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Name: Stephen van Staden
Date: Friday, 28 May 2021
Ref: SAS/SRK 220162

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Attention: Mr M. van Huyssteen

RE: TERRESTRIAL COMPLIANCE STATEMENT CONSIDERING DEVELOPMENT OF THE PROPOSED 100 MW NEWCASTLE GAS ENGINE POWER PLANT (NGEPP) INDEPENDENT POWER PRODUCER (IPP) PROJECT IN KWAZULU-NATAL PROVINCE.

1 INTRODUCTION AND BACKGROUND SETTING

Scientific Aquatic Services CC (SAS) was appointed by SRK Consulting (Pty) Ltd. to prepare Terrestrial Compliance Statement as part of the Environmental Authorisation (EA) process for the proposed Newcastle Gas Engine Power Plant (NGEPP) Independent Power Producer (IPP) project. The NGEPP is proposed to be located within the Newcastle Local Municipality and the Amajuba District Municipality on ERF 15618, in KwaZulu-Natal province. Newcastle Energy (Pty) Ltd., a subsidiary of Vutomi Energy (Pty) Ltd. (Vutomi). Vutomi owns a 18.5 megawatt (MW) capacity gas-fired cogeneration (steam and power) plant within the Karbochem Industrial Complex. Other industries within the Karbochem Industrial Complex include African Amines (alkyl amines plant), Lanxess (chrome chemicals plant) and SA Calcium Carbide. Through the NGEPP IPP project, Newcastle Energy proposes to increase its electricity generation capacity to approximately 100 MW. The subject property for the NGEPP project and existing Vutomi Energy steam and power plant will hereafter be referred to as the NGEPP study are (Appendix A, Figures A1 and A2).

As part of the NGEPP IPP project, the primary fuel source that will be used to supply the power plant with is Methane Rich Gas (MRG) via the existing gas pipeline (SRK, 2021). The secondary fuel, or backup fuel, to satisfy a three-day reserve, is proposed to be in the form of Liquefied Natural Gas (LNG). In this regard, Newcastle Energy (Pty) Ltd. proposes to develop a 2100 m^3 LNG storage facility comprising of:

- 7 x 300 m^3 cryogenic tanks;
- A regassification facility;
- An LNG offloading skid;

- Pressure reduction station

The proposed LNG facility is to be located within the Karbochem Industrial Complex, on the area immediately to the east of the NGEPP site (as indicated in Figure A1, Appendix A). The proposed LNG facility will allow for three days of LNG storage and to utilize the natural boil off gas to feed into the existing piped gas supply at a point after the piped gas pressure reduction station and before entering the gas engines. The boil off gas replenishment would be supplied by LNG ISO containers and offloaded into the cryogenic storage facility.

As part of the latest amendments to the Environmental Impact Assessment (EIA) Regulations (2014), as published on 07 April 2017, a power generation project of this magnitude requires an application for Environmental Authorisation by means of a Scoping and Environmental Impact Reporting (S&EIR) process. The proposed NGEPP project involves the following:

- Decommissioning, demolition, and removal of the existing cogeneration plant (i.e. to make space for the NGEPP project).
- Engineering, procurement, construction, commissioning, and operation of the new 100 MW NGEPP and associated infrastructure.

SAS was required to report on aspects of terrestrial ecology and provide input into any development constraints this may have for the proposed NGEPP project in terms of the National Environmental Management Act (NEMA) (Act No. 107 of 1998). Furthermore, SAS was required to, as necessary, assess the risk the proposed development poses to the terrestrial aspects within the receiving environment.

2 OUTCOMES OF THE APPLICATION OF THE DEPARTMENT OF ENVIRONMENTAL AFFAIRS (DEA) SCREENING TOOL

The protocol for the assessment of terrestrial ecology prepared in support of the DEA screening tool provides the criteria for the assessment and reporting of impacts on biodiversity for activities requiring environmental authorisation. The assessment requirements of this protocol are associated with a level of environmental sensitivity determined by the national web-based environmental screening tool. For biodiversity, the requirements are for landscapes or sites which support various levels of biodiversity. The relevant biodiversity data in the national web-based environmental screening tool has been provided by the South African National Biodiversity Institute (SANBI). Based on the sensitivity rating, a suitably qualified specialist must prepare the relevant report or opinion memo, which is to be submitted as part of the environmental authorisation application.

