UPDATED REVIEWED AQUATIC BIODIVERSITY COMPLIANCE STATEMENT

NIEUWE RUST HOUSING PROJECT ON ERF 182 AND 184 ON ±3.45HA. AREA A = ±0.92HA AND AREA B ±2.52HA. PROPOSED LAYOUT = 91 UNITS (10M X 15M = ±150M²) A = 31 UNITS AND B = 60 UNITS.

Enviro-EAP
Environmental Consultants

Prepared by: Nicolaas Hanekom
Pri.Sci.Nat (Ecology) 004415
Contact details: Telephone: 0769636450
or email: nicolaas@enviro-eap.co.za

JANUARY 2026

DECLARATION OF THE SPECIALIST

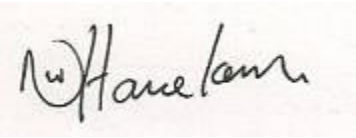
I **Nicolaas Willem Hanekom**, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

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

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

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

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



Nicolaas Hanekom
Pri.Sci.Nat (Ecology) 004415 **19 January 2026**

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

Enviro-EAP (Pty) Ltd

Name of company (if applicable):

TABLE OF CONTENT

1. INTRODUCTION

Proposed development and area assessed.

Nieuwe Rust Housing project on erf 182 and 184 on ±3.45ha. Area A = ±0.92ha and Area B ±2.52ha. Proposed Layout = 91 units (10m x 15m = ±150m²) A = 31 units and B = 60 units.

Water

Portions A & B will require new internal reticulation networks, which will be 90mm diameter uPVC Class 12 pipes and will connect to the existing water mains in Olyf Street (Portion A) and Arcarcia Street (Portion B). Valves and hydrants will be provided at suitable positions.

Sewer

The internal network will be 160 mm diameter class 34 uPVC pipes with 110 mm diameter erf connections.

Stormwater

Stormwater from Erf 184 will all be collected in stormwater pipe infrastructure in road reserves and connected to Jakaranda street stormwater infrastructure in a southern direction towards existing town stormwater infrastructure. The southern section of Erf 182 will all be collected in stormwater pipe infrastructure in road reserves and connected to Jakaranda street stormwater infrastructure in a southern direction towards existing town stormwater infrastructure. A small area of the development stormwater will be collected in stormwater pipe infrastructure in road reserves and release to the north east in a stormwater pond with a 1:50 year flood overflow release into the surrounding area which will allow for when stormwater is release to seep through the cultivated land towards the non-perennial river.

Roads
The new roads for Portions A and B will connect to the existing Olyf Street and Arcarcia Street respectively. The new internal roads will consist of a combination of premix and paved surfaces and will be 10m and 8 m wide, but not longer than 1km.

The aquatic biodiversity compliance statement, must contain, as a minimum, the following information:

- Contact details and curriculum vitae of the specialist including SACNASP registration number and field of expertise; **- Refer to cover page, section 1.1. and Appendix A of this report**
- A signed statement of independence by the specialist; **Refer to page 2 of this report**
- A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment; **Refer to section 2.**
- A description of the methodology used to undertake the site survey and prepare the compliance statement, including equipment and modelling used where relevant; **Refer to section 3.**
- Where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMPr; **Refer to section 4.**
- A description of the assumptions made and any uncertainties or gaps in knowledge or data; **Refer to section 5.**
- The mean density of observations/ number of samples sites per unit area; and **Refer to section 6.**
- Any conditions to which the compliance statement is subjected. **Refer to section 7.**

1.1. Background & Competency

Nicolaas Hanekom is a registered Professional Natural Scientist in the ecological science field with the South African Council for Natural Scientific Professions ("SACNASP"), Pri Sci Nat (Reg. No. 004415) Ecological Science (Pri.Sci.Nat); Aquatic Science & Conservation Science (Cand.Sci.Nat) and a qualified registered Environmental Assessment Practitioner ("EAP") who holds a Masters Technologiae, Nature Conservation ("Vegetation Ecology and Biodiversity Assessment") degree from the Cape Peninsula University of Technology (Refer to Appendix A, CV). Nicolaas Hanekom is suitably qualified SACNASP registered specialist as confirmed by SACNASP in email below.

Nicolaas Hanekom

From: Phutiane Letsoalo <Phutiane.Letsoalo@sacnasp.org.za>
Sent: Friday, August 1, 2025 12:55 PM
To: Nicolaas Hanekom
Cc: SACNASP Registrations
Subject: RE: Guidance on which registration category or field will be required to conduct Freshwater specialist conducting aquatic biodiversity assessments.

