

FRESHWATER IMPACT ASSESSMENT AND RISK MATRIX FOR THE PROPOSED SIGNATURE CASINO DEVELOPMENT, SOMERSET WEST, WESTERN CAPE

MAY 2026

(Updated August 2026)

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EXECUTIVE SUMMARY

The client proposes the development of a casino and hotel on Portion 29 of Farm 794, Stellenbosch RD, Western Cape. To support the Environmental Authorisation (EA) process and the associated Water Use Licence Application (WULA), a freshwater assessment was undertaken to determine the extent, condition, and ecological importance of freshwater features associated with the site, as well as to establish appropriate freshwater buffers and management requirements.

The assessment identified a constructed but naturalised Depression Wetland Complex within the central portion of the site. Although originally developed as part of a stormwater management system, the wetland has evolved to exhibit ecological characteristics associated with natural wetland systems, including wetland vegetation, hydrological functioning, and biodiversity support.

The key findings of the freshwater assessment are summarised below:

Depression Wetland Complex			
DWA catchment		G22J	
Vegetation type		Lourensford Alluvium Fynbos (CR) or Boland Granite Fynbos (En)	
Rainfall region		Winter	
System		Inland System	
Regional Setting		Southern Folded Mountains	
Landscape unit		Plain	
Level 4: Hydrogeomorphic Unit		Depression Wetlands	
Level 4: Drainage outflow		With Channelled outflow	
Level 5: Hydrological Regime	**Inundation periodicity**	Permanently to Seasonally inundated	
	Saturation periodicity (up to 0.5m below ground level)	Both permanently and seasonally saturated zones.	
Level 6: Wetland Characteristics	**Natural vs Artificial**	Constructed (Connected to natural watercourse)	
	Vegetation cover type	Mostly herbaceous (Grasses, Sedges, Herbs) with scattered Shrubs – Mostly indigenous	
	Substratum type	Organic rich loamy soils to Clay	
Special conservational features (from desktop study)		**WCSBP (2017)**	No CBA's or ESA's on site.
		NFEPA and National Wetlands Map	Not indicated on either the FEPA or NWM5 Maps.
PES		**C/D** (Moderately to Largely modified as best attainable ecological state)	
EIS		Low to Moderate	
Ecosystem services		The Depression Complex provides a moderate level of functionality for flood attenuation, while delivering low to moderate levels of functionality for streamflow regulation, nitrate removal, carbon storage and the maintenance of biodiversity.	
RMO and REC		**RMO – C/D: Maintain; REC – C/D**	
Proposed Buffer Zone		15m	

	Geelsloot Stream	
DWA catchment	G22J	
Vegetation type	Lourensford Alluvium Fynbos (Critically Endangered)	
Rainfall region	Winter	
System	Inland System	
Regional Setting	Southern Folded Mountains	
Landscape unit	Plain	
Hydrogeomorphic Unit	Stream (Seasonal)	
Longitudinal zonation/Landform/	Lowland - Sand Bed	
Substratum type	Sand	
Special conservational features (from desktop study)	**WCSBP (2023)**	No CBA's or ESA's on site.
	NFEPA	Not indicated on either the FEPA or NWM5 Maps.
PES	D/E: Largely to Seriously modified	
EIS	Low to Very Low	
RMO and REC	RMO – E* Maintain ; REC – D ***PES Categories E and F are considered ecologically unacceptable (Malan and Day, 2012) and therefore, should a freshwater resource fall into one of these PES categories, an REC class D is allocated by default, as the minimum acceptable PES category.**	
Proposed Buffer Zone	**N/a**	

The proposed development includes the construction of a new casino complex located outside the recommended 15 m wetland buffer, together with the formalisation of a stormwater attenuation pond along the south-eastern portion of the site. The formalisation of the attenuation pond will result in the loss of several wet areas that have developed in association with the historical attenuation pond. However, these areas are highly artificial in nature and support limited wetland biodiversity. Furthermore, they will be replaced by a similar, but larger, attenuation pond that is expected to provide a comparable level of ecological function and exhibit similar ecological characteristics. Consequently, the anticipated impact on the overall wetland system is considered to be of very low significance. Future recommendations and mitigation measures were included in the report to minimise the risks associated with the project.

CONCLUSION

The proposed casino complex and associated stormwater attenuation pond will be located outside the recommended 15 m buffer zone surrounding the wetland system. The only freshwater-related areas affected by the proposed development are several artificially wet areas associated with the historical attenuation pond, which overlap with the footprint of the proposed formalised attenuation pond. Given the highly artificial nature of these wet areas, and the fact that they will be replaced by a formalised attenuation pond providing a similar ecological function, the resulting change is considered to be largely like-for-like, with negligible impact on the broader wetland system.

Other impacts considered include potential downstream water-quality impacts associated with the treatment and discharge of effluent into the downstream stormwater system. With the implementation of the recommended mitigation and management measures, the proposed

development and its associated construction and operational activities are expected to result in an overall **Low negative impact on the freshwater features present on the site, as well as within the broader freshwater system**.

Following the assessment of the characteristics of the identified aquatic habitats, the DWS Risk Assessment Matrix (which is specified in the Government Notice R509 of 2016 for section 21 (c) and (i) water uses as defined under the NWA (1998)), was conducted to ascertain the significance of perceived impacts of the proposal on the key drivers and response processes (hydrology, water quality, geomorphology, habitat and biota) of the aquatic habitats. During both the construction and operational phases of the development, impacts on the freshwater features resulted in a **Low-risk score**.

As the indicated freshwater features found within the project site would be defined as a watercourse, any listed activities that are to take place within 32 meters thereof could require authorisation in terms of the relevant regulations of NEMA. As development will take place within 500m of a wetland, Section 21 of the National Water Act and GN 509 of 2016, as it relates to the NWA, will also apply.

The Low-risk outcome of the DWS Risk Assessment Matrix relates to the proposed Section 21(c) and (i) water uses associated with the development. The proposed discharge of treated effluent from the WWTP constitutes a Section 21(f) water use and will therefore require separate authorisation in terms of the applicable waste-discharge provisions of the National Water Act, unless the discharge qualifies for an applicable General Authorisation.

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DOCUMENT GUIDE

The table below provides the specialist report requirements for the assessment and reporting of impacts on aquatic biodiversity in terms of Government Notice 320 as promulgated in Government Gazette 43110 of 20 March 2020 in line with the Department of Environmental Affairs screening tool requirements, as it relates to the National Environmental Management Act, 1998 (Act No. 107 of 1998).

No.	Requirements	Section in report/Notes
2.1	Assessment must be undertaken by a suitably qualified SACNASP registered specialist	Declaration Of Independence – pg viii and Annexure E.
2.3.1	Description of the preferred development site, including the following aspects-	
	a. Aquatic ecosystem type b. Presence of aquatic species and composition of aquatic species communities, their habitat, distribution and movement patterns	Flora and Fauna: pg. 10-11 Aquatic Assessment: pg. 13-14 & Annexure B
2.3.2	Threat status, according to the national web-based environmental screening tool of the species and ecosystems, including listed ecosystems as well as locally important habitat types identified	Conservation value: pg.12
2.3.3	National and Provincial priority status of the aquatic ecosystem (i.e. is this a wetland or river Freshwater Ecosystem Priority Area (FEPA), a FEPA sub-catchment, a Strategic Water Source Area (SWSA), a priority estuary, whether or not they are free-flowing rivers, wetland clusters, etc., a CBA or an ESA; including for all a description of the criteria for their given status	Conservation value: pg.12
2.3.4	A description of the Ecological Importance and Sensitivity of the aquatic ecosystem including: a. The description (spatially, if possible) of the ecosystem processes that operate in relation to the aquatic ecosystems on and immediately adjacent to the site (e.g. movement of surface and subsurface water, recharge, discharge, sediment transport, etc.); b. The historic ecological condition (reference) as well as Present Ecological State (PES) of rivers (in-stream, riparian and floodplain habitat), wetlands and/or estuaries in terms of possible changes to the channel, flow regime (surface and groundwater)	Conservation value: pg.12; Aquatic Assessment: pg. 13-14 & Annexure B
2.4	Identify any alternative development footprints within the preferred development site which would be of a "low" sensitivity as identified by the national web-based environmental screening tool and verified through the Initial Site Sensitivity Verification	Activities have already been moved to fall within areas with low sensitivity.
2.5	Assessment of impacts – a detailed assessment of the potential impact(s) of the proposed development on the following very high sensitivity areas/ features:	Not formally included

2.5.1	Is the development consistent with maintaining the priority aquatic ecosystem in its current state and according to the stated goal?	Yes, if all mitigation measures are implemented all the RMO's (pg. 28) and the RQO's as stated in Table 1 (pg. 3) will be met.
2.5.2	Is the development consistent with maintaining the Resource Quality Objectives for the aquatic ecosystems present?	
2.6	In addition to the above, where applicable, impacts to the frequency of estuary mouth closure should be considered, in relation to: size of the estuary; availability of sediment; wave action in the mouth; protection of the mouth; beach slope; volume of mean annual runoff; and extent of saline intrusion (especially relevant to permanently open systems).	N/A
2.7	The report must contain as a minimum the following information:	
2.7.1	Contact detail of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae.	Annexure E
2.7.2	A signed statement of independence by the specialist.	Declaration Of Independence – pg.viii
2.7.3	A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment.	Aquatic Assessment: pg. 13-14 & Annexure B
2.7.4	The methodology used to undertake the site inspection and the specialist assessment, including equipment and modelling used, where relevant.	Annexure A
2.7.5	A description of the assumptions made, any uncertainties or gaps in knowledge or data.	Pg. 1
2.7.6	The location of areas not suitable for development, which are to be avoided during construction and operation, where relevant.	Results and Recommendations: pg.19
2.7.7	Additional environmental impacts are expected from the proposed development.	Results and Recommendations: pg.19
2.7.8	Any direct, indirect and cumulative impacts of the proposed development on site.	Results and Recommendations: pg.19
2.7.9	The degree to which impacts and risks can be mitigated.	Results and Recommendations: pg.19
2.7.10	The degree to which impacts and risks can be reversed.	N/A
2.7.11	The degree to which the impacts and risks can cause loss of irreplaceable resources.	N/A
2.7.12	A suitable construction and operational buffer for the aquatic ecosystem, using the accepted methodologies.	Aquatic Assessment: pg. 13-14 & Annexure B
2.7.13	Proposed impact management actions and impact management outcomes for inclusion in the Environmental Management Programme (EMPr).	Results and Recommendations: pg.19
2.7.14	A motivation must be provided if there were development footprints identified as per paragraph 2.3 for reporting in terms of Section 24(5)(a) and (h) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) that were identified as having a "low" aquatic biodiversity and sensitivity and that were not considered appropriate.	Described and motivated under Aquatic Assessment: pg. 13-14 & Annexure B, and Results and Recommendations: pg.19
2.7.15	A substantiated statement, based on the findings of the specialist assessment, regarding the acceptability or not of the proposed	Conclusion – pg.21

	development and if the proposed development should receive approval or not.	
2.7.16	Any conditions to which this statement is subjected.	Included in mitigation measures set out under the Results and Recommendations: pg.19, and Risk Matrix – Annexure D.

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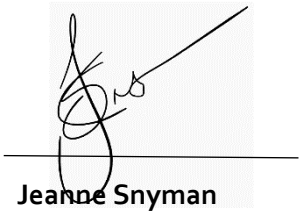
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DECLARATION OF INDEPENDENCE

I, **Jeanne Snyman,** declare that -

- I am subcontracted as a specialist consultant by PHS Consulting for input on the freshwater impacts related to activities associated with the proposed Abland development, Somerset West, Western Cape.
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the National Environmental Management Act, 1998 (Act No. 107 of 1998), regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in Regulation 8;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.



Jeanne Snyman

SACNASP Reg. No: 400091/17

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Glossary of Terms

Alluvial Material / deposits Sedimentary deposits resulting from the action of rivers, including those deposited within river channels, floodplains, etc.

Baseflow The component of river flow that is sustained from groundwater sources rather than from surface water runoff

Facultative Occurring optionally in response to circumstances rather than by nature; applied to wetland plants in this context – a facultative species is a species usually found in wetlands, but occasionally found in non-wetland areas

Herb A small non-woody plant in which the aerial parts die back at the end of every growing season

Herbaceous A plant having little or no woody tissue and persisting usually for a single growing season

Hydrology The scientific study of the distribution and properties of water on the earth's surface

Hydrogeomorphological zone An area defined by the interaction and linkage of hydrologic processes with landforms or earth materials and the interaction of geomorphic processes with surface and subsurface water in temporal and spatial dimensions

Hydrophyte A plant that grows in water or in conditions that are at least periodically deficient in oxygen as a result of saturation by water – these are typically wetland plants

Macrophyte An aquatic plant that grows in or near water. Macrophytic plants can be emergent, submerged, or floating

Marginal Plants and habitat on the edge of waterbodies

Obligate Hydrophyte A plant species that almost always occurs in wetlands (>99% of the time)

Pediment(ation) A gentle slope, cut into bedrock, occurring below a much steeper slope, extending at a flatter gradient down to a valley bottom.

Reach/ section A portion/stretch of a river

Riparian Zone The physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas

Abbreviations

CBA –Critical biodiversity areas

DSP – Decision Support Protocol

DWAF - Department of Water and Forestry

EIS – Ecological Importance and Sensitivity

ELU – Existing Lawful Use

ESA – Ecological Support Areas

HGM (zone) – Hydrogeomorphological zone

NAEHMP – National Aquatic Ecosystem Health Monitoring Programme

NEMA – National Environmental Management Act

NFEPA – National Freshwater Ecosystem Priority Area

NWA – National Water Act

PES – Present Ecological State

REC – Recommended Ecological Class

RHP – River Health Programme

RMO – Recommended Management Objective

WCBSP – Western Cape Biodiversity Spatial Plan

WMA – Water Management Area

Introduction

The client, Tsogo Sun Caledon, proposes the development of a Casino and Hotel on Portion 29 of Farm 794, Stellenbosch RD, Western Cape (hereafter referred to as the project site). An initial Freshwater Habitat Impact Assessment was undertaken by WSP in 2017 (Holmes, 2017). However, freshwater conditions on the site have changed to some extent over the past nine years, and a new freshwater verification assessment was subsequently commissioned from EverWater Freshwater Consulting.

This freshwater report was prepared to provide input into both the environmental authorisation process and the Water Use Licence Application (WULA). The report aims to describe the historical and present ecological state of the freshwater features associated with and surrounding the proposed development area, as well as to determine appropriate freshwater buffer and setback lines.

Assumptions, Limitations, and Indemnity

Limitations and uncertainties often exist within the various techniques adopted to assess the condition of ecosystems. The following limitations apply to the techniques and methodology utilised to undertake this study:

- The purpose of this report is to comment on the Present Ecological State (PES), Ecological Importance and Sensitivity (EIS), Ecoservices, Recommended Management Objectives (RMO's) and Recommended Ecological Class (REC's) of the freshwater features found within the project area.
- The determination of the watercourse boundaries and the assessment thereof is confined to the watercourses within the defined investigation area. Only the affected areas of the watercourses identified were delineated based on the findings of the field assessment undertaken by EverWater Freshwater Consulting on 19 May 2026, and in fulfilment of Government Notice 509 of 2016 as it relates to activities as stipulated in Section 21(c) and (i) of the National Water Act, 1998 (Act No. 36 of 1998) (NWA). The larger surrounding freshwater system was delineated on a desktop level.
- Although the site visit was conducted at the start of the Western Cape wet season, site conditions were considered sufficient for the identification and delineation of wetland areas due to an abnormally early onset of rainfall, which commenced as early as March.
- The WET-health assessment was carried out using the South African Department of Water and Sanitation's developed methodologies. These assessments were carried out to provide information on the ecological condition, ecological importance, and sensitivity of the wetland systems impacted.
- Watercourses and terrestrial areas create transitional zones, or ecotones, where vegetation gradually shifts from terrestrial species to facultative and obligate freshwater

species. Within these transition zones, there may be some variation in the opinion of the exact watercourse boundary. However, by applying the DWAF (2008) method, assessors should generally arrive at consistent and comparable results.

- The project deliverables, including the reported results, comments, recommendations and conclusions, are based on the author's professional knowledge as well as available information. Even though every care was taken to ensure the accuracy of this report, environmental assessment studies are limited in scope, time, and budget. Discussions and proposed mitigations are, to some extent, made on reasonable and informed assumptions built on *bona fide* information sources, as well as deductive reasoning. No biomonitoring or physicochemical aspects of the water found in the study were done.

- The author reserves the right to modify aspects of the report, including the recommendations, if and when new information becomes available from ongoing research or further work in this field or pertaining to this investigation.