As part of the process of initiating the Environmental Authorisation process, SRK Consulting (Pty.) Ltd. applied the Department of Environmental Affairs (DEA) screening tool to the NGEPP study site. According to the screening tool, the study site is located within an area of very high terrestrial significance, medium animal significance and low plant significance. As a result, an applicant, intending to undertake an activity on a site identified as being of “very high sensitivity” for biodiversity theme based on the national web-based environmental screening tool, must submit a Terrestrial Compliance Statement to the competent authority unless the site survey, or findings by the specialist determine that a high risk to the regional terrestrial ecology in the area is likely.

3 DEFINITIONS AND LEGISLATIVE REQUIREMENTS

The legislation considered during this investigation included the following:

- The Constitution of the Republic of South Africa, 1996[1];
- The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA); and
- The KwaZulu-Natal Nature Conservation management Act, 1997 (Act No. 9 of 1997).

4 DESKTOP INVESTIGATION FINDINGS

A database review and a desktop analysis was undertaken prior to the site survey of the NGEPP study site. The results are summarised in the points below, with the relevant maps presented in Appendix A.

- The NGEPP study site falls within the **Least Concerned KwaZulu Natal Highland Thornveld** which is currently **Not Protected.**
- According to the National Threatened Ecosystems (2011) database, the NGEPP study site falls within a **Least Threatened** ecosystem.
- The Terrestrial Sensitivity for the study has a **very high sensitivity**. The high sensitivity regions are a result of **Critical Biodiversity Areas (CBA).**
- For the Plant Species theme, the entire NGEPP study site is within a **low sensitivity** area.
- For the animal species theme, a **medium sensitivity** was reported for the NGEPP study site. Sensitive species identified by the EIA screening tool included: **Invertebrate-*Clonia lalandei,* Mammalia-*Ourebia ourebi.***
- According to the KZN Biodiversity Spatial Plan (2016), there are no CBA or Ecological Support Areas (ESAs) associated with NGEPP study site.

4.1 Methodology

The objectives and scope of this study are outlined below:

- Compile a desktop study with all relevant information as presented by South African National Biodiversity Institute's (SANBI) Biodiversity Geographic Information Systems (BGIS) website (http://bgis.sanbi.org), including the KwaZulu-Natal Spatial Biodiversity Sector Plan (2016), to gain background information on the potential importance and sensitivity of the study area with respect to biodiversity;
- On-site verification of the extent and characteristics of any sensitive areas such as primary vegetation within the study site and to determine the status quo of the current ecological conditions on-site; and
- Provide a sensitivity map of the study site, which can be used as input into the design masterplan.

4.2 Site survey results

A survey of the NGEPP study site was undertaken on the 29th of October 2020 (early summer season), using visual assessment methods and use of digital satellite imagery. The study area and surrounding have received sufficient rainfall for good vegetation growth to be present during the site assessment.

The study site comprises of the existing Vutomi Energy 18.5 MW gas-fired cogeneration steam and power plant with a small portion of vacant land. The vacant land on the study site has been transformed and contains debris and building material used to facilitate maintenance on the power plant. The habitat unit (transformed habitat) has been notably degraded from a floral species perspective. As a result of the transformation, the majority of the NGEPP study site is infested with alien invasive plant species such as *Tagetes minuta*, *Datura ferox*, *Solanum mauritianum*, and *Verbena bonariensis* (Figure 1). The screening tool indicated a low sensitivity for Species of Conservation Concern (SCC) for plant themes.

[1] Since 1996, the Constitution has been amended by seventeen amendments acts. The Constitution is formally entitled the 'Constitution of the Republic of South Africa, 19996". It was previously also numbered as if it were an Act of Parliament – Act No. 108 of 1996 – but since the passage of the Citation of Constitutional Laws Act, neither it nor the acts amending it are allocated act numbers.

This was also verified and confirmed during the site assessment as no suitable habitat for SCC was found.

Figure 1: Representative photographs of the transformed habitat associated with the study site.

An area situated within the greater Karbochem Industrial Complex, directly east of the study site is proposed for the LNG facilities. The proposed area for the LNG facilities was concreted along some portions and surrounded by existing infrastructure of the greater Karbochem Inudstrial Complex (Figure 2).

Figure 2: Representative views of the proposed area for the LNG facilities.