Dear Nicolaas,

A freshwater specialist conducting aquatic biodiversity assessments would typically register under Ecological Science field of practice or Aquatic Sciences, depending on the specific job that the Scientist is carrying out. Ecological Science field mainly covers professionals who work on ecosystems, biodiversity, and environmental assessments, including freshwater ecosystems. Sometimes as alluded above, depending on the task/job that the Scientist carries out, it might fall under Aquatic Science or a related field within Conservation Sciences.

The following are typical tasks that a freshwater specialist conducting aquatic biodiversity assessments can be involved in:

1. Surveying and sampling freshwater ecosystems (rivers, lakes, wetlands, etc.) to collect data on species presence, abundance, and diversity.
2. Identifying aquatic species, including fish, macroinvertebrates, algae, and plants.
3. Assessing ecosystem health and water quality by analysing biological indicators.
4. Evaluating impacts of environmental changes or developments on freshwater biodiversity.
5. Compiling reports and data summaries to inform conservation decisions, environmental impact assessments (EIAs), or resource management plans.
6. Recommending mitigation measures or conservation strategies based on assessment results.
7. Compliance and regulation work related to freshwater biodiversity protection laws and policies.

I hope you find all in order.

Kind Regards,

Mr. Phutiane Letsoalo Pr.Sci.Nat
Scientific Advisor

G20
SOUTH AFRICA 2025
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SACNASP
South African Council for Natural Scientific Professions
Integrity in science

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From: SACNASP Registrations <registrations@sacnasp.org.za>
Sent: Wednesday, July 30, 2025 9:55 AM
To: Phutiane Letsoalo <Phutiane.Letsoalo@sacnasp.org.za>

1.2. Scope and Objectives

The protocol[1] provides the criteria for the reporting of requirements for the assessment and reporting of impacts on aquatic biodiversity for activities requiring environmental authorisation.

General Information
An applicant intending to undertake an activity identified in the Scope of this Protocol, on a site identified as being of "low sensitivity" for aquatic biodiversity on the national web based environmental screening tool.

1.3. Terms of Reference

The Aquatic Biodiversity Compliance Statement, must be prepared by a suitably qualified specialist in the field of Aquatic Science, on the site being submitted as the preferred development site and must verify:

- That the site is of "low" sensitivity for aquatic biodiversity; and
- Whether or not the proposed development will have any impact on the biodiversity feature.

2. BASELINE PROFILE DESCRIPTION OF BIODIVERSITY AND ECOSYSTEMS, INCLUDING A STATEMENT ON THE DURATION, DATE AND SEASON OF THE SITE INSPECTION AND THE RELEVANCE OF THE SEASON TO THE OUTCOME OF THE ASSESSMENT

A non-perennial river and its catchment was mapped in the desktop study originating in the north-eastern corner of erf 182 flowing through the cemetery and agricultural lands in a northeastern direction. No natural aquatic features were observed on the site during the time of the survey. The correctly delineated non-perennial river is outside the 100m regulated zone. The non-perennial river has a very poor Present Ecological State as a result of the farming and ploughing activities through it. The risk assessment is based on the Department of Water and Sanitation 2015 publication: Section 21c and i water use Risk Assessment Protocol in Government Gazette no. 40229 dated 26 August 2016.

1 Published in Government Notice No. 320. GOVERNMENT GAZETTE 43110 20 March 2020.This gazette is also available free online at www.gpwonline.co.za