- The author has exercised reasonable skill, care and diligence in the provision of services; however, accepts no liability or consequential liability for the use of the supplied project deliverables and any information or material contained therein. The client, including their agents, by receiving these deliverables, indemnifies EverWater Freshwater Consulting (including its members, employees and sub-consultants) against any actions, claims, demands, losses, liabilities, costs, damages and expenses arising directly or indirectly from or in connection with services rendered, directly or indirectly by EverWater Freshwater Consulting.

Key Legislative Requirements

National Water Act (Act No. 36 of 1998)

The Department of Water & Sanitation (DWS) is the custodian of South Africa's water resources and therefore assumes public trusteeship of water resources, which includes watercourses, surface water, estuaries, or aquifers. The National Water Act (NWA) (Act No. 36 of 1998) allows for the protection of water resources, which includes:

- The maintenance of the quality of the water resource to the extent that the water resources may be used in an ecologically sustainable way;
- The prevention of the degradation of the water resource; and
- The rehabilitation of the water resource.

A watercourse means:

- A river or spring;
- A natural channel in which water flows regularly or intermittently;
- A wetland, lake or dam into which, or from which, water flows; and

- Any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.

The NWA recognises that the entire ecosystem, and not just the water itself, and any given water resource constitutes the resource and as such needs to be conserved. No activity may therefore take place within a watercourse unless it is authorised by the DWS. For the purposes of this project, a wetland area is defined according to the NWA (Act No. 36 of 1998): "Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil".

Wetlands have one or more of the following attributes to meet the NWA wetland definition (DWAF, 2005):

- A high water table that results in the saturation at or near the surface, leading to anaerobic conditions developing in the top 50 cm of the soil;
- Wetland or hydromorphic soils that display characteristics resulting from prolonged saturation, i.e. mottling or grey soils; and
- The presence of, at least occasionally, hydrophilic plants, i.e. hydrophytes (water-loving plants).

Proposed Classes of Water Resource and Resource Quality Objectives for the Berg River Catchment

In addition to the above legislation, the Department of Water and Sanitation has also released the proposed classes of water resources and Resource Quality Objectives for the Berg water management area in Government Notice 655 of Gazette 42451 published on 10 May 2019 in terms of section 13(4) of the NWA (1998).

For the G22J Catchment, which falls within the D7 Sir Lowry's zone, general RQOs as well as RQO's for RIVERS and ESTUARIES are applicable. RQO's specifically relating to the project would include those for the Lourens River and Lourens Estuary.

TABLE 1: SUMMARY OF WATER RESOURCE CLASSES PER INTEGRATED UNIT OF ANALYSIS AND ECOLOGICAL CATEGORIES

Integrated Unit of Analysis (IUA)	Water Resource Class for IUA	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	% nMAR*
D7 Sir Lowry's	II	G22J	D7-R18	Lourens	Bvii21	D	114
		G22K	D7-R19	Sir Lowry's Pass*	Bviii9	C	84
		G40A	D7-R20	Steenbras	Bvii22	B/C	81
		G22J	**D7-E07**	**Lourens**	**Bxi4**	**D**	**85**

TABLE 2: RESOURCE QUALITY OBJECTIVES FOR RIVERS IN PRIORITY RESOURCE UNITS IN THE INTEGRATED UNIT OF ANALYSIS D7 SIR LOWRYS

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
D7 Sir Lowry's	II	G22J	D7-R18	Lourens River	Bvii21	D	Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a D category	Months: Oct 0.523 Nov 0.448 Dec 0.277 Jan 0.151 Feb 0.108 Mar 0.100 Apr 0.141 May 0.254 Jun 0.410 Jul 0.520 Aug 0.592 Sep 0.568 Maintenance flows (million cubic metres) Low High: 0.355 0.083 0.000 0.000 0.000 0.000 0.000 0.000 0.563 1.007 1.463 0.297 0.593
							Quality	Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at a mesotrophic or better condition.	≤ 0.075 milligrams/litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 1.75 milligrams/litre (50th percentile)
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at present day levels.	≤ 55 milliSiemens/metre (95th percentile)
								System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≤ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		≥ 6 milligrams litre (5th percentile)
								Toxins	Ammonia	Toxicity levels must not pose a	≤ 0.073 milligrams per litre (95th percentile)

TABLE 3: RESOURCE QUALITY OBJECTIVES FOR ESTUARIES IN PRIORITY RESOURCE UNITS IN THE INTEGRATED UNIT OF ANALYSIS D7 SIR LOWRY'S

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
D7 Sir Lowry's	II	G22J	D7-E07	Lourens Estuary	Bxi4	D	Quantity	Surface flow	Flow	Freshwater inflow adequate to maintain water quality and habitat suitable for flora and fauna	Months: Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Annual MMR/MAR (% Nat): 83 % 56 % 27 % 16 % 10 % 18 % 35 % 49 % 78 % 89 % 90 % 88 % 76 %
							Quality	Nutrients	DIN	Inorganic nutrient concentrations not to exceed TPCs for macrophytes and microalgae	River inflow: <350 µg.l^{-1}
											Lower estuary: <300 µg.l^{-1}
									DIP		River inflow: <80 µg.l^{-1}
											Lower estuary: <80 µg.l^{-1}
								Salinity	Salinity	Salinity distribution not to exceed TPCs for fish, invertebrates, macrophytes and microalgae	Average salinity in lower estuary >15, maximum = 35
								System variables	Dissolved oxygen	System variables not to exceed TPCs for biota	>4 mg.l^{-1}
								Pathogens	Enterococci	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation	≤185 Enterococci/100 ml) (90th percentile, hazen system)
									Escherichia coli		≤500 E. coli/100 ml (90th percentile, hazen system)
							Habitat	Hydrodynamics	Mouth state	Habitat health adequate for microalgae, macrophytes, invertebrates, fish, birds and recreational use	Permanently open
									Tidal variation		<10% change from present state
								Sediments	Sediment characteristics, Channel shape/size		Bathymetry and sediment MdØ change <10% from baseline
							Biota	Microalgae	Biomass and community composition of phytoplankton and benthic microalgae community	Phytoplankton biomass and composition suitable for invertebrates, fish, birds and recreational use	Maintain low phytoplankton biomass (chlorophyll- a < 20 µg/ℓ) and a diversity of phytoplankton groups.
								Macrophytes	Extent, distribution and richness of macrophytes	Macrophyte cover and composition suitable for invertebrates, fish, birds and recreational use	Restore and maintain the distribution and area cover of macrophyte habitats particularly salt marsh

National Environmental Management Act (Act No. 107 of 1998)

A NEMA applicability checklist has been completed for the proposed development and found to be not applicable, **thus no process in terms of NEMA is required**.

Background

Site location and regional description

The proposed new development site, originally situated within the larger Somerset West Country Club, is located within the City of Cape Town Metropolitan Municipality, between the N2 and the R102, and is approximately 22 ha in extent. The project area falls within the larger Lourens River Catchment, specifically within Quaternary Catchment G22J, which forms part of the Berg Water Management Area.

As the site historically formed part of the Somerset West golf course, the landscape is generally flat and has historically been utilised as fairways. The site also includes several ponds and wetland areas that originally formed part of the broader stormwater management system.

Other significant landscape features include the Lourens River, located approximately 1.7 km southeast of the site, which discharges into the Atlantic Ocean just north of Melkbaai. Furthermore, the Somerset West region is bordered by the Hottentots Holland Mountain Range, with the Helderberg situated to the far northeast of the site.

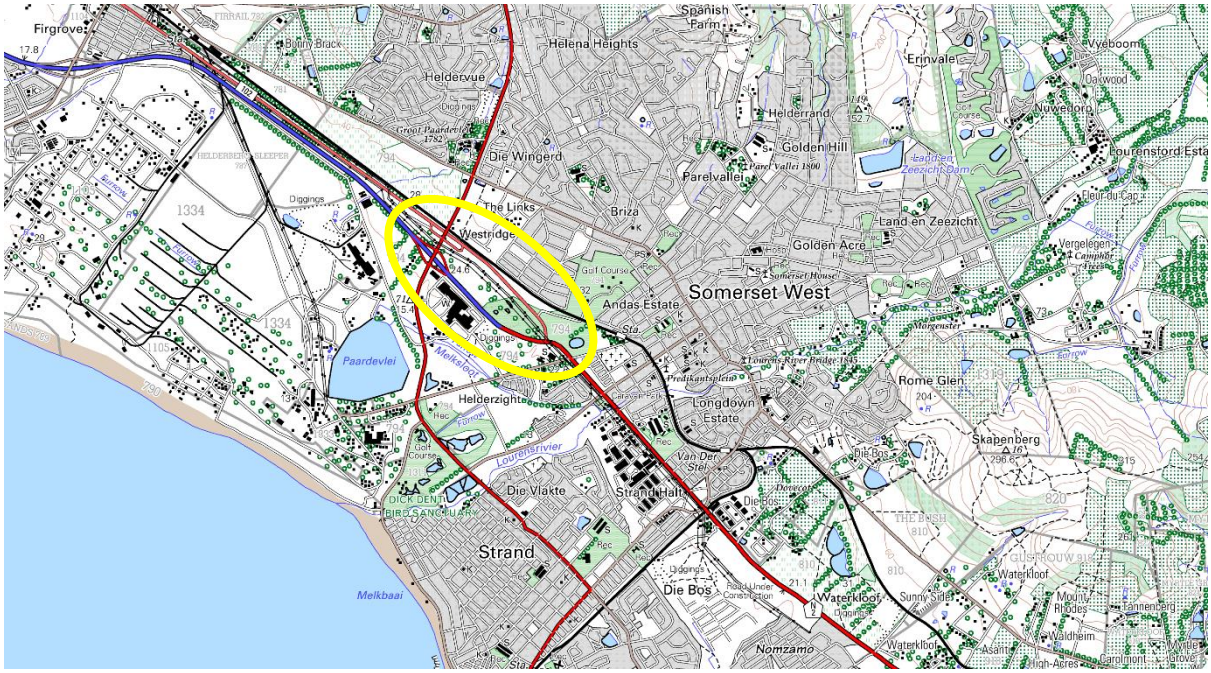


Figure 1: 1:50 000 Topographical map of the area with the project location (3418BB)

Proposed Activity

The client proposes the development of a Casino complex on the named property. This area will consist of the following:

- Basement under casino box (7,619m²),
- Casino (9,605m²),
- Retail area in casino box i.e. restaurants (3,744m²),
- Conference area in casino box (1,398m²),
- Hotel (6,735m²),
- Villas, long stay apartments, spa and restaurant which are separate but part of the hotel (1,692m²).
- Electrical substation (size to be determined by the City of Cape Town), sewer package plant, guard houses at entrances.
- A new package wastewater treatment plant (WWTP) is proposed to treat sewage and residential wastewater until capacity becomes available within the City of Cape Town's municipal wastewater treatment system. This capacity is anticipated to become available approximately five years after implementation of the project. The proposed on-site WWTP, comprising a BIOSUB™ Treatment System, will be designed to treat an average of 135 kL of wastewater per day. The treated wastewater will be used for irrigation of landscaping on site, with any surplus discharged downstream.
- The WWTP was included in the plan as the City of Cape Town's wastewater treatment plant does not have capacity. Capacity will be in place by 2031, after which the package plant will be decommissioned.
- The WWTP will be located adjacent to the existing municipal sewer crossing the site (visible in Figure 3) and will incorporate an emergency bypass connection to this sewer pipeline, as required by the City of Cape Town (letter reference 20260212_Z, dated 19 March 2026). The entire facility, including the sewer pump station and WWTP, will be supported by backup power comprising generators and solar power.
- The WWTP supplier will be responsible for the operation and maintenance of the plant through a service agreement and in accordance with a dedicated Maintenance and Management Plan. Treated wastewater will comply with the applicable DWS Special wastewater limit values prior to discharge into the existing stormwater line crossing the site.
- As part of this development, the client also intends to formalise a historical stormwater attenuation pond along the south-east of the site (Figure 3).



Figure 2: Watercourse Delineation Map for Portion 29 of Stellenbosch Farm No. 794 with recommended buffers and development proposal indicated (Courtesy PHS Consulting, 2026).

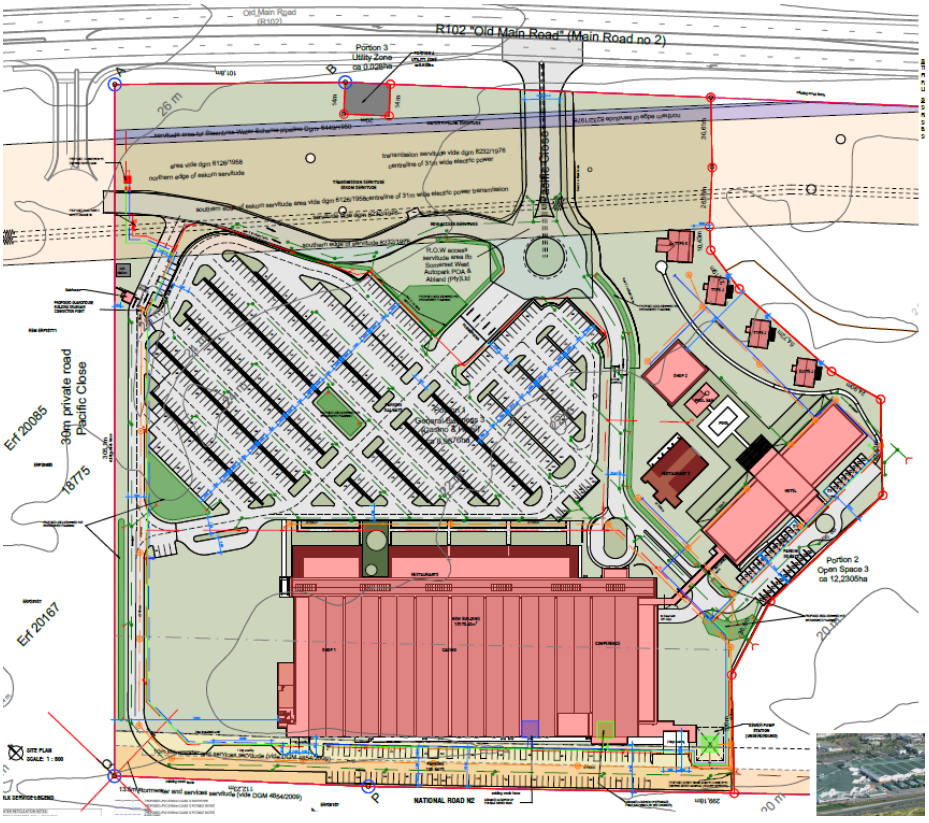


Figure 3: Proposed layout plan for the development.

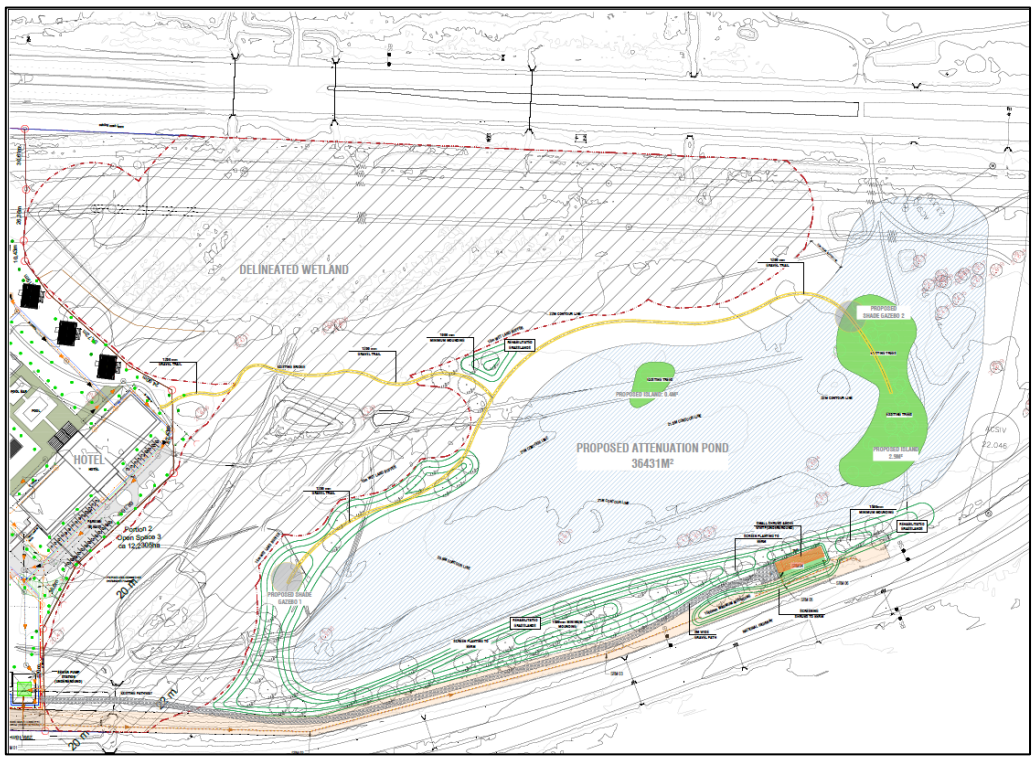


Figure 4: Proposed stormwater attenuation pond to the south-east of the site.