Animal sensitive species for the invertebrate *Clonia lalandei* (Lalande's Black-winged Clonia) and the Mammalia *Ourebia ourebi ourebi* (oribi) were listed to occur within the surrounding area of the study site (screening tool, 2020). Although the distribution of Clonia is within the Newcastle area, no suitable habitat is present within the study site and surrounds, neither for the Oribi species. The study site is located within an industrial area and surrounding agricultural lands, providing no suitable habitat for faunal SCC. Only common, occurring faunal species associated with urban settings are expected to occur within the study site and immediate surrounds.

As the floral diversity (faunal habitat) has degraded over the years, so has the ability of the study site to support a diversity of faunal species degraded. This has been further compounded through the loss of habitat connectivity to larger natural habitats in the surrounding areas. The vegetation associated with both the study site and the LNG facilities are also not representative of the KwaZulu Natal Highland Thornveld Vegetation Type due to the habitat transformation from anthropogenic activities and alien proliferation. Development within the transformed habitat unit is unlikely to impact significantly on a local and regional scale. Development is also unlikely to contribute towards provincial biodiversity targets relating to the CBA.

The DEA screening tool indicated the site as medium sensitivity for Animal themes due to the possible presence of SCC (the invertebrate *Clonia lalandei* (Lalande's Black-winged Clonia) and the mamalia *Ourebia ourebi ourebi* (Oribi)). As on-site characteristics do not support these species the sensitivity is considered to be an overestimate of the study site based on QDS results as appose to site specific characters. The Screening tool also indicated a Very High Sensitivity for terrestrial biodiversity theme as it is considered a CBA. As the site is transformed due to existing infrastructure and degraded as a result of high AIP abundance, fragmentation, fencing, dumping and historic gravel roads which transverse it the study site it is no longer representative of the unit. Its fragmented nature does not promote re-establishment of native fauna and flora and thus has no conservation value. Therefore, the sensitivity associated with the study site and the LNG facilities are considered low (Figure 3).

Figure 3: Proposed terrestrial sensitivity associated with the NGEPP study site and LNG facilities.

5 GENERAL GOOD HOUSEKEEPING AND MITIGATION MEASURES

Whilst no direct impacts as a result of the NGEPP project on the study site and LNG facilities are anticipated, the potential for indirect impacts such edge effects resulting alien plant species proliferation in surrounding more natural areas may have the possibility to occur. As a result, should the NGEPP project receive approval, responsible construction techniques and general good housekeeping is considered essential to ensure that potential impacts are adequately mitigated and minimised as much as possible.

General mitigation measures that are to be implemented during the construction and operational phase of the proposed NGEPP project include the following:

- No collection of floral or faunal species may be allowed by construction personnel.
- No hunting or trapping of faunal species is to be allowed by construction personnel.
- Informal fires by construction personnel should be prohibited, and no uncontrolled fires whatsoever should be allowed.
- Care should be taken during the construction and operation of the proposed development to limit edge effects to surrounding natural habitat. This can be achieved by:
    - Demarcating of all footprint areas during construction activities.
    - No construction rubble or cleared alien invasive species are to be disposed of outside of demarcated areas and should be taken to a registered waste disposal facility.
    - All soils compacted as a result of construction activities should be ripped and profiled and reseeded, where required.
    - Manage the spread of AIP species, which may affect remaining natural habitat within surrounding areas. Specific mention in this regard is made to Category 1b species identified within the development footprint areas.
- No dumping of litter, rubble or cleared vegetation on site should be allowed. Infrastructure and rubble removed as a result of the construction activities should be disposed of at an appropriate registered dump site away from the development footprint. No temporary dumpsites should be allowed in areas with natural vegetation. It is advised that waste disposal containers and bins be provided during the construction phase for all construction rubble and general waste. Vegetation cuttings must be carefully collected and disposed of at a separate waste facility.
- Upon completion of construction activities, it must be ensured that no bare areas remain and that indigenous species be used to revegetate the disturbed area.
- Ongoing alien and invasive plant monitoring and clearing/control should take place throughout the operational phase, and the project perimeters should be regularly checked for AIP establishment to prevent spread into surrounding natural areas.