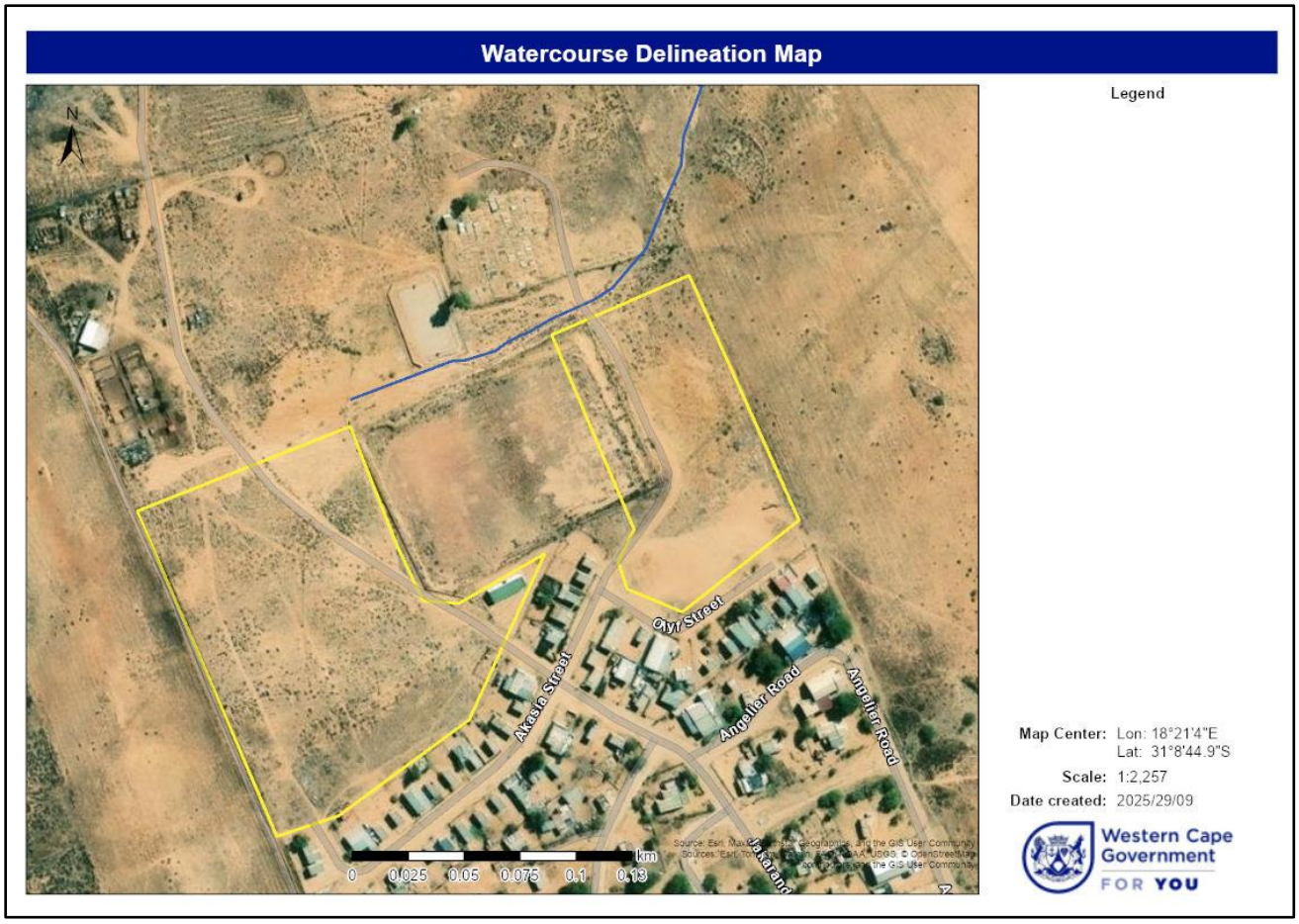


Figure 1: Watercourse Delineation Map. The blue line indicates the alignment of a non-perennial drainage line.

Photograph 1: View of the original non-perennial river on the edge of the development between the proposed development area and cemetery.

Photograph 2: View of original non-perennial river.

Photograph 3: View of the delineated non-perennial river below cemetery through old agricultural cultivated areas.

Photograph 4: View of correctly delineated non-perennial river.

The site visits were carried out on 23 July 2023 and 15 August 2024. The timing of the survey is regarded as optimal in terms of accurately assessing the flora of the site and delineating freshwater ecological (aquatic biodiversity) features. It is within the rainy season and flower season which is important to delineate freshwater ecological features as hydrology and vegetation is import to delineated freshwater ecological features.

3. A DESCRIPTION OF THE METHODOLOGY USED TO UNDERTAKE THE SITE SURVEY AND PREPARE THE COMPLIANCE STATEMENT, INCLUDING EQUIPMENT AND MODELLING USED WHERE RELEVANT

A literature review and desktop analysis were undertaken prior to the field investigation, utilizing various sources including the South African National Biodiversity Institute (SANBI) data and other relevant sources. Recent and historical aerial imagery of the site was reviewed

in order to identify points for investigation during the field survey. Utilising the above information, a field investigation was undertaken whereby:

- Sites of geomorphological or topographic variance were identified and subjected to an evaluation of species present within transects established across the selected site.
- Species were identified and collated.
- Additional random sample points were selected from other sites surrounding the proposed impacted areas for comparative purposes.

The assessments entailed both a literature review of the region, as well as on site evaluations, during which specific primary data will be collected and evaluated. In addition, the identification of key ecological features was undertaken allowing for the interpretation of the prevailing habitat form and associated processes.

All data collected in the field and during the literature review was evaluated and interpreted in order to provide an understanding of the nature of the prevailing environment at a landscape and habitat level. In addition, specific evaluation of data relating to habitat form and structure was undertaken, aiding in the identification of bio-physical anomalies within the prevailing environment. Such variance may be considered to be indicative of differing habitat forms, which under consideration, may be of higher order ecological value in relation of the prevailing environment.

The study area was surveyed on foot, and all indigenous species growing in the greater study area were noted. Various transects were conducted to cover the area. Particular attention was paid to potential fauna and flora Species of Conservation Concern and presence of freshwater ecological features that represent wetlands and aquatic biodiversity areas that could have been present. Various photographs were taken.