Historical and current land use

As mentioned, the project site originally made part of the Somerset West Golf Club, consisting of several fairways and stormwater ponds. The area has been left fallow since 2017, most probably due to the drought at the time, and is currently used largely as pasture for cattle. According to the National Land Cover Map (Figure 5), the new development will largely fall over an area classified as Urban Recreational Fields (Grass) (bright green area).

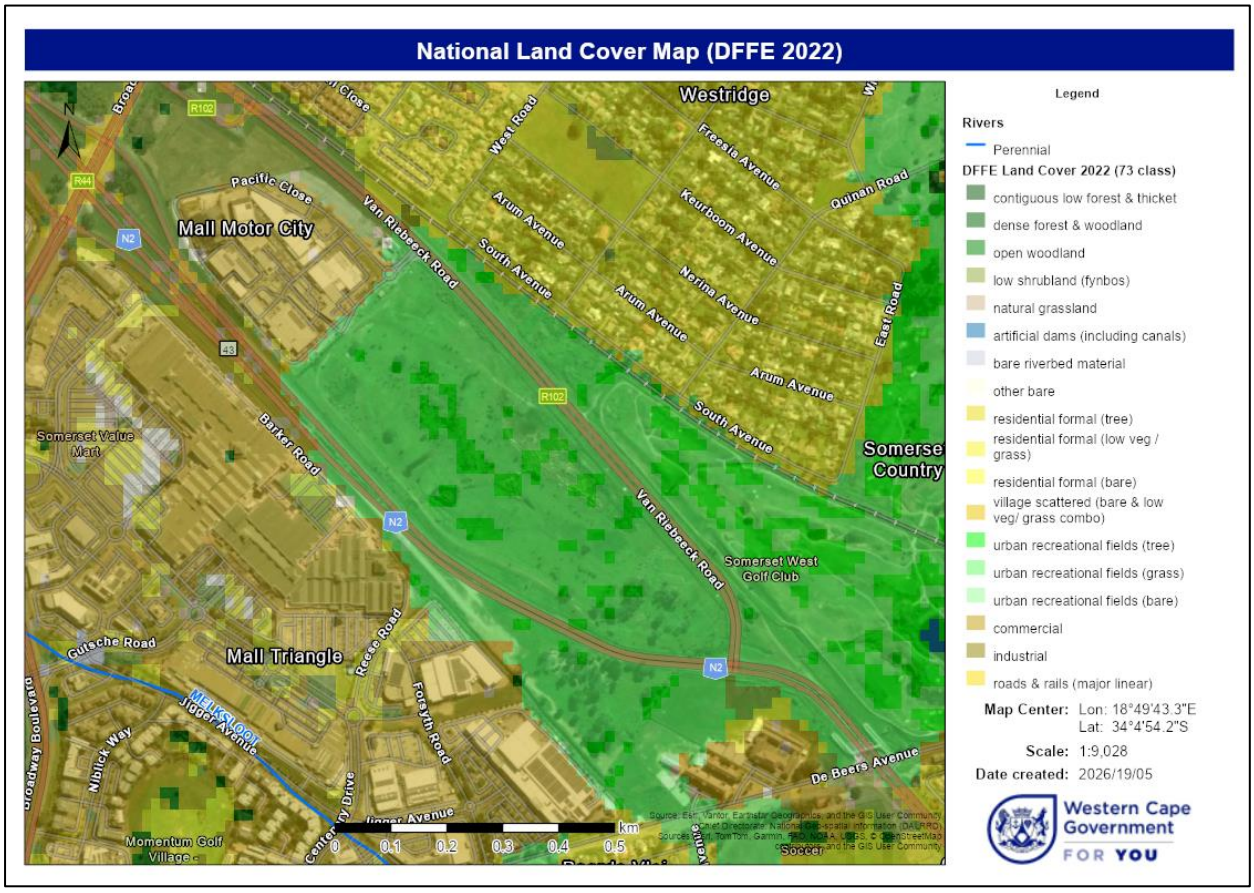


Figure 5: National land cover map (2014) covering the proposed development area (CFM, 2026)

Historical aerial photography of South Africa (1926–2008) was used as reference imagery (accessed May 2026) to assess historical land use and identify any historical wet areas. Imagery from 1938 represents the earliest available clear coverage of the affected area and was used to evaluate historical land use, determine whether the site had been extensively altered in the past, and identify any significant changes in land use within the catchment. The imagery was also used to identify areas where aquatic ecosystems may have occurred historically.

The 1938 imagery indicates that the broader area had already been cleared, ploughed, and utilised for agricultural purposes prior to this date. Two distinct wet areas are visible on the imagery: one located to the northeast of the site and another along the southwestern boundary. Evidence of possible water movement towards the latter wet area is also visible, together with the Geelsloot Stream draining the Helderberg area immediately south of the site.

More recent imagery shows that this stream has since been canalised and diverted through the Somerset West Golf Club and, further downstream, the Strand Golf Club. A portion of this flow is now also diverted through the existing stormwater ponds located on the property.



Figure 6: 1938 aerial photography covering the property (yellow polygon) and the broader surrounding area, illustrating the two prominent wet areas (blue polygons), a possible seep feature, and the Geelsloot Stream.



Figure 7: Google Earth Satellite imagery of the project site (red polygon) in relation to the larger surrounding area (Google Earth, 2026).

Climatic conditions of the site

Somerset West's climate is classified as warm and temperate. The area normally receives about 782mm of rain per year and because it receives most of its rainfall during winter, it has a

Mediterranean climate. The chart below shows the average rainfall and temperature values for Somerset West per month for the previous year. It received the lowest rainfall (9,9 mm) in January and the highest (125,8 mm) in June. The monthly distribution of average daily maximum temperatures shows that the average midday temperatures for Somerset West ranged from 16°C in July to 26°C in January/February. The region is the coldest during July when the mercury dropped to 9°C on average during the night.

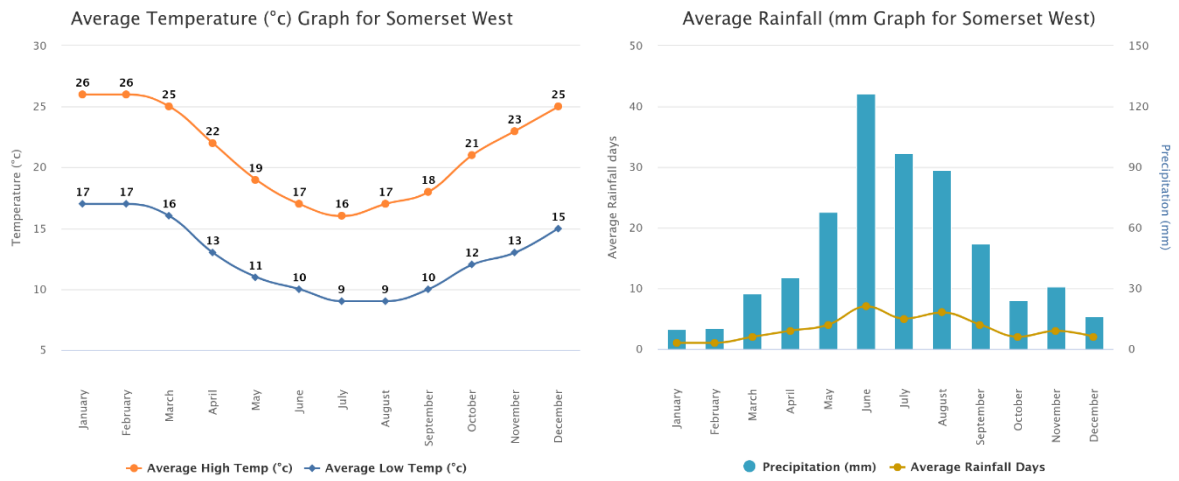


Figure 8: Climate graphs for the Somerset West area (World Weather Online, 2026)

Flora and Fauna

Flora

Vegetation associated with the project site is largely classified as Lourensford Alluvium Fynbos (represented by the pink area in Figure 9), with a smaller section mapped as Swartland Shale Renosterveld (turquoise layer in Figure 9), both of which are classified as Critically Endangered vegetation types. However, according to the botanical assessment, the presence of loamy granitic soils suggests that the western portion of the site may historically have supported Boland Granite Fynbos, which is classified as Endangered.

The site has, however, been entirely cleared of its original natural vegetation, as evident from the 1938 aerial imagery, resulting in the complete transformation of the historical vegetation matrix. Owing to its previous use as part of the former golf course, the terrestrial vegetation currently present on site is dominated by grasses, including kikuyu grass (*Cenchrus clandestinus*) and kweek (*Cynodon dactylon*), together with localised infestations of invasive alien Port Jackson trees (*Acacia saligna*).

According to the Botanical Assessment:

"No intact, semi-intact, or even degraded examples of the historical vegetation types (Lourensford Alluvium Fynbos – Critically Endangered, Swartland Shale Renosterveld – Critically Endangered, or

Boland Granite Fynbos – Endangered) remain on site. The site does not support any threatened plant species of conservation concern and falls outside the Cape Town Biodiversity Spatial Plan / Terrestrial Biodiversity Network (2024/2025)" (Capensis, 2026).

From the field visit, vegetation occurring within the wetland features was either associated with historical golf course landscaping activities or re-established naturally during the period in which the site remained fallow. Indigenous wetland vegetation recorded on site included extensive stands of *Typha capensis*, together with *Juncus capensis*, *Cyperus denudatus*, *Cyperus papyrus*, *Eleocharis dregeana*, *Zantedeschia aethiopica*, *Pauridia aquatica*, *Cenchrus caudatus*, and possibly *Neesenbeckia punctoria*.

Exotic vegetation occurring within the wetter areas included weeping willow (*Salix babylonica*) and pampas grass (*Cortaderia selloana*).

Fauna

Large groups of frogs were heard calling during the field survey, most notably the clicking stream frog (*Strongylopus grayii*). Birdlife was also evident around the wetland features, with species observed including Egyptian geese (*Alopochen aegyptiaca*) and red-knobbed coots (*Fulica cristata*). No threatened or endangered faunal species were recorded during the field assessment.

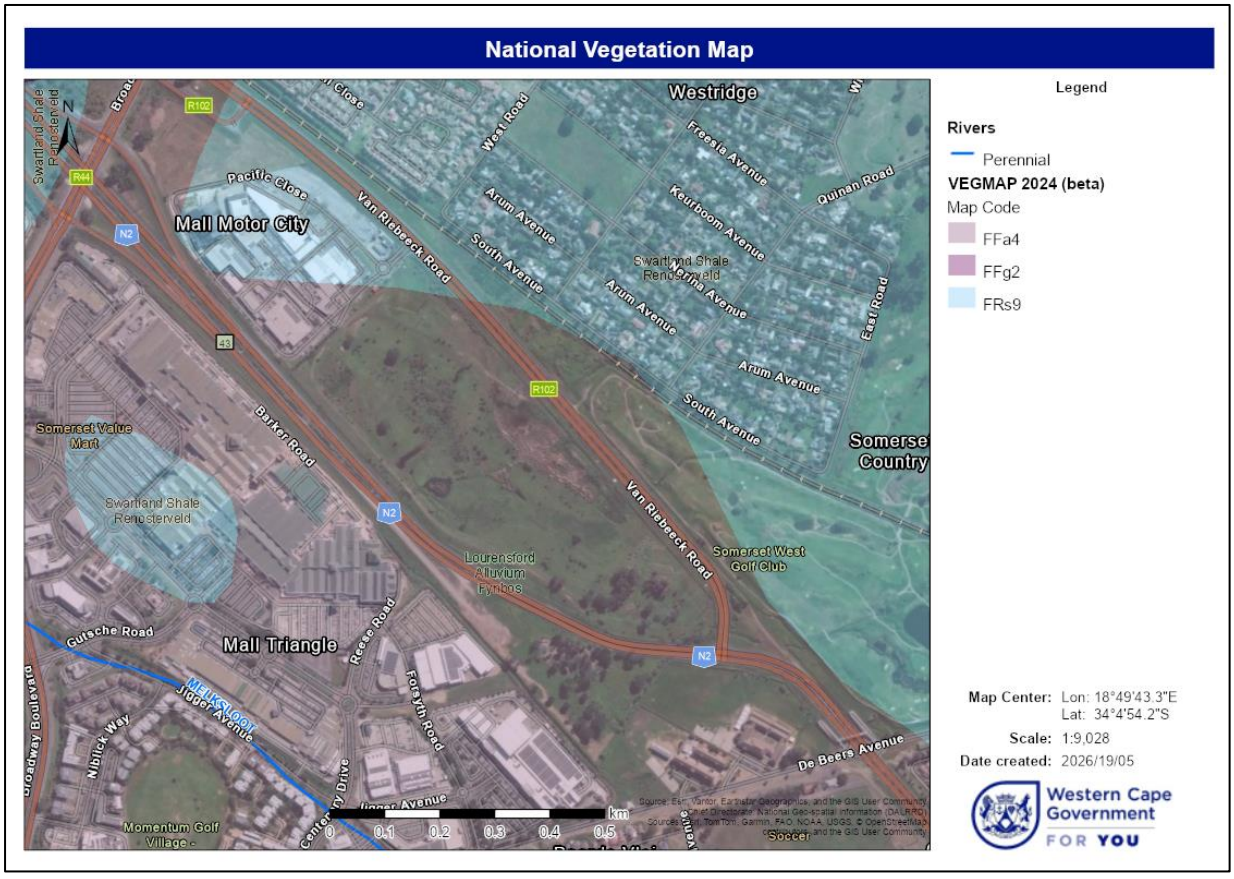


Figure 9: National vegetation map for the project site(CFM, 2026).

Conservation Value

The 2023 Western Cape Biodiversity Spatial Plan Map and the National Freshwater Ecosystem Priority Areas Map provide information regarding the conservation value and ecological importance of the freshwater features studied.

2023 Western Cape Biodiversity Spatial Plan

The 2023 Western Cape Biodiversity Spatial Plan (WCBSP) was formally adopted into law on 13 December 2024 (Gazette Extraordinary No. 9017), in terms of the Western Cape Biodiversity Act (Act No. 6 of 2021). This plan supersedes the 2017 WCBSP and now serves as the official spatial framework for biodiversity conservation and land-use decision-making in the province.

Based on the 2023 WCBSP map (Figure 10), no terrestrial or aquatic Critical Biodiversity Areas (CBA's) were found either on or around the property.

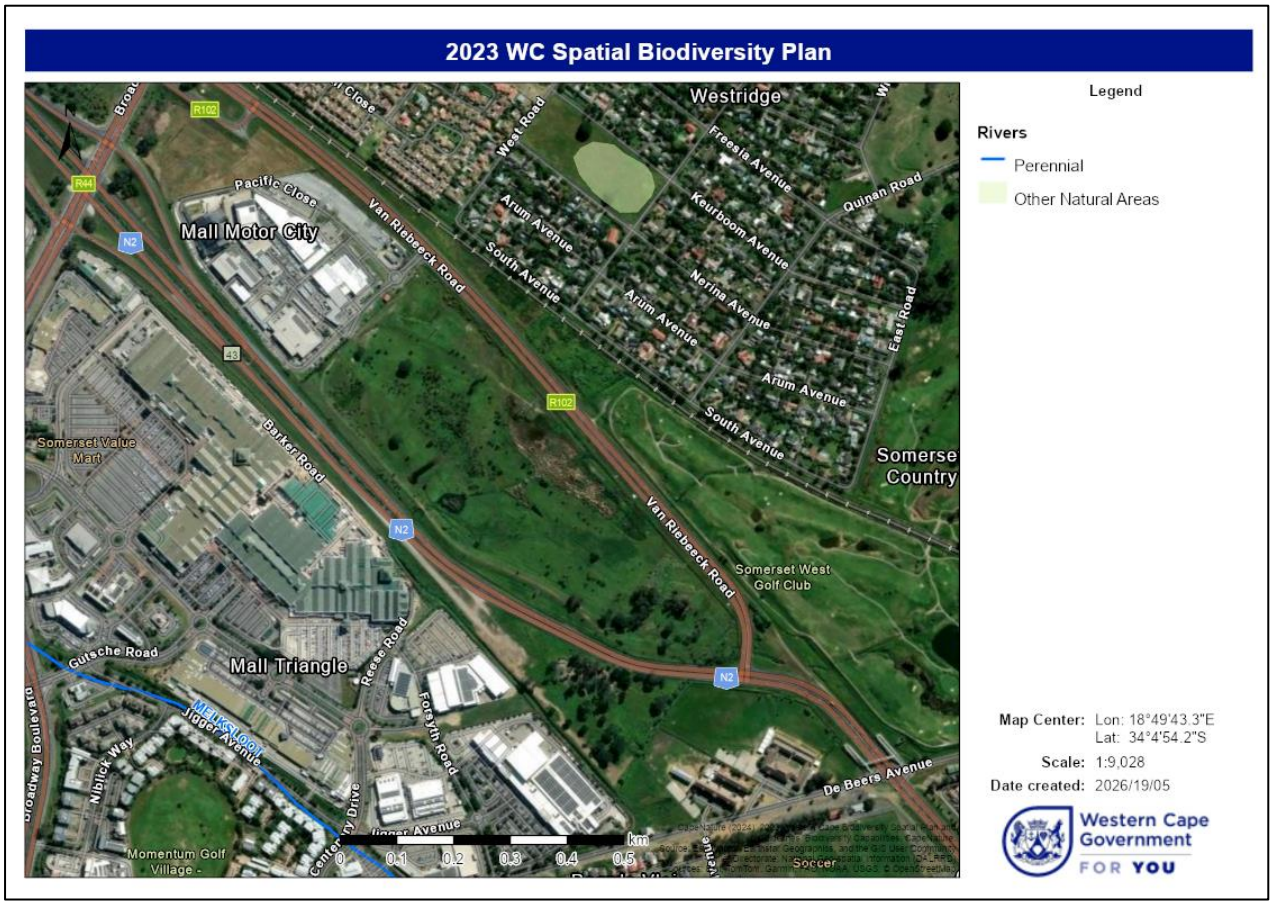


Figure 10: 2025 Western Cape Biodiversity Spatial Plan for the project site (green polygon) (CFM, 2026).

