management actions required for the adjacent Private Open Space.

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

N/A

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

The holder must commence the listed activities on site within a period of five (5) years from the date of issue of this Environmental Authorization.
The development must be concluded within ten (10) years from the date of commencement of the first listed activity.

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 proposal will connect to the municipal network reticulation system which is already existing. Alternative 3 allows for rehabilitation and long-term preservation of the wetland on site. Design measures for the reduction of water demand on site should be considered at the design stage. Water collection and reuse should also be included in the design as far as possible.

4. Waste

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

On site separation, reduction and reuse should be encouraged in the construction and operational phases with the aim to reduce waste to landfill.

5. Energy Efficiency

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

Alternative energy:

- Installation of gas geysers for hot water heating is encouraged.
- Solar geysers are permitted with a max of 2 panels per erf.
- The solar panels for hot water heating must be indicated on the drawings.
- The water reservoir may not be mounted on the roof surface and must be concealed within the roof space.
- The position and extent of any solar panels for alternative energy supply must be indicated on the drawings and approved by the HOA and were deemed necessary by any adjoining effected property owner.
- Distinctions must be made between solar panels for hot water supply and alternative energy supply.

SECTION K: DECLARATIONS

DECLARATION OF THE APPLICANT

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

I **CRAIG SAUNDERS OF ELEPHANT VENTURES** AFRICA CC ID number **1999/013536/23** in my personal capacity or duly authorised thereto hereby declare/affirm that all the information submitted or to be submitted as part of this application form is true and correct, and that:

- I am fully aware of my responsibilities in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), the Environmental Impact Assessment ("EIA") Regulations, and any relevant Specific Environmental Management Act and that failure to comply with these requirements may constitute an offence in terms of relevant environmental legislation;
- I am aware of my general duty of care in terms of Section 28 of the NEMA;

- I am aware that it is an offence in terms of Section 24F of the NEMA should I commence with a listed activity prior to obtaining an Environmental Authorisation;

- I appointed the Environmental Assessment Practitioner ("EAP") (if not exempted from this requirement) which:
  - meets all the requirements in terms of Regulation 13 of the NEMA EIA Regulations; or
  - meets all the requirements other than the requirement to be independent in terms of Regulation 13 of the NEMA EIA Regulations, but a review EAP has been appointed who does meet all the requirements of Regulation 13 of the NEMA EIA Regulations;

- I will provide the EAP and any specialist, where applicable, and the Competent Authority with access to all information at my disposal that is relevant to the application;

- I will be responsible for the costs incurred in complying with the NEMA EIA Regulations and other environmental legislation including but not limited to –
  - costs incurred for the appointment of the EAP or any legitimately person contracted by the EAP;
  - costs in respect of any fee prescribed by the Minister or MEC in respect of the NEMA EIA Regulations;
  - Legitimate costs in respect of specialist(s) reviews; and
  - the provision of security to ensure compliance with applicable management and mitigation measures;

- I am responsible for complying with conditions that may be attached to any decision(s) issued by the Competent Authority, hereby indemnify, the government of the Republic, the Competent Authority and all its officers, agents and employees, from any liability arising out of the content of any report, any procedure or any action for which I or the EAP is responsible in terms of the NEMA EIA Regulations and any Specific Environmental Management Act.

Signature of the Applicant:

Date:

19/06/2025

DECLARATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

I **MICHELLE NAYLOR** EAPASA Registration number **2019/698** 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;

MNaylor

16 June 2025

Signature of the EAP: Date:

LORNAY ENVIRONMENTAL CONSULTING

Name of company (if applicable):

~~DECLARATION OF THE REVIEW EAP~~

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

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

~~Signature of the EAP: Date:~~

~~Name of company (if applicable):~~

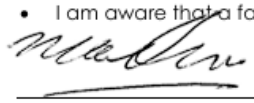
Lornay Environmental Consulting
Erf 1486 Vermont – Ver 3

DECLARATION OF THE SPECIALIST

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

I NA Helme, 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.



20 June 2025

Signature of the ~~EAP~~: Date:

Nick Helme Botanical Surveys

Name of company (if applicable):

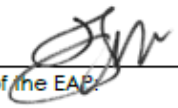
Lornay Environmental Consulting
Erf 1486 Vermont – Ver 3

DECLARATION OF THE SPECIALIST

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

I Jan A Venter, 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: 19/06/2025

Wildlife3 Conservation Decision Support

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):