6 BUSINESS CASE, OPPORTUNITIES AND CONSTRAINTS APPLICABLE TO THE PROPOSED DEVELOPMENT.

The NGEPP study site and LNG facilities comprises of the existing Vutomi Energy 18.5 MW gas-fired cogeneration steam and power plant and a small portion of vacant land. The transformed habitat was identified as having a low sensitivity to fauna and flora. The generally low sensitivity of the study site and LG facilities can be attributed to the extent of fragmentation as a result of fencing, industrial development, and road development. Development activities within the study site will likely not have a significant impact[2] on the floral and faunal communities found within the study site. During the field assessment, no SCC was located, and it is unlikely that any occur within the study site due to the characteristics of the study site and LNG facilities and the surrounding environment.

Due to the nature of the NGEPP project, the proposed project is considered to pose a low risk of further impact to the already largely impacted area. As such, no development constraints are applicable from a terrestrial management perspective. It is, however, highly recommended that the NGEPP study site and LNG facilities are developed responsibly and that necessary authorisation from the relevant competent authorities are granted.

We trust that we have interpreted your requirements correctly. Please do not hesitate to contact us if there are any aspects of this memorandum that you would like to discuss.

Yours Faithfully,

Nelanie Cloete
SACNASP REG.NO**: 400503/14 (Botany)**

Declaration of independence and CV included in Appendix B and C respectively

[2] **Significant impact**: An impact that may have a notable effect on one or more aspects of the environment or may result in non-compliance with accepted environmental quality standards, thresholds or targets (DEA *et.* al, 2017).

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APPENDIX A- PROJECT MAPS

Table A1: Desktop data relating to the terrestrial characteristics associated with the NGEPP study site and LNG facilities.

DETAILS OF THE NGEPP STUDY SITE & LNG FACILITIES IN TERMS OF MUCINA & RUTHERFORD (2012)	
Biome and Bioregion	The NGEPP study site and LNG facilities falls within the **Grassland Biome** and the **Sub-Escarpment Grassland Bioregion.**
Vegetation type	The NGEPP study site and LNG facilities falls within the **KwaZulu Natal Highland Thornveld Vegetation Type (Gs6)**
CONSERVATION DETAILS PERTAINING TO THE NGEPP STUDY SITE & LNG FACILITIES (VARIOUS DATABASES)	
NBA (2018)	**NBA 2018:** The NGEPP study site and LNG facilities falls within the **Least Concerned KwaZulu Natal Highland Thornveld** which is currently **Not Protected.**
National Ecosystem Threat Status (2011)	According to the National Threatened Ecosystems (2011) database, the NGEPP study site and LNG facilities falls within a **Least Threatened** ecosystem.
IBA (2015) (Figure A3)	The Grassland Important Bird and Biodiversity Area (IBA) is situated approximately 2.4 km northeast of the NGEPP study site and LNG facilities.
NPAES (2009). SAPAD (Q2, 2020)	The South Africa Protected Areas Database (SAPAD, 2020, Q2), South Africa Conservation Areas Database (SACAD, 20020, Q2) and National Expansion Areas Strategy (NPAES, 2009) indicate there are no protected or conservation areas situated within 10km of the NGEPP study site and LNG facilities.
NATIONAL WEB-BASED ENVIRONMENTAL SCREENING TOOL (2020)	
Terrestrial Sensitivity	The Terrestrial Sensitivity for the study has a **very high sensitivity**. The high sensitivity regions are a result of **Critical Biodiversity Areas (CBA).**
Plant Species	For the Plant Species theme, the entire NGEPP study site and LNG facilities is within a **low sensitivity** area.
Animal Species	For the animal species theme, a **medium sensitivity** was reported for the NGEPP study site and LNG facilities. Sensitive species identified by the EIA screening tool included: **Invertebrate-*Clonia lalandei,* Mammalia-*Ourebia ourebi***