NFEPA map

Freshwater Ecosystem Priority Areas (FEPAs) are strategic spatial priority areas identified to support the long-term conservation of freshwater ecosystems and the sustainable management of water

resources. According to the National Freshwater Ecosystem Priority Areas (NFEPA) dataset (refer to Figure 11), the broader catchment within which the project site is situated is not classified as a FEPA area, nor are any FEPA wetlands located on, or within 500 m of, the site.

In addition, the National Wetlands Map Version 5 (NWM5) identifies two wetlands along the south-western boundary of the property, namely a natural Depression Wetland and a Wetland Seep, both associated with the Southwest Fynbos Bioregion. The Depression Wetland is classified as Endangered and poorly protected, while the Seep is classified as Vulnerable and well protected.



Figure 11: NFEPA map for the larger area surrounding the Project site (yellow circle)(SANBI GIS, 2026).

Aquatic assessment

Description of the freshwater features

The ecosystem and vegetation of the study area were assessed in its present, as well as its likely pre-expanded and historical composition. It is described in the context of the freshwater systems of the area as assessed at the beginning of the wet season, with the site visit done on 19 May 2026. Freshwater features found within the project site included several Depressions interlinked through stormwater channels, a small Stormwater Detention pond located in the north western corner as well as the wet areas indicated as wetlands on the National Wetlands Map.

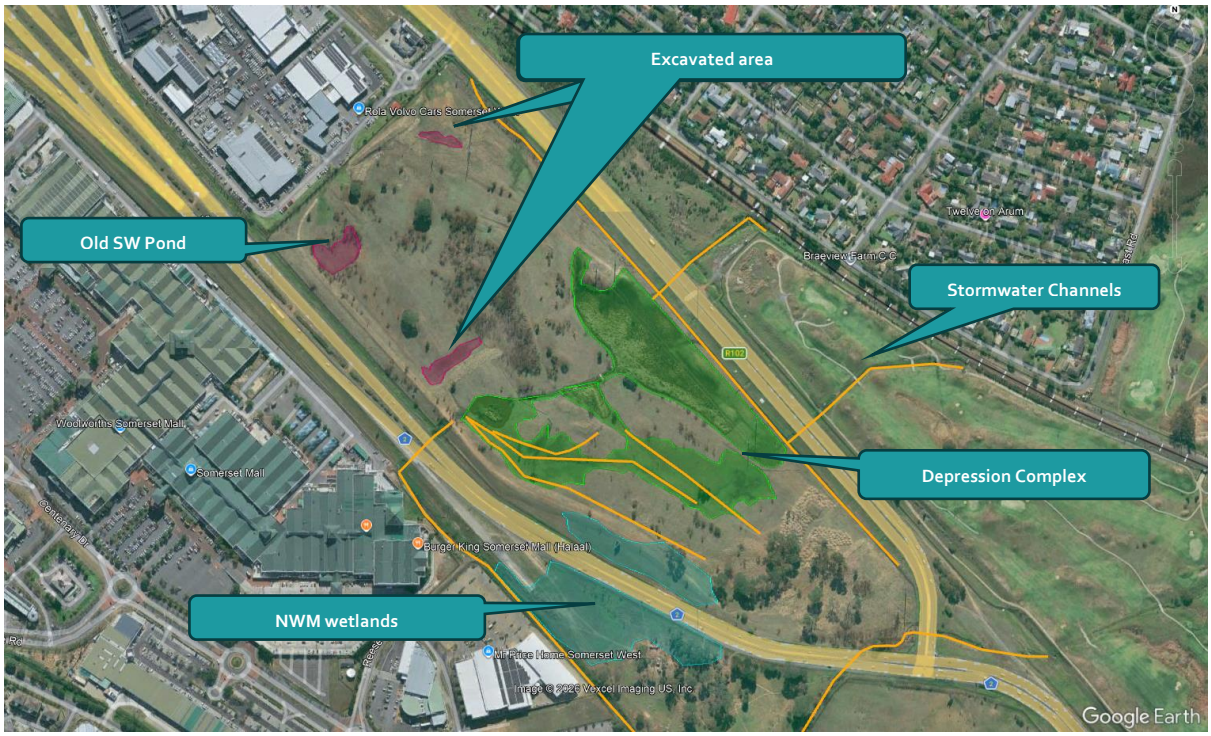


Figure 12: Satellite imagery indicating the project site with the interlinked depression complex (green polygon), the artificial stormwater pond and excavated areas (pink polygons) as well as the NWM wetland areas (turquoise polygons).

Considering that the Old Stormwater Pond as well as the excavated wet areas will classify as artificial wetlands, they will not require further assessment under section 21 (c) and (i) water use and thus these were excluded from the freshwater assessment.

The natural depression wetland indicated by the National Wetlands Map (NWM5) along the south-eastern boundary of the site was also assessed during the field investigation. Although this wet area is clearly visible on the 1983 aerial imagery (Figure 5), field observations confirmed that the area has been completely transformed from its original condition. The wetland was historically infilled during the development of the former golf course, with an artificial embankment constructed along the National Road, leaving only a narrow stormwater-like feature adjacent to the boundary fence. The

absence of identifiable wetland characteristics and functionality within this area resulted in the exclusion of this feature from the freshwater assessment.

The freshwater assessment thus focusses on the Depression Wetland Complex situated in the centre of the site as well as the Geelsloot stream running along the southeastern boundary of the property.

Depression Wetland Complex

Several depression wetlands, interlinked by stormwater canals, are situated within the central portion of the site. These depressions were most likely historically created as part of the broader Somerset West stormwater management system, receiving runoff from the upstream urban area, as well as flows diverted from the Geelsloot stream that originally flowed just south of the site (as visible on the 1938 aerial imagery – Figure 5), together with drainage from upstream wet areas.

The historical watercourse drains the southern slopes of the Helderberg Mountains and becomes extensively modified and canalised through the upstream urban environment. Presently, the system is conveyed through a network of highly modified stormwater canals and channels associated with the existing golf course, with portions of the flow discharging into the study area and being detained within several depression areas. This main wetland complex forms part of the **Functional Wetland Area (Green polygon – Figure 13).**

Furthermore, wetland conditions have expanded into what is now known as the historical attenuation pond on site, resulting in the establishment and spread of wetland conditions adjacent to the existing stormwater infrastructure. However, apart from visible water movement, these areas support very few facultative wetland species. This portion of the site will therefore be referred to as the **Artificially Wet Area (Yellow polygon – Figure 13)**.

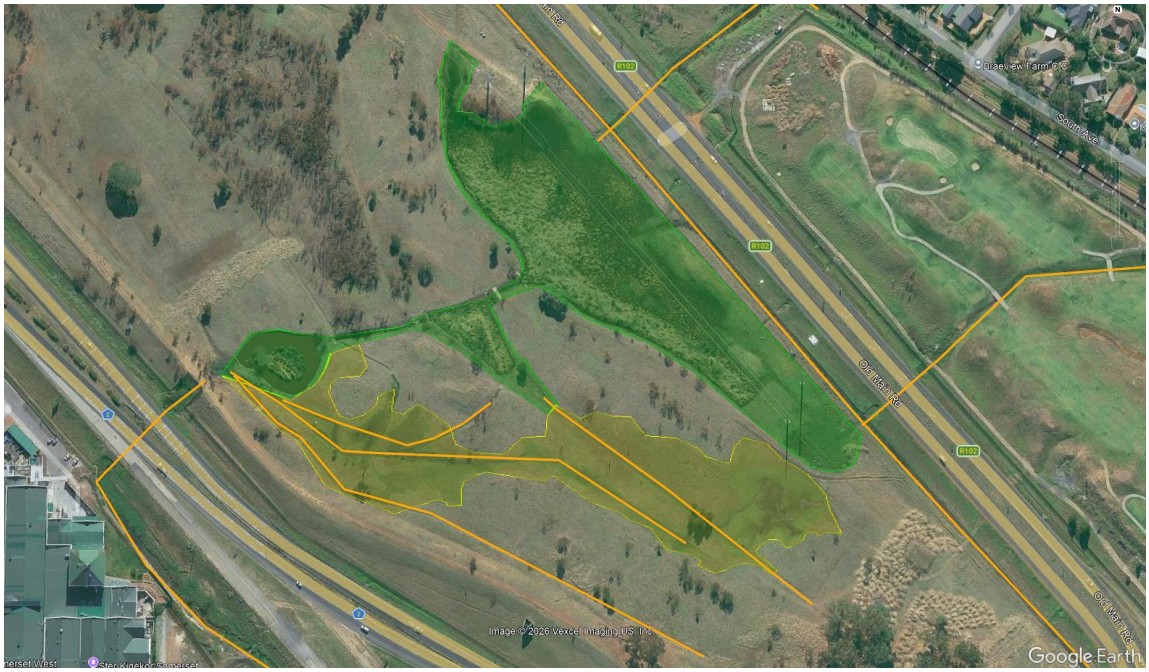


Figure 13: The depression wetland complex consisting of the Functional Wetland Area (green polygon) and the Artificially Wet Area (yellow polygon), fed by the surrounding stormwater channels (orange lines).





Figure 14: Photographs taken during the field visit of sections of the Depression wetland complex.

Although the wetland system is considered to be constructed in origin, this feature forms part of the greater freshwater system, has naturalised over time and presently supports established wetland vegetation, hydrological functioning, and associated biodiversity. The WET-Health assessment methodology was therefore applied to evaluate the current ecological integrity and functioning of the system, with due consideration given to its artificial origin and modified historical context. Given the artificial and historically modified nature of the wetland system, the reference condition applied during the WET-Health assessment was based on the **best attainable ecological state** under the current transformed catchment conditions, rather than a pristine historical benchmark. Consideration was given to the historical drainage characteristics of the site, regional wetland type, existing hydrological regime, and the current ecological functioning and biodiversity support capacity of the wetland system. This assessment was applied to the **Functional Wetland Area.**

The assessment methodology (as included under Appendix A), includes the determination of its Present Ecological State (PES), Ecological Importance and Sensitivity (EIS), as well as the proposed Recommended Ecological Category (REC), its associated Recommended Management Objectives as well as buffer requirements.

TABLE 4 FRESHWATER ASSESSMENT FINDINGS FOR THE DEPRESSION WETLAND COMPLEX.

Depression Wetland Complex (Functional Wetland Area)			
DWA catchment		G22J	
Vegetation type		Lourensford Alluvium Fynbos (CR) or Boland Granite Fynbos (En)	
Rainfall region		Winter	
System		Inland System	
Regional Setting		Southern Folded Mountains	
Landscape unit		Plain	
Level 4: Hydrogeomorphic Unit		Depression Wetlands	
Level 4: Drainage outflow		With Channelled outflow	
Level 5: Hydrological Regime	Inundation periodicity	Permanently to Seasonally inundated	
	Saturation periodicity (up to 0.5m below ground level)	Both permanently and seasonally saturated zones.	
Level 6: Wetland Characteristics	Natural vs Artificial	Constructed (Connected to natural watercourse)	
	Vegetation cover type	Mostly herbaceous (Grasses, Sedges, Herbs) with scattered Shrubs – Mostly indigenous	
	Substratum type	Organic rich loamy soils to Clay	
Special conservational features (from desktop study)		**WCSBP (2017)**	No CBA's or ESA's on site.
		NFEPA and National Wetlands Map	Not indicated on either the FEPA or NWM5 Maps.
PES		**C/D** (Moderately to Largely modified as best attainable ecological state)	
EIS		Low to Moderate	
Ecosystem services		The Depression Complex provides a moderate level of functionality for flood attenuation, while delivering low to moderate levels of functionality for streamflow regulation, nitrate removal, carbon storage and the maintenance of biodiversity.	
RMO and REC		**RMO – C/D: Maintain; REC – C/D**	
Proposed Buffer Zone		15m	

Geelsloot Stream:

The Geelsloot Stream, is a seasonal stream that drains the south-western slopes of the Helderberg Mountain and becomes extensively modified and canalised through the upstream urban environment. As mentioned, the stream is diverted through a network of highly modified stormwater canals and channels through the existing and former sections of the Somerset West Golf Course, with the main stem still flowing through the south-east corner of the site. From there it flows towards the Helderberg centre, where it is diverted around the property edge and joins the downstream stormwater system. Further downstream, the canalised stream passes through the urban area and

the Strand Golf Club before discharging into the Lourens River, approximately 400 m upstream of its mouth at False Bay.

The section flowing through the property, can be classified as being in a largely to seriously modified state, with a highly degraded riparian zone and large scale upstream hydrological and channel modifications.

TABLE 4: SUMMARY OF THE RIVER ASSESSMENT FOR THE GEELSLOOT STREAM

	Geelsloot Stream	
DWA catchment	G22J	
Vegetation type	Lourensford Alluvium Fynbos (Critically Endangered)	
Rainfall region	Winter	
System	Inland System	
Regional Setting	Southern Folded Mountains	
Landscape unit	Plain	
Hydrogeomorphic Unit	Stream (Seasonal)	
Longitudinal zonation/Landform/	Lowland - Sand Bed	
Substratum type	Sand	
Special conservational features (from desktop study)	**WCSBP (2023)**	No CBA's or ESA's on site.
	NFEPA	Not indicated on either the FEPA or NWM5 Maps.
PES	D/E: Largely to Seriously modified	
EIS	Low to Very Low	
RMO and REC	RMO – E* Maintain ; REC – D ***PES Categories E and F are considered ecologically unacceptable (Malan and Day, 2012) and therefore, should a freshwater resource fall into one of these PES categories, an REC class D is allocated by default, as the minimum acceptable PES category.**	
Proposed Buffer Zone	**N/a**	

Results and recommendations

The freshwater assessment identified a constructed but naturalised **Depression Wetland Complex** located within the central portion of the site. Although originally created as part of the broader stormwater management system and linked to modified upstream watercourses, the wetland has developed ecological characteristics associated with natural wetland systems, including established wetland vegetation, hydrological functioning and biodiversity support. The main wetland area was indicated as the **Functional Wetland Area**. Furthermore, the system has expanded beyond the original stormwater system towards an area that was historically associated with the original attenuation dam on site, and this section was indicated as an **Artificially Wet Area**. Other significant freshwater features on site include a small section of the Geelsloot Stream running through the southeastern corner of the property.

The ecological assessment was undertaken for the Functional Wetland Area and the Geelsloot Stream. The wetland was assigned a **Present Ecological State (PES) of C/D**, indicating a moderately to largely modified system. Given the highly transformed nature of the surrounding catchment and the artificial origin of the wetland, this condition was considered the **best attainable ecological state** under the current circumstances. The wetland was also assigned a **Low to Moderate Ecological Importance and Sensitivity (EIS)** rating.

The Geelsloot Stream was assigned a **PES of D/E**, indicating a largely to seriously modified ecological condition, with an **EIS rating of Low to Very Low**.

From an ecosystem services perspective, the Functional Wetland Area provides its greatest benefit through **flood attenuation**, where it performs at a moderate level. It also provides low to moderate levels of **streamflow regulation, nitrate removal, carbon storage and biodiversity maintenance**, contributing positively to local ecological functioning despite its modified nature.

Based on these findings, the recommended management objective is to maintain both the wetland and Geelsloot Stream in their current ecological condition, with an REC of C/D for the Depression Wetland Complex supported by a **15 m buffer zone** around the wetland system and D for the Geelsloot Stream. The buffer zone would only apply to the Functional Wetland Area.