The following methodologies were used assess the aquatic biodiversity features on site:

- ***The risk assessment is based on the Department of Water and Sanitation 2015 publication: Section 21c and i water use Risk Assessment Protocol in Government Gazette no. 40229 dated 26 August 2016.***

RISK ASSESSMENT KEY

Negative Rating

TABLE 4 - SEVERITY How severe does the aspects impact on the environment and resource quality characteristics (flow regime, water quality, geomorphology, biota, habitat)?	
Insignificant / non-harmful	1
Small / potentially harmful	2

Significant / slightly harmful	3
Great / harmful	4
Disastrous / extremely harmful and/or wetland(s) involved	5
Total severity score calculation – (Flow Regime) + (Physico&Chemical) + (Habitat) + (Biota) =? x 25 = ?/100 = Total Severity Score	
Where "or wetland(s) are involved" it means that the activity is located within the delineated boundary of any wetland. The score of 5 is only compulsory for the significant rating	

TABLE 5 – SPATIAL SCALE How big is the area that the aspect is impacting on?	
Area specific (at impact site)	1
Whole site (entire surface right)	2
Regional / neighbouring areas (downstream within quaternary catchment)	3
National (impacting beyond seconday catchment or provinces)	4
Global (impacting beyond SA boundary)	5

TABLE 6 – DURATION How long does the aspect impact on the environment and resource quality?	
One day to one month, PES, EIS and/or REC not impacted	1
One month to one year, PES, EIS and/or REC impacted but no change in status	2
One year to 10 years, PES, EIS and/or REC impacted to a lower status but can be improved over this period through mitigation	3
Life of the activity, PES, EIS and/or REC permanently lowered	4
More than life of the organisation/facility, PES and EIS scores, a E or F	5

TABLE 7 – FREQUENCY OF THE ACTIVITY How often do you do the specific activity?	
Annually or less	1
6 monthly	2
Monthly	3
Weekly	4
Daily	5

TABLE 8 – FREQUENCY OF THE INCIDENT/IMPACT How often does the activity impact on the environment?	
Almost never / almost impossible / >20%	1
Very seldom / highly unlikely / >40%	2
Infrequent / unlikely / seldom / >60%	3

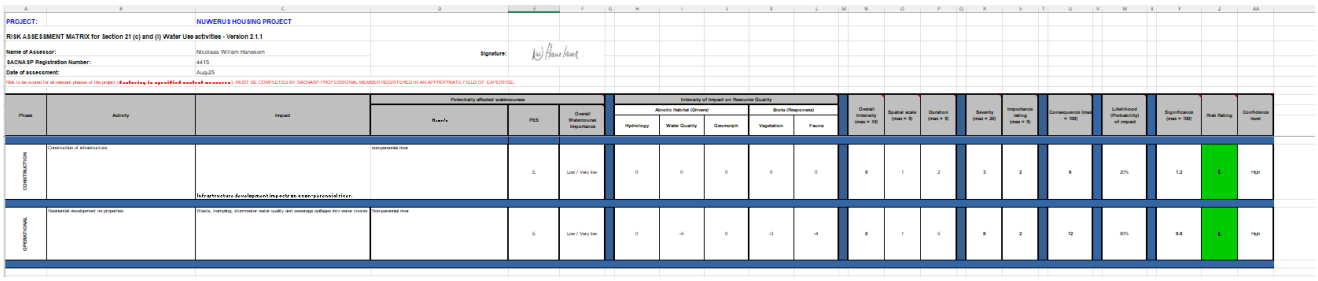
Often / regularly / likely / possible / >80%	4
Daily / highly likely / definitely / >100%	5
TABLE 9 – LEGAL ISSUES How is the activity governed by legislation?	
No legislation	1
Fully covered by legislation (wetlands are legally governed)	5
Located within the regulated areas	

TABLE 10 – DETECTION How quickly can the impacts/risks of the activity be observed on the environment (water resource quality characteristics), people and property?	
Immediately	1
Without much effort	2
Need some effort	3
Remote and difficult to observe	4
Covered	5

TABLE 11: RATING CLASSES

RATING	CLASS	MANAGEMENT DESCRIPTION
1 – 55	(L) Low Risk	Acceptable as is or consider requirement for mitigation. Impact to watercourses and resource quality small and easily mitigated. Wetlands may be excluded.
56 – 169	M) Moderate Risk	Risk and impact on watercourses are notably and require mitigation measures on a higher level, which costs more and require specialist input. Wetlands are excluded.
170 – 300	(H) High Risk	Always involves wetlands. Watercourse(s) impacts by the activity are such that they impose a long-term threat on a large scale and lowering of the Reserve.