KWAZULU-NATAL BIODIVERSITY SPATIAL PLANNING (2016)		
According to the KZN Biodiversity Spatial Plan, there are no CBA or ESAs associated with NGEPP study site and LNG facilities.		
DESCRIPTION OF THE VEGETATION TYPE(S) RELEVANT TO THE NGEPP STUDY SITE & LNG FACILITIES ACCORDING TO MUCINA & RUTHERFORD (2012)		
Altitude (m)		920 – 1440
Climate		Summer rainfall
Climate	**MAP (mm)**	752
	MAT (°C)	16.5
	MFD (Days)	15
	MAPE (mm)	1833
	MASMS (%)	73
Distribution		KwaZulu Natal Province
Geology & Soils		A variety of Karoo Supergroup rocks occur in the area, including the Dwyka, Ecca and Beaufort Groups and marginally also Jurassic dolerite intrusions. Yellow-brown soils over plinthic subsoil and shallow duplex soils are common. Red and black heavy soils are derived from dolerites and show high resistance to erosion. The unit falls within various land types, including Ca, Fb, Fa, Db and Bb.
Conservation		Least threatened. Target 23%. Only about 2% statutorily conserved
Vegetation & Landscape Features		Hilly, undulating landscapes and broad valleys supporting tall tussock grassland usually dominated by *Hyparrhenia hirta*, with occasional savannoid woodlands with scattered *Acacia sieberiana* var. *woodii* and in small pockets also with *A. karroo* and *A. nilotica*.

CBA = Critical Biodiversity Area, ESA = Ecological Support Area, IBA = Important Bird and Biodiversity Area, MAP = Mean Annual Precipitation, MAT = Mean Annual Temperature, MFD = Mean Frost Days, MAPE = Mean Annual Potential for Evaporation, MASMS = Mean Annual Soil Moisture Stress, NBA = National Biodiversity Assessment, NPAES = National Protected Areas Expansion Strategy, SACAD = South African Conservation Areas Database, SAPAD = South African Protected Areas Database.