Expected impacts:

New attenuation pond:

The proposed development includes the construction of a new casino complex located outside the recommended 15 m wetland buffer, together with the formalisation of a stormwater attenuation pond along the south-eastern portion of the site. The formalisation of the attenuation pond will result in the loss of several wet areas that have developed in association with the historical attenuation pond. However, these areas are highly artificial in nature and support limited wetland biodiversity. Furthermore, they will be replaced by a similar, but larger, attenuation pond that is expected to provide a comparable level of ecological function and exhibit similar ecological characteristics. Consequently, the anticipated impact on the overall wetland system is considered to be of very low significance.

New WWTP:

Furthermore, the proposed development includes the installation of an on-site wastewater treatment plant (WWTP) to treat effluent generated by the development until such time as the City of Cape Town is able to accommodate the additional sewage within its municipal wastewater treatment system. Development will also include the construction of a new sewage pipeline along the southern boundary of the property between the sewage pumpstation and the WWTP.



Figure 15: Proposed position of the sewage pump station, WWTP, proposed sewage pipelines (Red and green lines) and discharge point.

The new sewage pipelines will be located along the southern boundary of the property, on the southern side of the existing embankment, which physically separates the pipeline alignment from the wetland complex. The pipelines will therefore not directly encroach into the wetland system. The primary potential freshwater impact associated with the pipelines would be in the event of a malfunction or failure of the infrastructure, which could result in the leakage of untreated sewage into the surrounding soils and potentially the downstream freshwater system. **Considering the position of the pipelines relative to the wetland complex, the physical separation provided by the embankment, and the limited potential for direct interaction with the wetland system under normal operating conditions, the risk of impacts on the freshwater features is considered low, provided that the pipeline infrastructure is appropriately designed, installed, inspected and maintained.**

The treated effluent will comply with the applicable **DWS Special wastewater limit values** prior to discharge into the existing stormwater channel along the site. As this channel forms part of the downstream stormwater drainage system, the treated effluent will ultimately enter the Geelsloot Stream, which forms part of the receiving watercourse system and ultimately discharges into the Lourens river just before discharging into the Atlantic Ocean further downstream. This is anticipated to occur for approximately 5 years after completion of the project. The potential implications of this discharge for the Geelsloot Stream and downstream freshwater environment could give rise to downstream water quality impacts.

Considering that the Geelsloot Stream (and surrounding stormwater system) was found to already be in a seriously modified state, together with the fact that effluent will pass through the existing stormwater drainage network and downstream vegetated swale systems before entering the Lourens River, these systems will provide opportunities for dilution, settling and biological uptake of residual organic matter, suspended solids and nutrients. Consequently, a substantial deterioration in the existing ecological condition of the downstream drainage system is not anticipated under normal operating conditions.

However, considering the continuous nature of the proposed discharge into a system that is highly seasonal in nature, the dilution capacity of the surrounding freshwater features is expected to be generally low, which could increase the risk of water-quality impairment. In this case, the potential for nutrient enrichment (particularly phosphates) and increased electrical conductivity is therefore recognised as a residual water-quality impact.

Provided that the WWTP is appropriately designed and operated, that the treated effluent consistently complies with the authorised discharge limits, and that appropriate operational and water-quality monitoring is implemented, the proposed discharge is expected to result in a **low negative impact on the downstream freshwater system** for the duration of its operation.

Recommendations to minimise the risk, will include the following:

- A minimum 15 m buffer around the Functional Wetland Area should be maintained for all future development activities. No infrastructure, roads, hard surfaces, stockpiling, or intensive landscaping should be permitted within this buffer area.
- Demarcation fencing should be installed around the wetland and associated buffer zone prior to the commencement of construction to prevent accidental encroachment by construction vehicles, machinery, and personnel.
- During the construction phase, contaminated runoff from any of the construction work sites must be prevented from directly entering the surrounding freshwater features.
- Where feasible, construction should preferably take place during the dryer months (September through to March).
- Prior to the commencement of earthworks associated with the attenuation pond, appropriate erosion and sediment control measures should be installed along the downstream edge of the construction area. Such measures may include silt fences, sediment traps, hay bales, geotextile barriers, or other suitable sediment retention structures.
- No excavated material, topsoil, spoil, or construction-related debris should be stockpiled within the wetland, buffer zone, or any area where runoff could transport sediment into downstream freshwater features.
- Temporary diversion berms, cut-off drains, or similar stormwater control measures should be installed where necessary to prevent clean runoff from entering disturbed construction areas and to prevent sediment-laden runoff from leaving the site.
- Site access to the attenuation pond (both during the construction and operational phase), should be located outside of the wetland complex and its associated buffer zone.

- The ecological condition of the wetland complex should be enhanced through the removal of alien invasive plant species and the rehabilitation of disturbed areas using locally indigenous wetland vegetation.
- Upon completion of construction, all disturbed areas should be stabilised through mulching, erosion-control matting, revegetation with indigenous species, or other suitable rehabilitation measures to minimise the risk of ongoing sediment generation.
- Maintenance activities should include the regular removal of debris and accumulated sediment from the connecting channels to ensure the continued movement of water between wetland areas and the effective functioning of the stormwater system.
- A monitoring programme should be implemented to periodically assess wetland vegetation, hydrology, and water quality. Monitoring results should be used to guide adaptive management interventions aimed at maintaining the wetland in its target ecological condition of C/D and preventing further ecological degradation. This should be included in a formal Maintenance and Management Plan.
- The sewage pipeline must be routinely inspected and maintained, with appropriate leak detection/monitoring measures implemented to ensure the rapid identification of any leakage or malfunction. Any leakage must be immediately contained and repaired to prevent sewage from entering the adjacent wetland or downstream freshwater system.
- The WWTP must be appropriately designed, operated and maintained to ensure that treated effluent consistently complies with the authorised discharge limits/ DWS Special wastewater limit values prior to discharge (as listed in Table 5).

TABLE 5: WASTEWATER LIMIT VALUES APPLICABLE TO DISCHARGE OF WASTE WATER INTO A WATER RESOURCE. (GN 665 OF 2013)

SUBSTANCE/PARAMETER	GENERAL LIMIT	SPECIAL LIMIT
Faecal Coliforms (per 100 ml)	1000	0
Chemical Oxygen Demand (mg/l)	75 (i)	30(i)
pH	5,5-9,5	5,5-7,5
Ammonia (ionised and un-ionised) as Nitrogen (mg/l)	6	2
Nitrate/Nitrite as Nitrogen (mg/l)	15	1,5
Chlorine as Free Chlorine (mg/l)	0,25	0
Suspended Solids (mg/l)	25	10
Electrical Conductivity (mS/m)	70 mS/m above intake to a maximum of 150 mS/m	50 mS/m above background receiving water, to a maximum of 100 mS/m
Ortho-Phosphate as phosphorous (mg/l)	10	1 (median) and 2,5 (maximum)
Fluoride (mg/l)	1	1
Soap, oil or grease (mg/l)	2,5	0
Dissolved Arsenic (mg/l)	0,02	0,01
Dissolved Cadm ium (mg/l)	0,005	0,001
Dissolved Chromium (VI) (mg/l)	0,05	0,02
Dissolved Copper (mg/l)	0,01	0,002
Dissolved Cyanide (mg/l)	0,02	0,01
Dissolved Iron (mg/l)	0,3	0,3
Dissolved Lead (mg/l)	0,01	0,006
Dissolved Manganese (mg/l)	0,1	0,1
Mercury and its compounds (mg/l)	0,005	0,001
Dissolved Selenium (mg/l)	0,02	0,02
Dissolved Zinc (mg/l)	0,1	0,04
Boron (mg/l)	1	0,5

- As already stated by the client, the WWTP supplier will be responsible for the operation and maintenance of the plant through a service agreement and in accordance with a dedicated Maintenance and Management Plan.
- Monitoring must be undertaken at the frequency and for the parameters specified in the applicable water-use authorisation, with additional monitoring during the dry season, with particular attention to nutrients (especially phosphate and nitrogen), electrical conductivity, suspended solids, organic loading and microbiological parameters. These should at minimum comply with the Special limits.
- Visual inspections and receiving-water quality monitoring must be undertaken within the downstream stormwater system and Geelsloot, particularly during the dry season when dilution capacity is expected to be lowest.
- An emergency response procedure must be implemented to prevent the discharge of non-compliant effluent in the event of WWTP malfunction or failure. Adequate backup power must be maintained to ensure continued operation of the treatment plant during electricity interruptions.
- Any exceedance of the authorised discharge limits must be investigated and corrective action implemented immediately, with follow-up monitoring undertaken to confirm that water quality has returned to acceptable levels.

Conclusion

The proposed casino complex and associated stormwater attenuation pond will be located outside the recommended 15 m buffer zone surrounding the wetland system. The only freshwater-related areas affected by the proposed development are several artificially wet areas associated with the historical attenuation pond, which overlap with the footprint of the proposed formalised attenuation pond. Given the highly artificial nature of these wet areas, and the fact that they will be replaced by a formalised attenuation pond providing a similar ecological function, the resulting change is considered to be largely like-for-like, with negligible impact on the broader wetland system.

Other impacts considered include potential downstream water-quality impacts associated with the treatment and discharge of effluent into the downstream stormwater system. With the implementation of the recommended mitigation and management measures, the proposed development and its associated construction and operational activities are expected to result in an overall **Low negative impact on the freshwater features present on the site, as well as within the broader freshwater system**.

Following the assessment of the characteristics of the identified aquatic habitats, the DWS Risk Assessment Matrix (which is specified in the Government Notice R509 of 2016 for section 21 (c) and (i) water uses as defined under the NWA (1998)), was conducted to ascertain the significance of perceived impacts of the proposal on the key drivers and response processes (hydrology, water quality, geomorphology, habitat and biota) of the aquatic habitats. During both the construction and operational phases of the development, impacts on the freshwater features resulted in a **Low-risk score**.

As the indicated freshwater features found within the project site would be defined as a watercourse, any activities that are to take place within 32 meters thereof could require authorisation in terms of the relevant regulations of NEMA. As development will take place within 500m of a wetland, Section 21 of the National Water Act and GN 509 of 2016, as it relates to the NWA, will also apply.

The Low-risk outcome of the DWS Risk Assessment Matrix relates to the proposed Section 21(c) and (i) water uses associated with the development. The proposed discharge of treated effluent from the WWTP constitutes a Section 21(f) water use and will therefore require separate authorisation in terms of the applicable waste-discharge provisions of the National Water Act, unless the discharge qualifies for an applicable General Authorisation.

References:

Department of Water Affairs and Forestry. (1999). *Resource Directed Measures for Protection of Water Resources. Volume 3: River Ecosystems Version 1.0*. Resource Directed Measures for Protection of Water Resources, Pretoria, South Africa.

Department of Water Affairs and Forestry, 2005. A practical field procedure for identification and delineation of wetlands and riparian areas. Final Draft. DWAF, Pretoria, South Africa.

DWAF (2007). *Manual for the assessment of a Wetland Index of Habitat Integrity for South African floodplain and channelled valley bottom wetland types* by M. Rountree (ed); C.P. Todd, C. J. Kleynhans, A. L. Batchelor, M. D. Louw, D. Kotze, D. Walters, S. Schroeder, P. Illgner, M. Uys. and G.C. Marneweck. Report no. N/0000/00/WEI/0407. Resource Quality Services, Department of Water Affairs and Forestry, Pretoria, South Africa.

Driver, Nel, Snaddon, Murray, Roux, Hill. (2011). *Implementation Manual for Freshwater Ecosystem Priority Areas*. Draft Report for the Water Research Commission.

Kleynhans C.J., Thirion C. and Moolman J. 2005. A Level 1 Ecoregion Classification System for South Africa, Lesotho and Swaziland. Report No. N/0000/00/REQ0104. Resource Quality Services, Department of Water Affairs and Forestry, Pretoria

Macfarlane, D.M., Bredin, I.P., Adams, J.B., Zungu, M.M., Bate, G.C. and Dickens, C.W.S. 2014. *Preliminary guideline for the determination of buffer zones for rivers, wetlands and estuaries. Final Consolidated Report.* WRC Report No TT 610/14, Water Research Commission, Pretoria

Macfarlane D; Kotze D; Ellery W; Koopman V; Goodman PS; Goge M; Walters D. 2009. WET-Health. WRC Report No TT 340/09, Water Research Commission, Pretoria

Marnewecke, G. & Kotze, D., 1999. Appendix W6: Guidelines for delineating the boundaries of a wetland and the zones within a wetland in terms of the South African Water Act. Version 1.0. Department of Water Affairs and Forestry, Pretoria, South Africa.

Mucina, L. and Rutherford, M. C. (eds.) (2004) *Vegetation map of South Africa, Lesotho and Swaziland*. Strlitzia 18. South African National Biodiversity Institute, Pretoria.

National Environmental Management Act (NEMA) 107 of 1998

National Water Act 36 of 1998. Section 21(c) and (i).

SANBI Biodiversity GIS. http://bgis.sanbi.org

SANBI (2009). Further Development of a Proposed National Wetland Classification System for South Africa. Primary Project Report. Prepared by the Freshwater Consulting Group (FCG) for the South African National Biodiversity Institute (SANBI).

Van Ginkel, C. E., Glen, R. P., Gordon-Gray, K. D., Cilliers, C. J., Muasya, M. and P. P. van Deventer (2011) *Easy identification of some South African wetland plants.* WRC Report No TT 479/10

WRC. (2011). *Atlas for Freshwater Ecosystem Priority Areas* – Maps to support sustainable development of water resources (WRC Report No. TT 500/11).

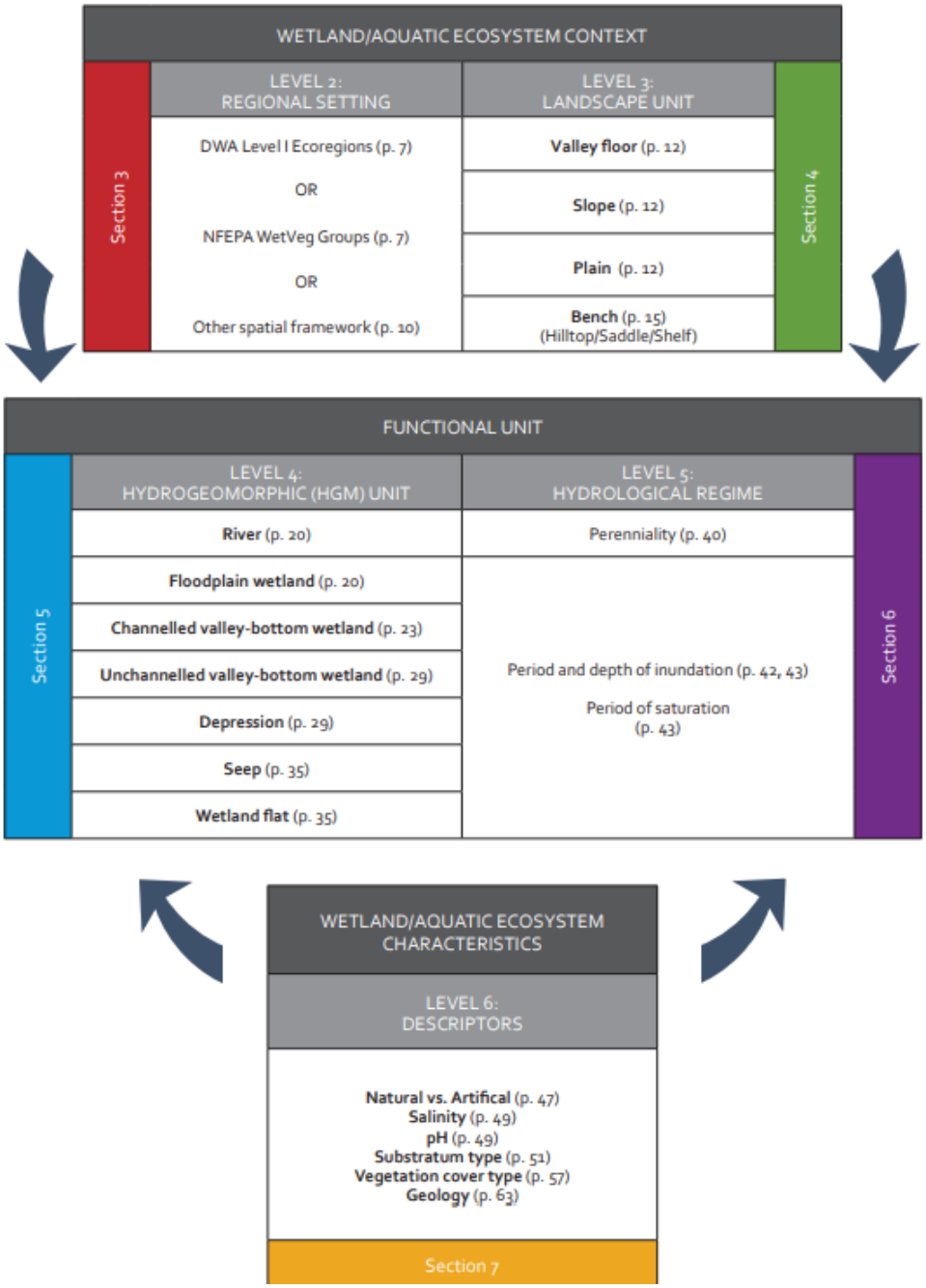


Annexure A- Assessment Methods & Criteria

Freshwater assessment methods:

Geomorphological and Physical Description of the Freshwater Features

The Classification System for Wetlands and Other Aquatic Ecosystems in South Africa (Ollis, 2013), was utilised to classify freshwater features encountered within the proposed study area. A summary of the classification system is presented below.