A low risk class must be obtained for all activities to be considered for a GA



- ***Ecological Importance and Sensitivity (EIS)***

The Ecological Importance and Sensitivity (EIS) of riparian areas is an expression of the importance of the aquatic resource for the maintenance of biological diversity and ecological functioning on a local scale to a more broader scale; whilst Ecological Sensitivity (or fragility) refers to a system's ability to resist disturbance and its capability to recover from disturbance once it has occurred (Kleynhans & Louw, 2007). The list of the EIS categories and rating scheme used in the assessment tool are shown in Table 1 and Table 2 respectively.

Table 1: List of the EIS categories used in the assessment tool (Kleynhans & Louw, 2007)

EISC	General description	Range of median
Very high	Quaternaries/delineations that are 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 that are 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 that are 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 which are not unique on any scale. These rivers (in terms of biota and habitat) are generally not very sensitive to flow modifications and usually have	≤1

	substantial capacity for use.	

Table 2: Rating scheme used for the assessment of riparian EIS (Kleynhans & Louw, 2007)

Score	Channel Type	Conservation context			Vegetation and Habitat Integrity	Connectivity	Threat status of Vegetation Type
0	Ephemeral Stream	Non-FEPA river	No status	None/ Excluded	No natural remaining	None	No Status
1	Stream non-perennial		Upstream management area	Available	Very poor	Very poor	Least threatened
2	Stream-perennial flow		Rehab FEPA		Poor	Low	Vulnerable
3	Minor river-non-perennial flow		Fish corridor	Earmarked for conservation	Moderately modified	Moderate	Near Threatened
4	Minor river-perennial flow		Fish support area		Largely natural	High	Endangered
5	Major river-perennial flow	FEPA river	River FEPA	Protected	Unmodified / natural habitat	Very high	Critically Endangered

- ***National Freshwater Ecosystem Priority Areas (NFEPA; 2011)***

The National Freshwater Ecosystem Priority Areas (NFEPA) project was a partnership and collaborative process led by the CSIR with the South African National Biodiversity Institute (SANBI), Department of Water Affairs (DWA), the Water Research Commission (WRC), WWF South Africa, as well as expertise from South African National Parks (SANParks), the South African Institute for Aquatic Biodiversity (SAIAB) and Department of Environmental Affairs and Tourism (DEAT). The project was originally conceived in 2006 and the project proposal was submitted to the WRC in July 2007. An inception meeting took place in August 2008 to introduce the aims of the project to relevant stakeholders from the freshwater science, governance and management sectors. The NFEPA project aimed to identify a national network of freshwater conservation areas and to explore institutional mechanisms for their implementation.

NFEPA takes forward the implementation of the Cross-Sector Policy Objectives for Inland Water Conservation. It also builds on the river component of the National Spatial Biodiversity Assessment (NSBA) 2004 and will feed directly into the NBA (National Biodiversity Assessment) 2010.

The NFEPA database was searched in terms of conservation status of rivers, wetland habitat and wetland feature present in the vicinity of the proposed development.

No NFEPA rivers, wetland habitat and wetland feature area present in close proximity to the site.

PRESENT ECOLOGICAL STATE (PES)

Table 3: Results of PES assessments for the potentially affected aquatic ecosystems on the study area.

Criteria	Non-Perennial River	
	Score	**Confidence**
INSTREAM		
Water abstraction	7	H
Flow Modification	13	H
Bed modification	13	H
Channel modification	13	H
Water Quality	7	H
Inundation	10	H
Presence of exotic macrophytes	0	H
Presence of exotic fauna	8	H
Presence of solid waste	0	H
RIPARIAN		
Vegetation removal	13	H
Alien encroachment	12	H
Bank erosion	14	H
Water abstraction	0	H
Flow modifications	13	H
Channel modifications	11	H
Water Quality	0	H
Inundation	13	M
FINAL PES SCORES & CATEGORIES	**Non-perennial river**	
Instream	29	
	PES Category E	

Riparian	24
	PES Category E

The result of the PES assessments that were completed for the aquatic ecosystem that could potentially be affected by the proposed clearing of vegetation is reflected in table above. The loss of natural habitat, biota and basic ecosystem functions is extensive.

ECOLOGICAL IMPORTANCE AND SENSITIVITY (EIS)

The result of the **EIS** assessments that were completed for the affected watercourse is presented in Table 14.

Table 4: Results of the EIS assessment

Channel type	1	5	Channelled non-perennial river.
Conservation context	0	5	Non NFEPA River
Vegetation and habitat Integrity	1	5	Largely modified
Connectivity	2	5	Not connected
Threat Status of Vegetation Type	0	5	Vegetation has least threatened conservation status
EIS Category	**0.8**		**Low/marginal**

RESULTS OF THE PES AND EIS

The loss of natural habitat, biota and basic ecosystem functions is extensive in the non-perennial river. The PES result for the watercourse is a category E. The EIS was calculated for the importance of ecosystem services provided and the result points to Low/marginal importance and sensitivity.