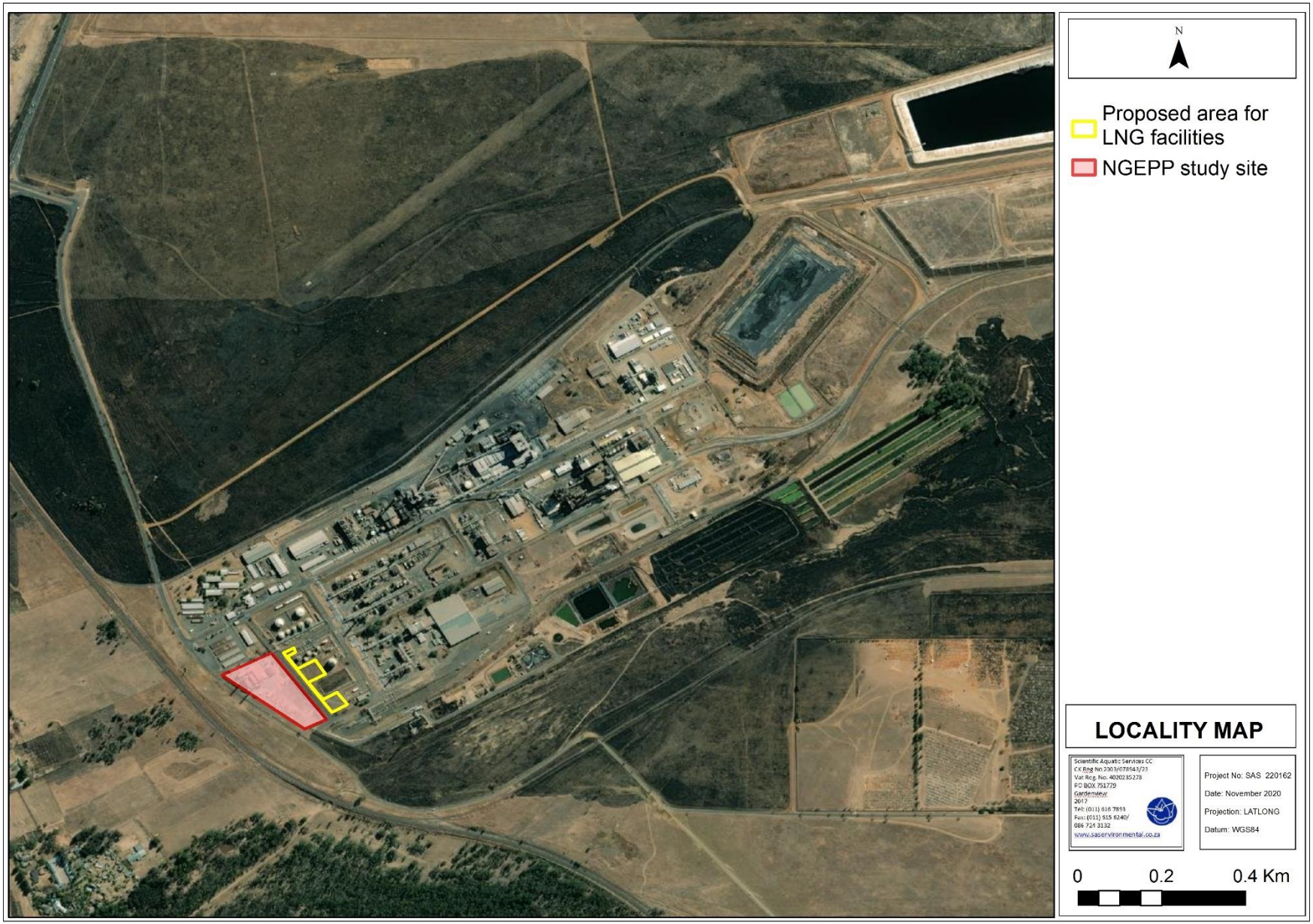

Figure A1: A digital satellite image depicting the location of the NGEPP study site and LNG facilities in relation to the surrounding area.