Classification of aquatic systems and Present ecological State calculation

A formal Habitat Integrity (PES), EIS (Ecostatus level III) and REC assessment were conducted to get a good representation of the present ecological state of the affected freshwater areas.

Ecological Assessment

Wetland Habitat Integrity:

The Wetland Habitat Integrity (WETLAND-IHI) model, as developed by the Department of Water Affairs and Forestry, was used as RAPID assessment of the wetland areas, for the purpose of reporting on the Present Ecological state (PES) of the wetland system in question. The Wetland Index of Habitat Integrity (WETLAND-IHI) is a tool developed for use in the National Aquatic Ecosystem Health Monitoring Programme (NAEHMP), formerly known as the River Health Programme (RHP) (Department of Water Affairs and Forestry Resource Quality Services, 2007). The output scores from the WETLAND-IHI model are presented in the standard DWAF A-F ecological categories (Table 1-1) and provide a score of the Present Ecological State of the habitat integrity of the wetland system being examined.

TABLE 1-1. IHI ECOLOGICAL CATEGORIES

Ecological Category	PES % Score	Description
A	90-100 %	**Unmodified, natural.**
B	80-89 %	**Largely natural with few modifications:** A small change in natural habitats may have taken place but the ecosystem functions are essentially unchanged.
C	60-79 %	**Moderately modified:** Loss and change of natural habitat and biota have occurred, but the basic ecosystem functions are still predominantly unchanged.
D	40-59%	**Largely modified.** A large loss and change of natural habitat, biota and basic ecosystem functions has occurred.
E	20-39%	**Seriously modified.** The loss of natural habitat, biota and basic ecosystem functions is extensive.
F	0-20 %	**Critically / Extremely modified:** Modifications have reached a critical level and the system has been modified completely with an almost complete loss of natural habitat and biota. In the worst instances, the basic ecosystem functions have been destroyed and the changes are irreversible.

Ecological Importance and Sensitivity (EIS)

The ecological importance of a water resource is an expression of its importance to the maintenance of ecological diversity and functioning on local and wider scales. Ecological sensitivity refers to the system's ability to resist disturbance and its capability to recover from disturbance once it has occurred.

The Ecological Importance and Sensitivity (EIS) assessment considers a range of biotic and habitat determinants that indicate either ecological importance or sensitivity. These determinants are evaluated using a four-point scale, and the median of the scores is calculated to establish the overall EIS category.

TABLE 1-2 DEFINITION OF THE SCALE USED TO ASSESS BIOTIC AND HABITAT DETERMINANTS

Scale	Definition
1	One species/taxon judged as rare or endangered at a local scale.
2	More than one species/taxon judged to be rare or endangered on a local scale.
3	One or more species/taxon judged to be rare or endangered on a Provincial/regional scale.
4	One or more species/taxon judged as rare or endangered on National scale (SA Red Data Books)

TABLE 1-3. ECOLOGICAL IMPORTANCE AND SENSITIVITY CATEGORIES (DWAF, 1999)

EISC	General description	Range of median
Very high	Quaternaries/delineations considered to be unique on a national and international level based on unique biodiversity (habitat diversity, species diversity, unique species, rare and endangered species). These rivers (in terms of biota and habitat) are usually very sensitive to flow modifications and have no or only a small capacity for use.	>3-4
High	Quaternaries/delineations considered to be unique on a national scale based on their biodiversity (habitat diversity, species diversity, unique species, rare and endangered species). These rivers (in terms of biota and habitat) may be sensitive to flow modifications but in some cases may have substantial capacity for use.	>2-≤3
Moderate	Quaternaries/delineations considered to be unique on a provincial or local scale due to biodiversity (habitat diversity, species diversity, unique species, rare and endangered species). These rivers (in terms of biota and habitat) are not usually very sensitive to flow modifications and often have substantial capacity for use.	>1-≤2
Low/ marginal	Quaternaries/delineations not unique on any scale. These rivers (in terms of biota and habitat) are generally not very sensitive to flow modifications and usually have substantial capacity for use.	≤1

Recommended Management Objective (RMO), Recommended Ecological Category (REC), Freshwater Delineation and Buffer Zones

Recommended Management Objective

The RMO (table below) was determined based on the results obtained from the PES, reference conditions and EIS of the freshwater resource (sections above), with the objective of either maintaining, or improving the ecological integrity of the freshwater resource in order to ensure continued ecological functionality.

TABLE 1-4: RECOMMENDED MANAGEMENT OBJECTIVES (RMO) FOR WATER RESOURCES BASED ON PES & EIS SCORES.

PES			Ecological Importance and Sensitivity (EIS)			
			Very High	High	Moderate	Low
	A	Pristine	A Maintain	A Maintain	A Maintain	A Maintain
	B	Natural	A Improve	A/B Improve	B Maintain	B Maintain
	C	Good	A Improve	B/C Improve	C Maintain	C Maintain
	D	Fair	C Improve	C/D Improve	D Maintain	D Maintain
	E/F	Poor	D* Improve	E/F* Improve	E/F* Maintain	E/F* Maintain

***PES Categories E and F are considered ecologically unacceptable (Malan and Day, 2012) and therefore, should a freshwater resource fall into one of these PES categories, an REC class D is allocated by default, as the minimum acceptable PES category.**

Recommended Ecological Category

The four ecological importance and sensitivity categories can be regarded as equivalent to the four default ecological management classes (DEMC; A to D) proposed for the purposes of the National Water Act (Table A-4), i.e. it is suggested that a very high ecological importance and sensitivity should justify the assignment of a very high ecological management class, etc. Default ecological management classes are defined in terms of the sensitivity of a system to disturbance and the risk of damaging the system (i.e. its capacity for sustainability and self-recovery). Based on this, there would be a desire to manage the system within particular ranges of protection. The Recommended Ecological Class (REC) for the affected freshwater features were determined by considering the results of the IHI and EIS assessments.

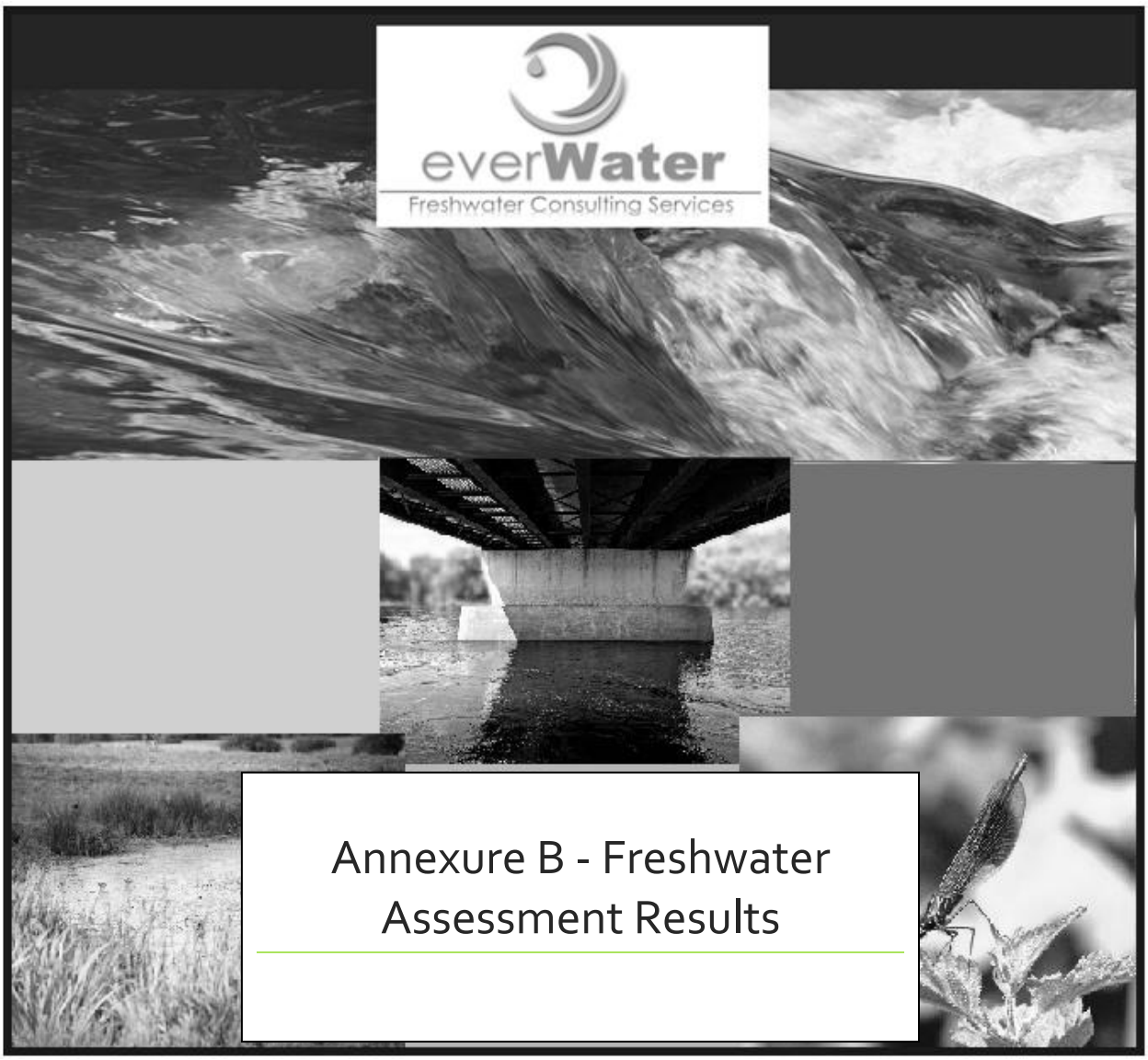
TABLE 1-5: DEFAULT ECOLOGICAL MANAGEMENT CLASSES FOR RIVERS (ADAPTED FROM KLEYNHANS 1996 AND KLEYNHANS ET AL. 1998).

Default Ecological Management Classes	Description Of Perceived Conditions And Allowable Risk

A Highly sensitive systems: No human-induced hazards	Highly sensitive systems. The natural abiotic template should not be modified. The characteristics of the resource should be determined by unmodified natural disturbance regimes. There should be no human-induced hazards to the abiotic and biotic maintenance of the resource.
B Sensitive systems: Small risk allowed	Sensitive systems. Only a small risk of modifying the natural abiotic template and exceeding the resource base should be allowed. Although the risk to the well-being and survival of especially intolerant biota (depending on the nature of the disturbance) at a very limited number of localities may be slightly higher than expected under natural conditions, the resilience and adaptability of biota must not be compromised. The impact of acute disturbances must be totally mitigated by the presence of sufficient refuge areas.
C Moderately sensitive systems: Moderate risk allowed	Moderately sensitive systems. A moderate risk of modifying the abiotic template and exceeding the resource base may be allowed. Risks to the well being and survival of intolerant biota (depending on the nature of the disturbance) may generally be increased with some reduction of resilience and adaptability at a small number of localities. However, the impact of local and acute disturbances must at least partly be mitigated by the presence of sufficient refuge areas.
D Resilient systems: Large risk allowed	Resilient systems. A large risk of modifying the abiotic template and exceeding the resource base may be allowed. Risks to the well-being and survival of intolerant biota (depending on the nature of the disturbance) may be allowed to generally increase substantially with resulting low abundances and frequency of occurrence, and a reduction of resilience and adaptability at a large number of localities. However, the associated increase in the abundance of tolerant species must not be allowed to assume pest proportions. The impact of local and acute disturbances must at least to some extent be

Freshwater Delineation and Buffer Zones

Freshwater features were delineated at a desktop level using historical digital satellite imagery (2003-2024) as well as topographical maps and were verified during a field visit according to the guidelines suggested by DWA (2008). Furthermore, the Buffer Zone Tool for the Determination of Aquatic Impact Buffers developed by the Department of Water and Sanitation (2014) was used to determine the extent of the buffer zone required for all freshwater features.



Annexure B - Freshwater Assessment Results

Habitat Integrity (PES)

Depression Complex:

IHI Assessment and Results:

The following assessment was conducted for the Depression complex. Although the wetland system is considered to be constructed in origin, this feature forms part of the greater freshwater system, has naturalised over time and presently supports established wetland vegetation, hydrological functioning, and associated biodiversity. The WET-Health assessment methodology was therefore applied to evaluate the current ecological integrity and functioning of the system, with due consideration given to its artificial origin and modified historical context. Given the artificial and historically modified nature of the wetland system, the reference condition applied during the WET-Health assessment was based on the best attainable ecological state under the current transformed catchment conditions, rather than a pristine historical benchmark. Consideration was given to the historical drainage characteristics of the site, regional wetland type, existing hydrological regime, and the current ecological functioning and biodiversity support capacity of the wetland system

TABLE B-1. INDEX OF HABITAT INTEGRITY ASSESSMENT RESULTS AND CRITERIA ASSESSED FOR THE RIPARIAN ZONE OF THE AFFECTED WETLAND AREA

Wetland name:	Depression wetland complex
Date of assessment:	28/05/2026
Name/s of assessor/s:	J Snyman

RDM-99 scoresheet with criteria for assessing Habitat Integrity of "Palustrine Wetlands"

Criteria	Relevance	Score
Hydrological	COMPARE results with [List of Hydrological Impacts] and/or [WET-Health (Level 1) Hydrology module]	
Flow modification	Consequence of abstraction, regulation by impoundments or increased runoff from human settlements or agricultural land. Changes in flow regime (timing, duration, frequency), volumes, velocity which affect inundation of wetland habitats resulting in floristic changes or incorrect cues to biota. Abstraction of groundwater flows to the wetland.	2
Permanent inundation	Consequence of impoundment resulting in destruction of natural wetland habitat and cues for wetland biota.	0
Water quality	COMPARE results with [List of Water Quality Impacts] and/or [Landuse/WQ spreadsheet] and/or [Wetland-IHI Water Quality module]	
Water quality modification	From point or diffuse sources. Measure directly by laboratory analysis or assessed indirectly from upstream agricultural activities, human settlements and industrial activities. Aggravated by volumetric decrease in flow delivered to the wetland	2,5

Sediment load modification	Consequence of reduction due to entrapment by impoundments or increase due to land use practices such as overgrazing. Cause of unnatural rates of erosion, accretion or infilling of wetlands and change in habitats.	2,5
Hydraulic / Geomorphological	COMPARE results with [List of Geomorphological Impacts]	
Canalisation	Results in desiccation or changes to inundation patterns of wetland and thus changes in habitats. River diversions or drainage.	3,5
Topographic alteration	Consequence of infilling, ploughing, dykes, trampling, bridges, roads, railway lines and other substrate disruptive activities which reduces or changes wetland habitat directly or through changes in inundation patterns.	3,5
Biota	COMPARE results with [List of Vegetation Alteration Impacts] and/or [WET-Health (Level 1) Vegetation module] and/or [Wetland-IHI Vegetation Alteration module]	
Terrestrial encroachment	Consequence of desiccation of wetland and encroachment of terrestrial plant species due to changes in hydrology or geomorphology. Change from wetland to terrestrial habitat and loss of wetland functions.	3
Indigenous vegetation removal	Direct destruction of habitat through farming activities, grazing or firewood collection affecting wildlife habitat and flow attenuation functions, organic matter inputs and increases potential for erosion.	4
Invasive plant encroachment	Affect habitat characteristics through changes in community structure and water quality changes (oxygen reduction and shading).	1,5
Alien fauna	Presence of alien fauna affecting faunal community structure.	5
Overutilisation of biota	Overgrazing, over-fishing, etc.	3,5
MEAN SCORE		**2,8**
MINIMUM SCORE		**0**
Overall PES% Score (without "override")		**56%**
Overall PES Category (without "override")		**C/D**

Findings:

According to the IHI (Index of Habitat Integrity) assessment, the wetland area's best attainable ecological state would be that of functioning in a Moderately to Largely modified way.

Geelsloot Stream.

IHI Assessment and Results:

The Index of Habitat Integrity (IHI) assessment presented below was undertaken for the section of the Geelsloot Stream running through to the project site. The assessment scores reflect the current ecological condition of the stream reach as it flows through the property.

TABLE 2. INDEX OF HABITAT INTEGRITY ASSESSMENT RESULTS AND CRITERIA ASSESSED FOR THE RIPARIAN ZONE OF THE AFFECTED SECTION OF THE GEELSLOOT STREAM.