4. WHERE REQUIRED, PROPOSED IMPACT MANAGEMENT ACTIONS AND OUTCOMES OR ANY MONITORING REQUIREMENTS FOR INCLUSION IN THE EMPR

The following potential impacts (both direct and indirect) on freshwater resources were identified.

Direct.

- Increased erosion and sedimentation with construct activities, particularly site clearing, can exacerbate erosion that can lead to sediment inflow in wetlands.
- Alteration of hydrological flow due to the development can modify surface runoff and infiltration patterns increasing risk of flash flooding or drying, especially in areas with soil with increased clay content.

- Dangerous goods storage and spills during construction that can lead to surface water contamination entering the wetland

Indirect Impacts

- The risk to the offsite identified non-perennial river is pollution from surface water.

Proper management, mitigation or monitoring requirements for inclusion in the Environmental Authorization and its conditions, or the Environmental Management Plan is required. All stormwater collected on site must be properly handled and managed to ensure that polluted stormwater and litter/waste is not discharged directly into the non-perennial river. All dangerous goods must be stored and handled on site in bunded and on sealed surfaces. Drip trays must be used under parked vehicles. Should any spill occur, it must be reported, immediately contained and cleaned up. The construction camp and dangerous goods storage must be further than 100m away from the non-perennial river and no construction vehicles may be parked overnight within 100m from the non-perennial river.

To ensure that the risk of erosion and sedimentation of the drainage line is eliminated the following must be implemented:

- Ensure that the discharge point is adequately designed to minimise the force of the discharge stormwater through incorporation of energy dissipation structures;
- Spread the discharge point as far as possible to reduce concentration of the stormwater discharge;
- Address the upstream erosion through reshaping the watercourse and installing erosion protection structures as required;
- Ensure that the reshaping and erosion protection structures are installed during the dry summer season and are in place before the onset of the winter rains.

It is further recommended that all solid waste is removed from the drainage line prior to the onset of the first winter rains and also that a municipal worker is tasked with keeping the drainage line free of solid waste and unwanted debris into the future.

5. A DESCRIPTION OF THE ASSUMPTIONS MADE AND ANY UNCERTAINTIES OR GAPS IN KNOWLEDGE OR DATA

The following Assumptions and Limitations apply to this Aquatic Biodiversity compliance statement & Section 21(c) & (I) Risk Assessment Report:

- The Ground-Truthing and Delineation of Water Resource boundaries and the assessment thereof were confined to two site visit undertaken on 23 July 2023 and 15 August 2024 of the concerned development area.
- The Water Resources identified were Delineated in fulfilment of GN 509 of 2016 as it relates to the National Water Act, 1998 (Act No. 36 of 1998) using various Desktop Methods including the use of Topographic Maps, Historical and/or current Digital Satellite Imagery

and/or Aerial Photographs. Where possible (based on accessibility) the water resource was Ground-Truthed and Delineations were undertaken utilizing Global Positioning System (GPS) technology.

- Global Positioning System (GPS) technology is inherently somewhat inaccurate and some inaccuracies due to the use of handheld GPS instrumentation may occur, however, the delineations as provided in this report are deemed accurate enough to fulfil the requirements as well as the implementation of the proposed Mitigation Measures.
- Water Resources and Terrestrial Zones create transitional areas where an Ecotone is formed as vegetation assemblages change from Terrestrial to Obligate/Facultative Wetland Species. Within this Transition Zone, some variation of opinion on the Water Resource boundaries may occur. However, if the DWAF (2008) method is followed, all assessors are expected to obtain largely similar results.
- With Ecology being dynamic and complex, certain aspects (some of which may be important) may have been overlooked. However, it is expected that the concerned areas have been accurately assessed and considered, based on the site assessment and the consideration of existing studies and monitoring data in terms of Riparian and Wetland Ecology.

6. THE MEAN DENSITY OF OBSERVATIONS/ NUMBER OF SAMPLES SITES PER UNIT AREA

Standard methods of evaluation were used. A hand-held Garmin ® GPSMap 64s was used to record ‘sample’ waypoints and the ‘sample track’. At the ‘sample waypoints’ specific details of the surrounding vegetation and features of habitat were recorded, and photographs taken to support the general observations made on the site. No attempt was made to cover the whole property, but sampling was focused so as to obtain the best overall understanding of landscape and biodiversity conditions on the site.

7. ANY CONDITIONS TO WHICH THE COMPLIANCE STATEMENT IS SUBJECTED

The findings, results, observations, conclusions and recommendations given in this report are based on the author’s best scientific and professional knowledge as well as available information and knowledge of the area. This report may not be altered or added to without the prior written consent of the author. This restraint also refers to electronic copies of this report which are supplied as sub portion of other reports, including main reports. Similarly, any recommendations, statements, or conclusions drawn from or based on this report must specifically refer to this report. If such comments form part of a main report for this investigation, the report must be included in its entirety as an appendix or separate section to the main report.