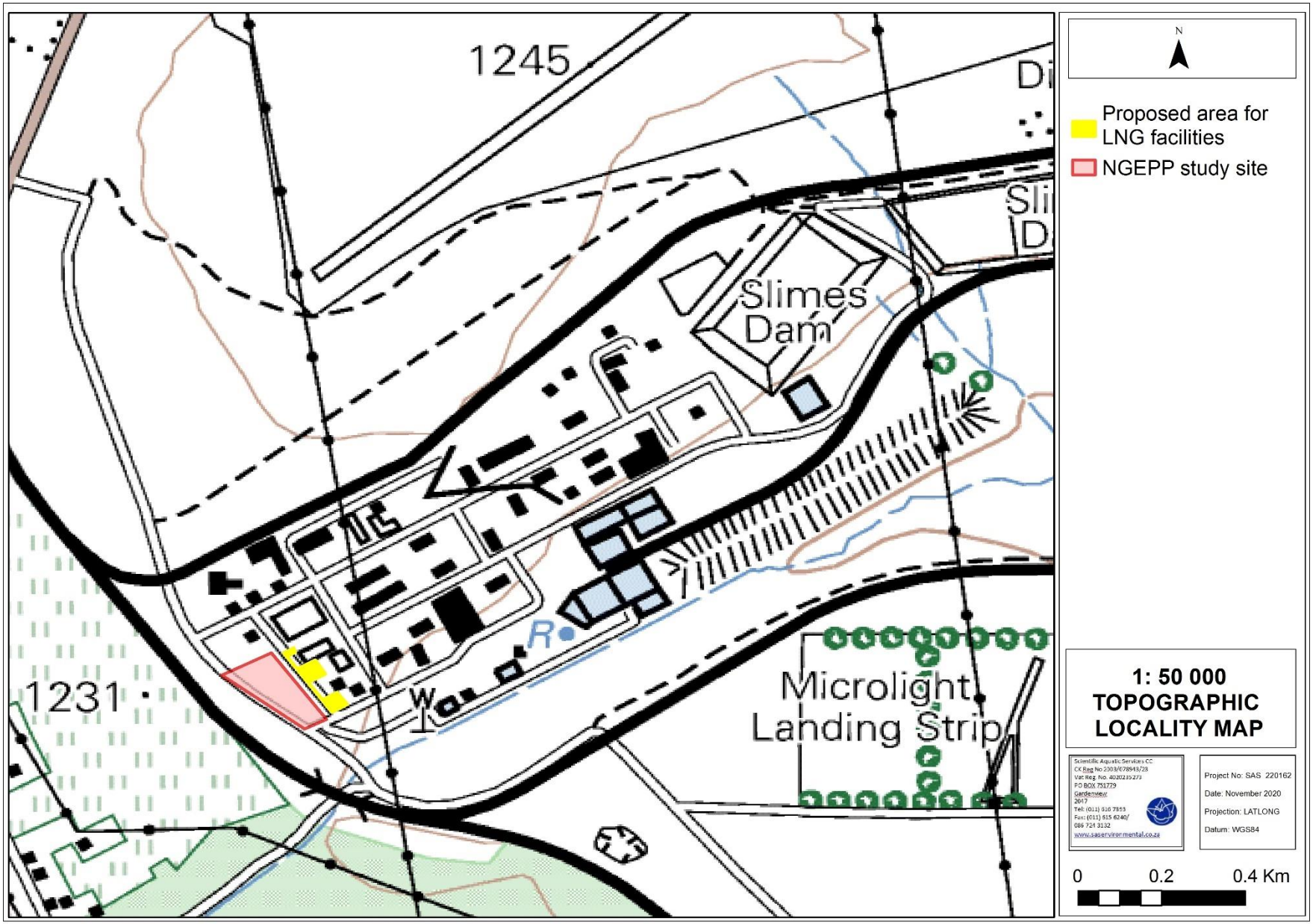

Figure A2: The NGEPP study site and LNG facilities depicted on a 1:50 000 topographical map in relation to the surrounding area.

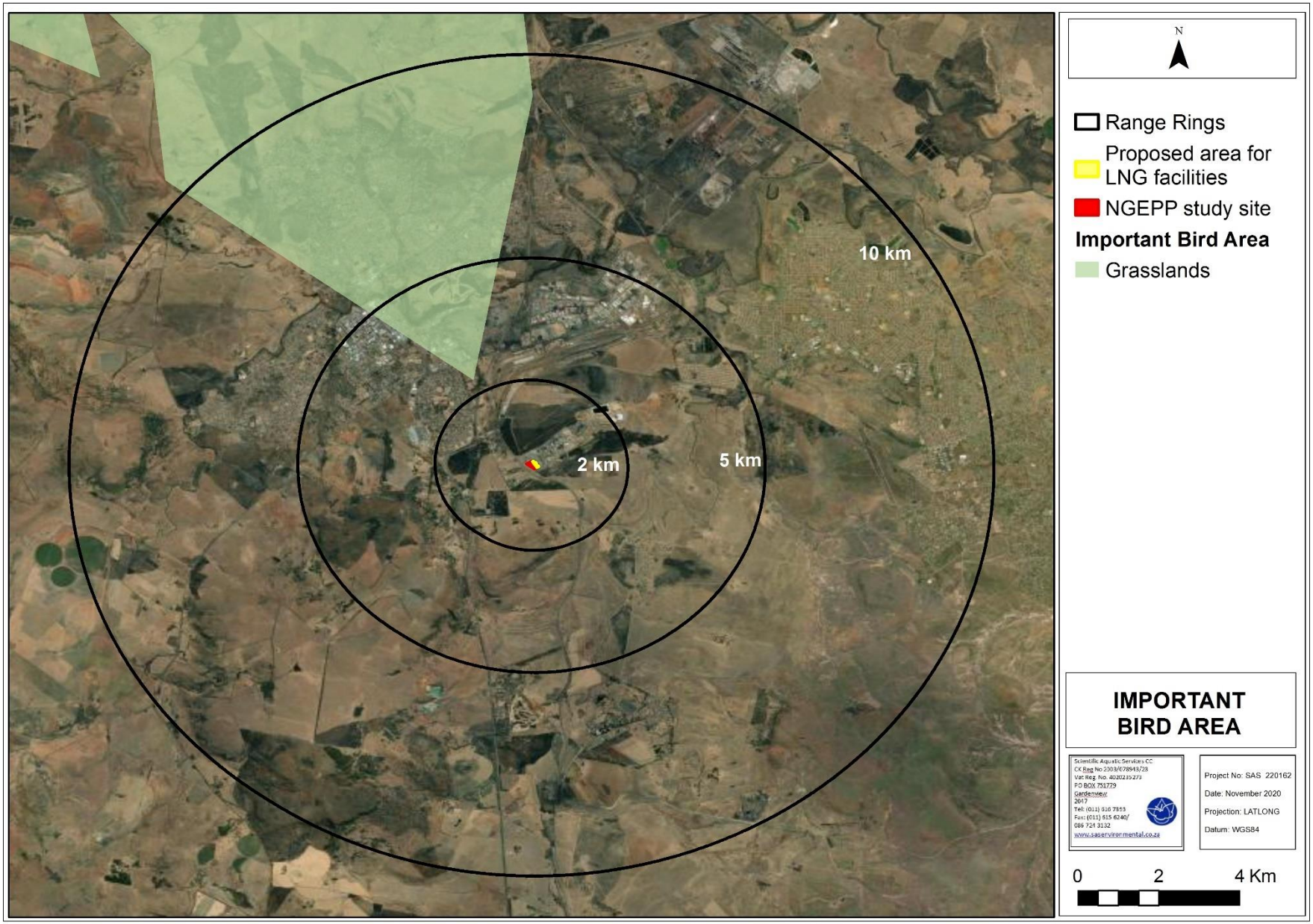

Figure A3: The Grassland Important Bird and Biodiversity Area in relation to the NGEPP study site and LNG facilities.