RIPARIAN ZONE HABITAT INTEGRITY	Geelsloot Stream
Vegetation Removal (Impact 1 - 25)	16
Exotic Vegetation (Impact 1 - 25)	10
Bank Erosion (Impact 1 - 25)	10
Channel Modification (Impact 1 - 25)	20
Water Abstraction (Impact 1 - 25)	0
Inundation (Impact 1 - 25)	0
Flow Modification (Impact 1 - 25)	20
Water Quality (Impact 1 - 25)	13
INTEGRITY CLASS	**E**

TABLE 3. INDEX OF HABITAT INTEGRITY ASSESSMENT RESULTS AND CRITERIA ASSESSED FOR INSTREAM ZONE OF THE AFFECTED SECTION OF THE GEELSLOOT STREAM.

INSTREAM HABITAT INTEGRITY	Geelsloot Stream
Water Abstraction (Impact 1 - 25)	0
Flow Modification (Impact 1 - 25)	20
Bed Modification (Impact 1 - 25)	8
Channel Modification (Impact 1 - 25)	20
Water Quality (Impact 1 - 25)	13
Inundation (Impact 1 - 25)	0
Exotic Macrophytes (Impact 1 - 25)	0
Exotic Fauna (Impact 1 - 25)	0
Rubbish Dumping (Impact 1 - 25)	5
INTEGRITY CLASS	**D**

Findings:

The IHI results are consistent with the field observations, indicating that both the instream and riparian habitat integrity of the Geelsloot Stream are already degraded. This reach was classified as **Largely to Seriously Modified (Category D/E),** primarily as a result of the extensive upstream channel modifications, together with significant alterations to the natural flow regime following incorporation of the stream into the urban stormwater system. These historical modifications have substantially reduced the ecological integrity and natural functioning of the stream.

Ecological Importance and Sensitivity (EIS)

TABLE B-2. RESULTS OF THE EIS ASSESSMENT

Biotic Determinants	Depression complex	Geelsloot Stream
Rare and endangered biota	1.5	0
Unique biota	2	0.5
Intolerant biota	1	0.5
Species/taxon richness	2.5	1
Aquatic Habitat Determinants		
Diversity of aquatic habitat types or features	2	0.5
Refuge value of habitat type	2	1
Sensitivity of habitat to flow changes	0.5	0.5
Sensitivity of flow-related water quality changes	0.5	0.5
Migration route/corridor for instream and riparian biota	0.5	0.5
National parks, wilderness areas, Nature Reserves, Natural Heritage sites, Natural areas, PNEs	0	0
Total	1.25	0.5
EIS CATEGORY	**Low to Moderate**	**Low to Very Low**

RMO, REC and Buffer zone.

TABLE B-3. RESULTS OF THE RMO, REC AND BUFFER ZONE ASSESSMENT

	RMO	REC	Buffer zone
Depression Complex	D: Maintain	Resilient systems. A large risk of modifying the abiotic template and exceeding the resource base may be allowed. Risks to the well-being and survival of intolerant biota (depending on the nature of the disturbance) may be allowed to generally increase substantially with resulting low abundances and frequency of occurrence, and a reduction of resilience and adaptability at a large number of localities. However, the associated increase in the abundance of tolerant species must not be allowed to assume pest proportions. The impact of local and acute disturbances must at least to some extent be	15m - Only to Functional Wetland Area

Geelsloot Stream	D/E* Maintain ***PES Categories E and F are considered ecologically unacceptable (Malan and Day, 2012) and therefore, should a freshwater resource fall into one of these PES categories, an REC class D is allocated by default, as the minimum acceptable PES category**	D: Resilient systems. A large risk of modifying the abiotic template and exceeding the resource base may be allowed. Risks to the well-being and survival of intolerant biota (depending on the nature of the disturbance) may be allowed to generally increase substantially with resulting low abundances and frequency of occurrence, and a reduction of resilience and adaptability at a large number of localities. However, the associated increase in the abundance of tolerant species must not be allowed to assume pest proportions. The impact of local and acute disturbances must at least to some extent be	n/a

Wetland Ecosystem Services:

TABLE B-4. RESULTS OF THE WETLAND ECOSERVICES ASSESSMENT

	Depression Complex
Flood attenuation	2,8
Streamflow regulation	2,1
Sediment trapping	1,1
Phosphate trapping	1,4
Nitrate removal	2
Toxicant removal	1,2
Erosion control	0,8
Carbon storage	2,3
Maintenance of biodiversity	1,5
Water supply for human use	0
Natural resources	0
Cultivated foods	0
Cultural significance	0
Tourism and recreation	0,5
Education and research	0

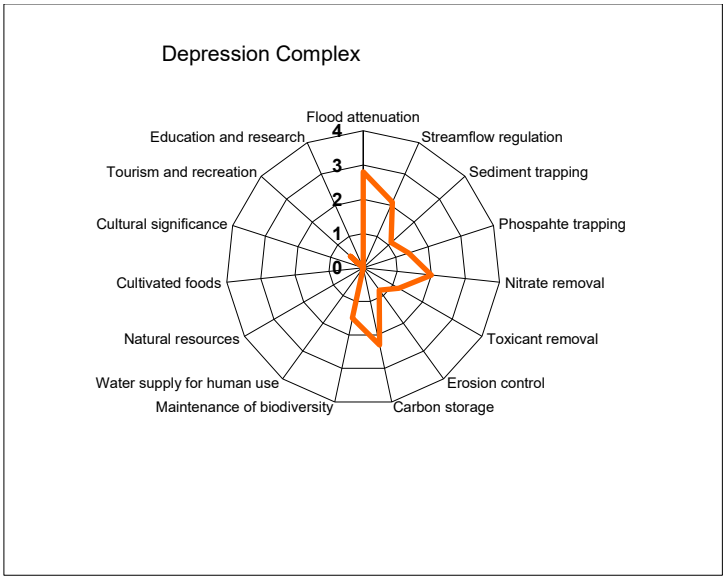
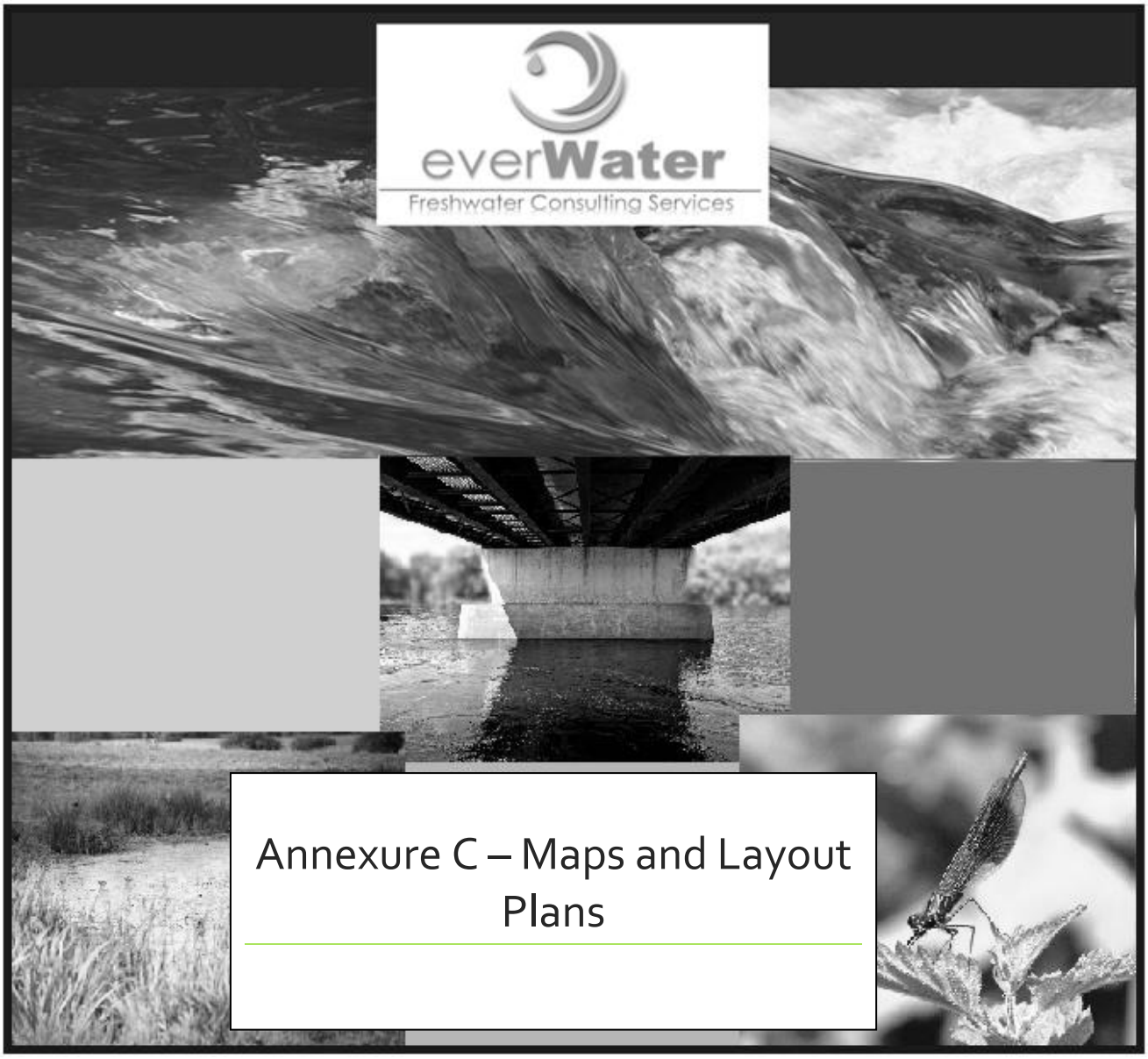


Figure B-1: Ecoservices supplied by the Depression Complex

The Depression Complex provides a moderate level of functionality for flood attenuation, while delivering low to moderate levels of functionality for streamflow regulation, nitrate removal, carbon storage and the maintenance of biodiversity.


everWater
Freshwater Consulting Services
Annexure C – Maps and Layout Plans

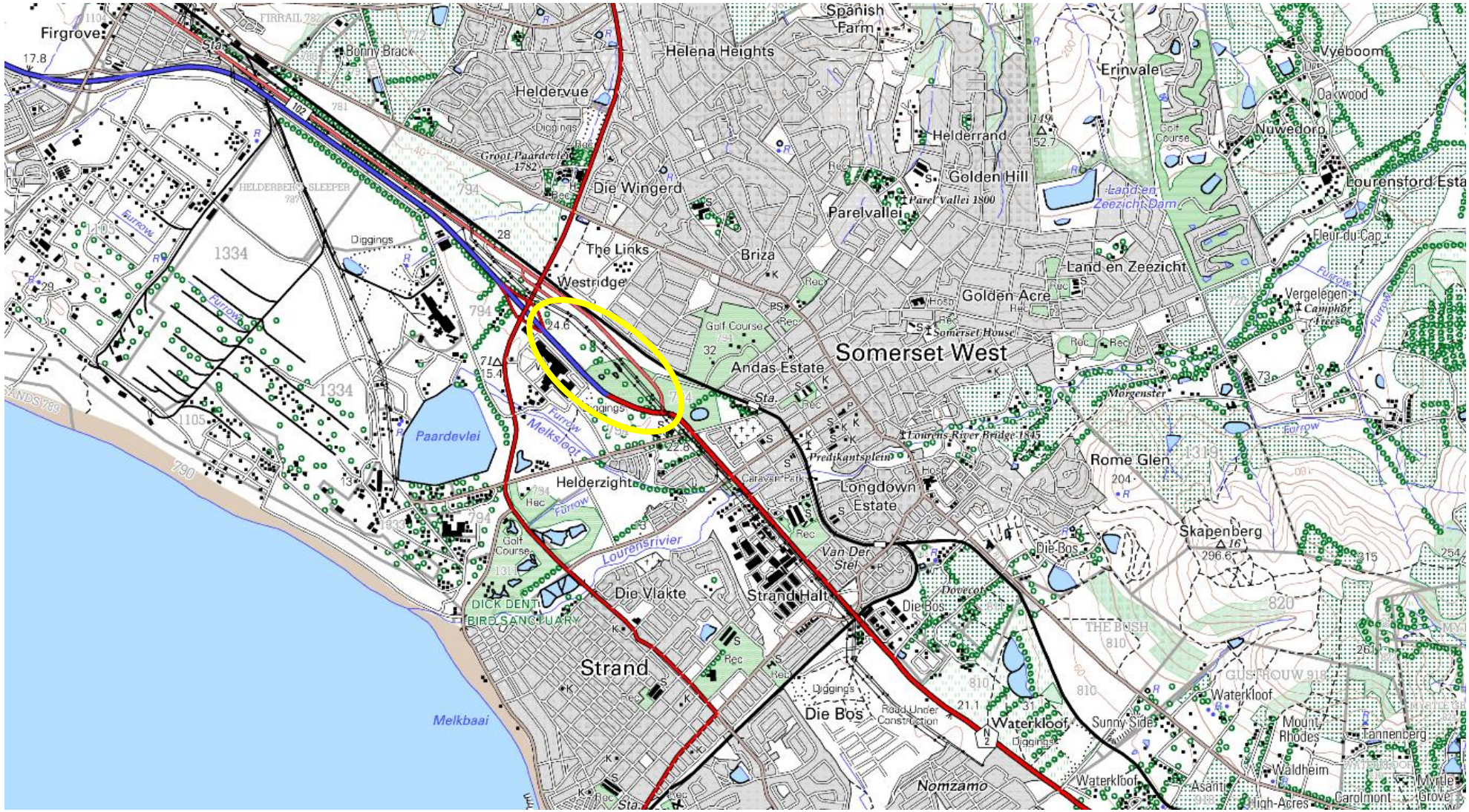


Figure C-1: 1:50 000 Topographical map of the area with the project location (3418BB)

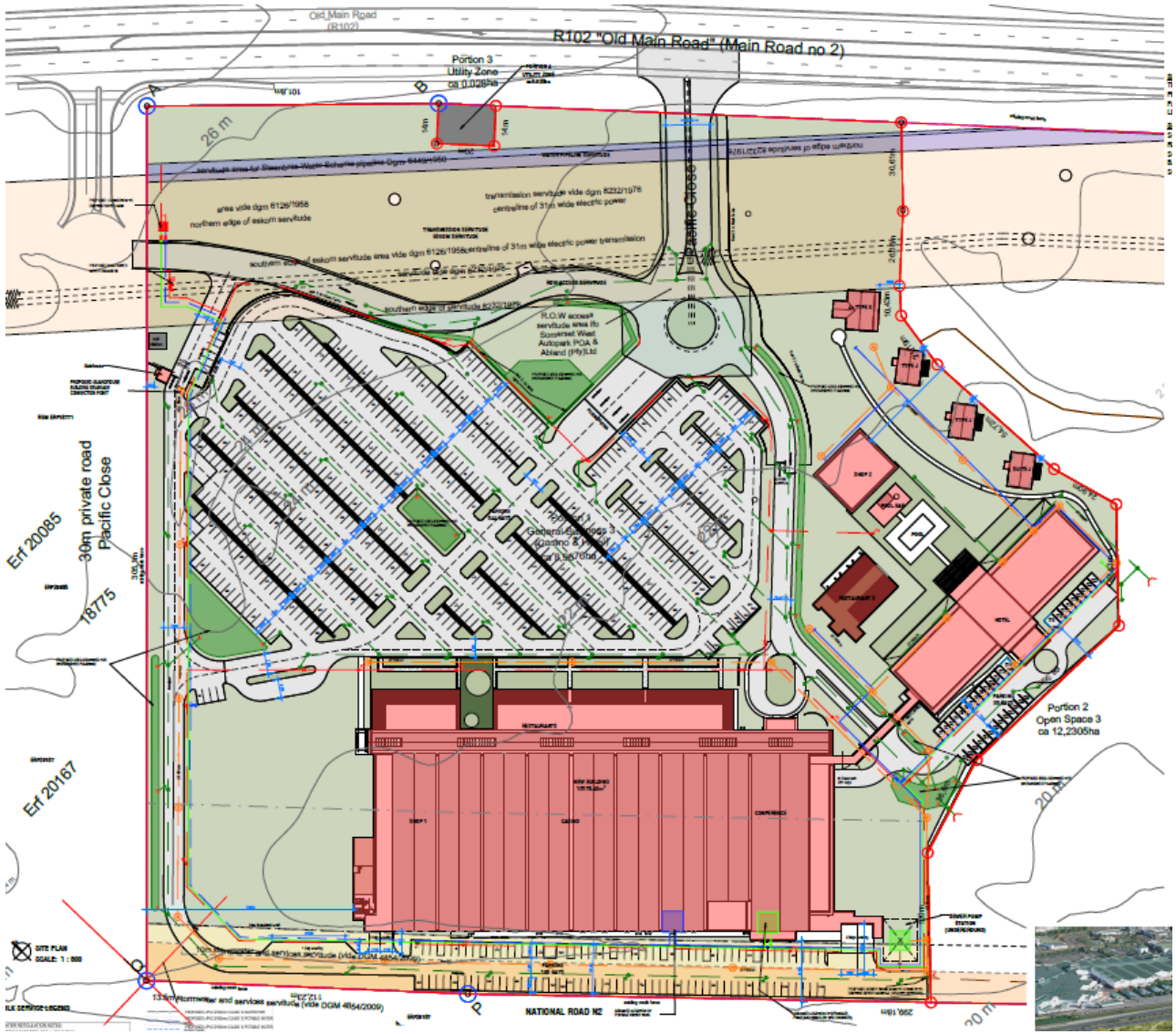


Figure C-2: Proposed layout plan for the development.