8. REFERENCES

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APPENDIX A
SPECIALIST CV

CURRICULUM VITAE – NICOLAAS WILLEM HANEKOM

Profession: Environmental Scientist and Environmental Assessment Practitioner

Date of Birth: 01/02/1967

BIOGRAPHICAL SKETCH

Nicolaas Hanekom is a registered Professional Natural Scientist in the ecological science field with the South African Council for Natural Scientific Professions ("SACNASP"), Pri Sci Nat (Reg. No. 004415) Ecological Science (Pri.Sci.Nat); Aquatic Science & Conservation Science (Cand.Sci.Nat) and a qualified registered Environmental Assessment Practitioner ("EAP") who holds a Masters Technologiae, Nature Conservation ("Vegetation Ecology and Biodiversity Assessment") degree from the Cape Peninsula University of Technology (Refer to Appendix A, CV). Nicolaas Hanekom is suitably qualified SACNASP registered specialist. He further qualified in Environmental Management Systems ISO 14001:2004, at the Centre for Environmental Management, North-West University, as well as Environmental Management Systems ISO 14001:2004 Audit: Internal Auditors Course to ISO 19011:2003 level, from the Centre for Environmental Management, North-West University qualifying him to execute audits to ISO/SANS environmental compliance and EMS standards.

He has also completed the suite of Greener Governance courses with certificates in;

- An Overview of Environmental Management at the Local Government Level, Centre for Environmental Management, North-West University;
- Greener Governance for Local Authorities, Centre for Environmental Management, North-West University;
- Tools for Integrated Environmental Management and Governance, Centre for Environmental Management, North-West University.

He further attended and obtained a certificate on Integrated Protected Area Planning at the Centre for Environmental Development, University of Kwa Zulu Natal and a certificate in Project Management (Theory and Practical), through CS Holdings. Nicolaas has lectured in two subjects at the Cape Peninsula University of Technology. He has 33 years of environmental planning experience, working for Free State and Western Cape departments of environmental affairs, where he reviewed and commented on development (EIA) applications, in the West Coast Region.

He has, as practising EAP been responsible for many environmental impact assessments and EIA applications, waste license and atmospheric emission license applications.

ABBREVIATED CURRICULUM VITAE OF FRESHWATER SPECIALIST

Name:	Nicolaas Willem Hanekom (Pri.Sci.Nat)
Profession:	Ecological Scientist
Nationality:	South African
Years experience	26 Years
Academic Qualifications	• National Diploma, Nature Conservation (Cape Technikon) • B. Tech Degree in Nature Conservation (Cape Technikon)

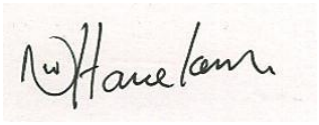
	• M.Tech in Nature Conservation (Cape Peninsula University of Technology) • Completed various Environmental Management Courses • Qualified Environmental Management System ISO 14001: 2004 Audit: Internal Auditor Course Based on ISO 19011:2002 (Centre for Environmental Management North West University)
Areas of specialisation:	• Ecosystem (terrestrial and aquatic) monitoring and assessments • Design of monitoring programmes for ecosystems (terrestrial and aquatic) • Environmental Impact Assessments • River classification and environmental water requirements • Wetlands Delineation • River and Wetlands management • Water Use Authorization Applications • Water quality management • River Health Assessments
Countries of Work Experience:	South Africa (Northern Cape, Western Cape, Free State, Mpumalanga, Gauteng)
Employment Record	• Student at Bontebok National Park (1992) • Assistant Reserve Manager at Gariep Dam Nature Reserve, Free State (1993 - 1998) • Reserve Manager, Conservation Services Manager for Western Cape Nature Conservation Board (1998 - 2006) • External Lecturer at Cape Peninsula University of Technology (2003 - 2005) • Director: Environmental Management at Cape Lowlands Environmental Services (2006 – 2010) • Director, Environmental Management and lead Environmental Impact Assessment Practitioner at Eco Impact (Pty) Ltd (2010 – to date)
Professional membership, accreditations and courses	• South African Council for Natural Scientists Professions Pri.Sci.Nat (Ecological Science) • Riparian vegetation identification and health assessment. Internal Western Cape Nature Conservation short course presented by Dr C Boucher (Stellenbosch University) in 2000. • SASS5 Aquatic Biomonitoring Training Course. 2 to 5 September 2013. Ground Truth Water and Environmental Engineering consultancy in partnership with the Department of Water Affairs.