APPENDIX B - DECLARATION OF INDEPENDENCE

DETAILS, EXPERTISE AND CURRICULUM VITAE OF SPECIALISTS

1. (a) (i) Details of the specialist who prepared the report

Nelanie Cloete MSc (Environmental Management) (University of Johannesburg)

1. (a). (ii) The expertise of that specialist to compile a specialist report including a curriculum vitae

Company of Specialist:	Scientific Aquatic Services		
Name / Contact person:	Nelanie Cloete		
Postal address:	29 Arterial Road West, Oriel, Bedfordview		
Postal code:	1401	Cell:	0843114878
Telephone:	011 616 7893	Fax:	011 615 6240/ 086 724 3132
E-mail:	nelanie@sasenvgroup.co.za		
Qualifications	MSc Environmental Management (University of Johannesburg) MSc Botany (University of Johannesburg) BSc (Hons) Botany (University of Johannesburg) BSc (Botany and Zoology) (Rand Afrikaans University)		
Registration / Associations	Professional member of the South African Council for Natural Scientific Professions (SACNASP) Member of the South African Association of Botanists (SAAB) Member of the International Affiliation for Impact Assessments (IAIAsa) South Africa group Member of the Grassland Society of South Africa (GSSA)		

1. (b) a declaration that the specialist is independent in a form as may be specified by the competent authority

I, Nelanie Cloete, declare that -

- I act as the independent specialist in this application;
- 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 relevant legislation and any guidelines that have relevance to the proposed activity;
- I will comply with the applicable legislation;
- I have not, 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

Signature of the Specialist

APPENDIX C- CV OF SPECIALISTS

SAS ENVIRONMENTAL GROUP OF COMPANIES – SPECIALIST CONSULTANT INFORMATION

CURRICULUM VITAE OF NELANIE CLOETE

PERSONAL DETAILS

Position in Company	Senior Scientist, Member Botanical Science and Terrestrial Ecology
Joined SAS Environmental Group of Companies	2011

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Professional member of the South African Council for Natural Scientific Professions (SACNASP – Reg No. 400503/14)
Member of the South African Association of Botanists (SAAB)
Member of the International Affiliation for Impact Assessments (IAIAsa) South Africa group
Member of the Grassland Society of South Africa (GSSA)
Member of the Botanical Society of South Africa (BotSoc)
Member of the Gauteng Wetland Forum (GWF)

EDUCATION

Qualifications

MSc Environmental Management (University of Johannesburg)	2013
MSc Botany (University of Johannesburg)	2007
BSc (Hons) Botany (University of Johannesburg)	2005
BSc (Botany and Zoology) (Rand Afrikaans University)	2004

Short Courses

Certificate – Department of Environmental Science in Legal context of Environmental Management, Compliance and Enforcement (UNISA)	2009
Introduction to Project Management - Online course by the University of Adelaide	2016
Integrated Water Resource Management, the National Water Act, and Water Use Authorisations, focusing on WULAs and IWWMPs	2017

AREAS OF WORK EXPERIENCE

South Africa – Gauteng, Mpumalanga, North West, Limpopo, KwaZulu-Natal, Northern Cape, Eastern Cape, Free State
Africa - Democratic Republic of the Congo (DRC)

KEY SPECIALIST DISCIPLINES

Biodiversity Assessments

- Floral Assessments
- Biodiversity Actions Plan (BAP)
- Biodiversity Management Plan (BMP)
- Alien and Invasive Control Plan (AICP)
- Ecological Scan
- Terrestrial Monitoring
- Protected Tree and Floral Marking and Reporting
- Biodiversity Offset Plan

Freshwater Assessments

- Desktop Freshwater Delineation
- Freshwater Verification Assessment
- Freshwater (wetland / riparian) Delineation and Assessment
- Freshwater Eco Service and Status Determination
- Rehabilitation Assessment / Planning
- Plant species and Landscape Plan
- Freshwater Resource Management and Monitoring as part of EMPR and WUL conditions