Figure C-3: Proposed stormwater attenuation pond to the south-east of the site.



Figure C-5: Satellite imagery indicating the project site with the functional section of the interlinked depression complex (green polygon), the artificially wet area (yellow polygon), the artificial stormwater pond and excavated areas (pink polygons) as well as the NWM wetland areas (turquoise polygons). Of these, only the functional wetland area was found to trigger legislation under both the NWA and NEMA.



Annexure D – Risk Matrix

PROJECT:	**Risk Assessment for the Proposed Abland (Pty) Ltd Development, Somerset West, Western Cape**
RISK ASSESSMENT MATRIX for Section 21 (c) and (i) Water Use activities - Version 2.1	
Name of Assessor:	Jeanne Snyman **Signature:** 
SACNASP Registration Number:	400091/17
Date of assessment:	29/05/2026 (Updated 12/08/2026)

Risk to be scored for all relevant phases of the project (**factoring in specified control measures**). MUST BE COMPLETED BY SACNASP PROFESSIONAL MEMBER REGISTERED IN AN APPROPRIATE FIELD OF EXPERTISE.

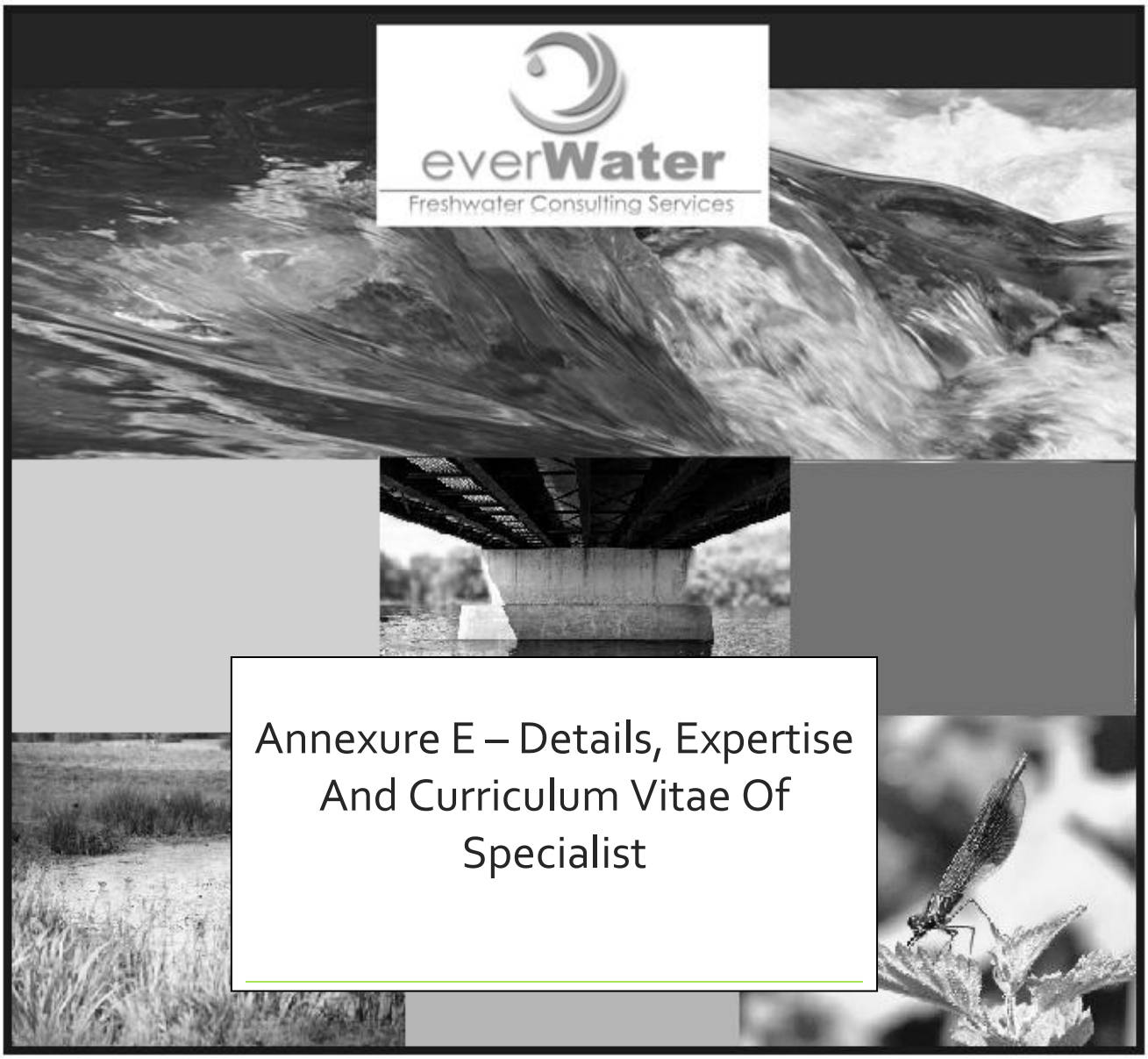
Phase	Activity	Impact	Potentially affected watercourses			Overall Intensity (max = 10)	Spatial scale (max = 5)	Duration (max = 5)	Severity (max = 20)	Importance rating (max = 5)	Consequence (max = 100)	Likelihood (Probability) of impact	Significance (max = 100)	Risk Rating	Confidence level
			Name/s	PES	Overall Watercourse Importance										
CONSTRUCTION PHASE	<1>Construction activities associated with the Propoed Casino and Hotel development	<1a>Altering the geomorphology surrounding the wetland and hardening of soils at the development site	Depression Wetland Complex	C/D	Moderate	2	1	1	4	3	12	100%	12	L	High
		<1b>Possibility of Siltation and Sedimentation, as well as other pollutants within the buffer zone.	Depression Wetland Complex	C/D	Moderate	4	1	1	6	3	18	60%	10,8	L	High
	<2>Formalisation of the historical attenuation pond.	<2a>Excavation activities within the existing attenuation pond, leading to loss of biodiversity at some of the artificially wet areas	Depression Wetland Complex	C/D	Moderate	4	1	1	6	3	18	100%	18	L	High
		<2b>Temporary disruption in hydrology as well as possible impact on downnstream water quality during the construction phase.	Depression Wetland Complex	C/D	Moderate	4	2	1	7	3	21	60%	12,6	L	High
	<3>Removal of alien invasive vegetation	<3a>Improvement ecological condition of wetland area	Depression Wetland Complex	C/D	Moderate	0	2	4	6	3	18	100%	18	L	High
OPERATIONAL	<1>Monitoring and maintenance of the stormwater system associated with the Depression wetland complex and newly formalised attenuation pond.	<1a>Temporary disturbance of soils and biodiversity during maintenance activities	Depression Wetland Complex	C/D	Moderate	4	1	1	6	3	18	60%	10,8	L	High
	<2>Formalisation of the historical attenuation pond.	<2b>Improvement of hydrology and to some degree, water quality within the greater freshwater system	Depression Wetland Complex	C/D	Moderate	0	2	4	6	3	18	80%	14,4	L	High
	<3>Strict application of the 15m buffer zone for all future activities with no activities allowed within this area.	<1b>Preserved wetland function and biodiversity	Depression Wetland Complex	C/D	Moderate	0	1	4	5	3	15	100%	15	L	High
	<4>Treatmenet and Release of effluent into downstream stormwater system.	<1b>Water quality impairment in downstream freshwater system	Geelsloot stream and associated stormwater channesl	D/E	Low / Very low	4	1	3	8	None	None due to low EIS	40%	None due to low EIS	L	High

*The risk of water-quality impacts listed under <4> of the Operational Phase pertains primarily to the Geelsloot Stream and the receiving downstream stormwater system. Although the Geelsloot Stream eventually discharges into the Lourens River, which has a Moderate to High EIS, the treated effluent will travel approximately 3.5 km before reaching the river. Along this route, the flow will pass through several grassed swales and downstream artificial wetlands and will be supplemented by inputs from several other stormwater channels. These processes will provide opportunities for dilution, settling and biological uptake, thereby reducing the potential for downstream water-quality impacts. The risk of impact on the lower reaches of the Lourens River, before it discharges into the ocean, the potential impact on the lower Lourens River was considered **very low/negligible under normal operating conditions**, based on the substantial downstream attenuation and dilution opportunities, and was not included in the Risk Assessment Matrix.

Mitigation Measures:

- A minimum 15 m buffer around the wetland complex should be maintained for all future development activities. No infrastructure, roads, hard surfaces, stockpiling, or intensive landscaping should be permitted within this buffer area.
- Demarcation fencing should be installed around the wetland and associated buffer zone prior to the commencement of construction to prevent accidental encroachment by construction vehicles, machinery, and personnel.
- During the construction phase, contaminated runoff from any of the construction work sites must be prevented from directly entering the surrounding freshwater features.
- Where feasible, construction should preferably take place during the dryer months (September through to March).
- Prior to the commencement of earthworks associated with the attenuation pond, appropriate erosion and sediment control measures should be installed along the downstream edge of the construction area. Such measures may include silt fences, sediment traps, hay bales, geotextile barriers, or other suitable sediment retention structures.
- No excavated material, topsoil, spoil, or construction-related debris should be stockpiled within the wetland, buffer zone, or any area where runoff could transport sediment into downstream freshwater features.
- Temporary diversion berms, cut-off drains, or similar stormwater control measures should be installed where necessary to prevent clean runoff from entering disturbed construction areas and to prevent sediment-laden runoff from leaving the site.
- Site access to the attenuation pond (both during the construction and operational phase), should be located outside of the wetland complex and its associated buffer zone.
- The ecological condition of the wetland complex should be enhanced through the removal of alien invasive plant species and the rehabilitation of disturbed areas using locally indigenous wetland vegetation.
- Upon completion of construction, all disturbed areas should be stabilised through mulching, erosion-control matting, revegetation with indigenous species, or other suitable rehabilitation measures to minimise the risk of ongoing sediment generation.
- Maintenance activities should include the regular removal of debris and accumulated sediment from the connecting channels to ensure the continued movement of water between wetland areas and the effective functioning of the stormwater system.
- A monitoring programme should be implemented to periodically assess wetland vegetation, hydrology, and water quality. Monitoring results should be used to guide adaptive management interventions aimed at maintaining the wetland in its target ecological condition of C/D and preventing further ecological degradation. This should be included in a formal Maintenance and Management Plan.

- The sewage pipeline must be routinely inspected and maintained, with appropriate leak detection/monitoring measures implemented to ensure the rapid identification of any leakage or malfunction. Any leakage must be immediately contained and repaired to prevent sewage from entering the adjacent wetland or downstream freshwater system.
- The WWTP must be appropriately designed, operated and maintained to ensure that treated effluent consistently complies with the authorised discharge limits/ DWS Special wastewater limit values prior to discharge.
- As already stated by the client, the WWTP supplier will be responsible for the operation and maintenance of the plant through a service agreement and in accordance with a dedicated Maintenance and Management Plan.
- Monitoring must be undertaken at the frequency and for the parameters specified in the applicable water-use authorisation, with additional monitoring during the dry season, with particular attention to nutrients (especially phosphate and nitrogen), electrical conductivity, suspended solids, organic loading and microbiological parameters. These should at minimum comply with the Special limits.
- Visual inspections and receiving-water quality monitoring must be undertaken within the downstream stormwater system and Geelsloot, particularly during the dry season when dilution capacity is expected to be lowest.
- An emergency response procedure must be implemented to prevent the discharge of non-compliant effluent in the event of WWTP malfunction or failure. Adequate backup power must be maintained to ensure continued operation of the treatment plant during electricity interruptions.
- Any exceedance of the authorised discharge limits must be investigated and corrective action implemented immediately, with follow-up monitoring undertaken to confirm that water quality has returned to acceptable levels.



Annexure E – Details, Expertise And Curriculum Vitae Of Specialist

Abbreviated Curriculum Vitae

Personal Details

Surname : Snyman

Names : Jeanne Celeste

Date of Birth : 17 June 1983

Nationality : RSA

Profession : Freshwater Ecologist (SACNASP reg nr: 400091/17)

Key Qualifications

Academic Qualifications Institution (Date finished)	**Degree(s) or Diploma(s) obtained:**
North West University _ Potchefstroom campus. (2004)	BSc degree with Zoology and Microbiology
North West University _ Potchefstroom campus. (2006)	M.Env degree in Water Sciences (Cum laude),
North West University _ Potchefstroom campus. (2006)	Postgraduate Certificate In Education (PGCE)

Work Experience

Jeanne Snyman is Pr Sci Nat registered (400091/17) in the following fields of practice: Water Resource Science. Jeanne is an Aquatic, Wetland and Biodiversity Specialist with more than 13 years' experience in the environmental consulting field. She possesses a BSc. Masters in Freshwater Sciences and has worked on projects related to residential developments, infrastructural developments, sustainable energy and general natural resource management. Her work focusses mostly on doing Freshwater Impact Assessments, River Management and Maintenance plans, Rehabilitation plans and Audit Reports. Each project takes a total of approximately 24 (Supplementary Reports) to 50 hours (Freshwater assessments, RMMP's and Rehabilitation plans).

List of 2025/2026 projects:

- Snyman, J.C. February 2025. Freshwater Assessment For The New Water Use Of Biodegradable Effluent From The Remainder Of Farm 494, Clanwilliam, Western Cape
- Snyman, J.C. February 2025. Freshwater Baseline Report For The Proposed New Agricultural Development On The Remainder Of Farm 472, Vanrhynsdorp, Western Cape
- Snyman, J.C. March 2025. Freshwater Assessment For The Proposed New Development On Portion 14 Of Farm Slange Rivier 303, Swellendam, Western Cape
- Snyman, J.C. May 2025. Freshwater Assessment For The Alleged Unauthorised Activities That Took Place On Portion 1 Of Farm No. 320, Western Cape
- Snyman, J.C. June 2025. Freshwater Assessment For The Proposed Development Of A Free-Range Poultry Broiler Facility On The Farm Numbers 563, 564, 565 And Farm Kleinfontein Number 954, Worcester, Western Cape
- Snyman, J.C. July 2025. Freshwater Impact Assessment for the proposed New La Vallon development on Portions 5 and 6 of farm 1426 , Paarl, Western Cape
- Snyman, J.C. October 2025. Freshwater Assessment For Alleged Unlawful Activities That Took Place On Portion 16 Of Farm Derde Heuvel 149, Montagu Rd, Western Cape
- Snyman, J.C. October 2025. Rehabilitation Plan And Mmp For The Alleged Unlawful Activities That Took Place On Portion 16 Of Farm Derde Heuvel 149, Montagu Rd, Western Cape
- Snyman, J.C. September 2025. Second Addendum To The Freshwater Assessment For The Proposed Development On The Rhebokskloof Estate, Paarl
- Snyman, J.C. September 2025. Freshwater Assessment For The Proposed New Jebo Connect Fibre Cable, Bredasdorp, Western Cape
- Snyman, J.C. November 2026. Freshwater Assessment For The Proposed New Development On Erf2278, Camps Bay, Western Cape
- Snyman, J.C. February 2026. Freshwater Risk Assessment For The Proposed New Baboon Enclosure On The Remainder Of Farm 1049, Western Cape
- Snyman, J.C. February 2026. River Maintenance And Management Plan For The Proposed New Casa Maris Residential Development, Somerset West, Western Cape
- Snyman, J.C. March 2026. Site Sensititivy Verification Report For The Unauthorised Establishment Of Free-Range Chicken Houses On Portion 34 Of Farm 811, Tesselaarsdal, Caledon, Western Cape.
- Snyman, J.C. March 2026. Freshwater Assessment For The Proposed And Existing Activities On Portions 45 And 38 Of Farm 115, Robertson, Western Cape
- Snyman, J.C. May 2026. Freshwater Risk Assessment For The Proposed Baboon-Proof Northern Fence, Cape Town, Western Cape
- Snyman, J.C. May 2026. Freshwater Impact Assessment And Risk Matrix For The Proposed Abland (Pty) Ltd Development, Somerset West, Western Cape
- Snyman, J.C. May 2026. Audit Report For Authorised Water Use Activities On Portion 2 And 9 Of Farm January's Kraal 580, Malmesbury Rd, Western Cape