	• Workshop on "Section 21(c) and (i) Water Use Training: Understanding Watercourses and Managing Impacts to their Characteristics". 10 May 2017. Presented by Dr Wietsche Roets of the Department of Water and Sanitation (Sub-Directorate: Instream Water Use).
Summary of experience	1992: South African National Parks. Student at Bontebok National Park with management and monitoring actions related to the Breede River. 1993 -1998: Free State Nature Conservation. Ecological management and monitoring actions related to the Gariep Dam, Orange and Caledon Rivers. 1998 -2006: CapeNature. Ecological management and monitoring actions related to the Berg River Estuary, Verlorenvlei, Lamberts bay's Jackalsvlei, Wadrift Soutpanne, Oliphant's River mouth, Rocherpan Nature Reserve, etc. Review and assessment of EIA applications, inclusive of Freshwater ecology. Did some site visits with Department of Water Affairs and Forestry (Hester Lyons) to confirm the presence of aquatic ecological features during EIA water use registration applications. 2006 to date: Cape Lowland Environmental Services and Eco Impact Legal Consultant. Ecological (Freshwater and aquatic) Specialist input, assessment, monitoring and reports.
Publications and assessment reports	Just to name a few. Was involved in many Ecological Assessments, monitoring and inputs in EIA applications. • Elandskloof Farm 475 Citrusdal Biodiversity Baseline Survey. August 2010. This Biodiversity Assessment Covering Terrestrial and Aquatic Aspects to Inform Decisions Regarding The Proposed Elandskloof Weir Flood Damage Project On Farm 475, In The Citrusdal Area. • Cape Solar Energy Electricity Generation Facility. Farm 187/3 & 187/13 Kenhardt. Biodiversity And Ecological Baseline Survey. January 2011. (Included Terrestrial and aquatic ecological assessments and water use authorization applications) • Prieska Photvoltaic Power Generation Project. Prieska Commonage Northern Cape. Biodiversity And Ecological Baseline Survey. July 2011. (Included Terrestrial and aquatic ecological assessments and water use authorization applications) • Witteklip Erf 123 Extension, Vredenburg. Biodiversity Baseline Survey. Updated - October 2012 (Included Terrestrial and aquatic ecological assessments and water use authorization applications)

	• Baseline Biodiversity Survey And Wetland Delineation for ECCA Holdings: Cape Bentonite Mine on Erf 1412 Near Heidelberg. Prepared for: Shangoni Management Services Pry (Ltd). October 2014. • Freshwater Impact Assessment Laingsburg Flood Damage Repairs & Storm Water Infrastructure. 18 February 2016. • Ecological Assessment for Swartland Municipality - Upgrades To Voortrekker/Bokomo Road And Voortrekker/Rozenburg Road Intersections and Upgrade to the Diep River Bridge, Malmesbury on A Portion Of Erf 327, Malmesbury (Road) Erf 1530, Diep River Bridge Crossing, and Erf 1528, Property South of Diep River where Road Widening and Turning Circle Will Be Constructed. March 2016. (Freshwater Ecology Inputs and Water Use Registration) • Freshwater Impact Assessment. McGregor Bridge, Robertson Bridge and Willem Nels River Maintenance Management Plan. 24 June 2016. (Freshwater Ecology assessment and input as well as Water Use Registration) • Water Use Authorization Application Risk Matrix. Orange Grove Trust Vegetation Clearing and Agricultural Development on Portion 4 of Farm Glen Heatlie No 316, Worcester. 12 June 2017. (Freshwater ecological inputs in EIA process and Water Use Registration). • Water Use Authorization Application Risk Matrix Prepared For: Witzenberg Municipality Sand Mine Farm 1 Prince Alfred Hamlet. 28 March 2017. (Freshwater ecological inputs in EIA process and Water Use Registration). • Proposed Hartmanshoop Agri Vegetation Clearing Project and Irrigation on Erf 686, Laingsburg. 12 August 2017. (Freshwater ecological inputs in Water Use Registration). • County Fair: Hocraft Abattoir And Rendering Facility Waste Water Treatment Works “CF Hocraft WWTW” Mosselbank River Second Quarter 2018 Biomonitoring Report. June 2018. (Done quarterly biomonitoring for the last three years).

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe my qualifications, my experience, and me.



Nicolaas Hanekom Pri Sci Nat (Ecology).
Registration number 004415

SACNASP
South African Council for Natural Scientific Professions

herewith certifies that

Nicolaas Willem Hanekom

Registration Number: 004415

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)

Ecological Science (Professional Natural Scientist)
Aquatic Science (Candidate Natural Scientist)
Conservation Science (Candidate Natural Scientist)
Zoological Science (Candidate Natural Scientist)

Effective **27 July 2011** Expires **31 March 2026**

Chairperson

Chief Executive Officer

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