DRAFT

HAGA HAGA WIND ENERGY FACILITY ACCESS ROAD UPGRADES IN THE GREAT KEI LOCAL MUNICIPALITY, EASTERN CAPE	
DFFE Reference Number: Pending	
DRAFT BASIC ASSESSMENT REPORT	
PREPARED FOR:	
	Haga Haga Wind Farm (RF) (Pty) Ltd 3 Dock Road, 2nd Floor North Wing, Waterway House, V&A Waterfront, Cape Town, 8001, South Africa
PREPARED BY:	
CES ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES	**COASTAL & ENVIRONMENTAL SERVICES** 39 Harewood Drive, Nahoon, East London, 5241 Tel: +27 (0)43 726 7809 www.cesnet.co.za
OCTOBER 2021	

INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

The Environmental Impact Assessment (EIA) Regulations, promulgated in terms of the National Environmental Management Act (NEMA, Act no. 107 of 1998 as amended) dated 8th of December 2014, were amended in April 2017. In terms of Appendix 1 (3) of the EIA Regulations (2014 and subsequent 2017 amendments), a Basic Assessment Report (BAR) must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include –

SCOPE OF ASSESSMENT & CONTENT OF BASIC ASSESSMENT REPORTS	
(a) Details of - (i) The EAP who prepared the report; and (ii) The expertise of the EAP, including a curriculum vitae.	Chapter 1 & Appendix A
(b) The location of the activity, including – (i) The 21-digit Surveyor General code of each cadastral land parcel; (ii) Where available, the physical address and farm name; and (iii) Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.	Chapter 2
(c) A plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale, or, if it is – (i) A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) On land where the property has not been defined, the coordinates within which the activity is to be undertaken.	Chapter 2
(d) A description of the scope of the proposed activity, including – (i) All listed and specified activities triggered and being applied for; and (ii) A description of the activities to be undertaken, including associated structures and infrastructure.	Chapter 3
(e) A description of the policy and legislative context within which the development is proposed including (i) An identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and have been considered in the preparation of the report; and (ii) How the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks and instruments.	Chapter 3
(f) A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	Chapter 4
(g) A motivation for the preferred site, activity and technology alternative.	Chapter 6
(h) A full description of the process followed to reach the proposed preferred alternative within the site, including – (i) Details of all the alternatives considered; (ii) Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them; (iv) The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (v) The impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified impacts, including the degree to which these impacts – aa. Can be reversed; bb. May cause irreplaceable loss of resources; and cc. Can be avoided, managed or mitigated;	Chapter 6 & Chapter 7

(vi) The methodology used in identifying and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives; (vii) Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on geographical, physical, biological, social, economic, heritage and cultural aspects; (viii) The possible mitigation measures that could be applied and level of residual risk; (ix) The outcome of the site selection matrix; (x) If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and (xi) A concluding statement indicating the preferred alternatives, including the preferred location of the activity.	
(i) A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including – (i) A description of all environmental issues and risks that were identified during the environmental impact assessment process; and (ii) An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.	Chapter 8
(j) An assessment of each identified potentially significant impact and risk, including – (i) Cumulative impacts; (ii) The nature, significance and consequences of the impact and risk; (iii) The extent and duration of the impact and risk; (iv) The probability of the impact and risk occurring; (v) The degree to which the impact and risk can be reversed; (vi) The degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) The degree to which the impact and risk can be avoided, managed or mitigated.	Chapter 8
(k) Where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report.	Chapter 7
(l) An environmental impact statement which contains – (i) A summary of the key findings of the environmental impact assessment; (ii) A map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and (iii) A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.	Chapter 9
(m) Based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for inclusion in the EMPr.	Chapter 8
(n) Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of the authorisation.	*None to date*
(o) A description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed.	Chapter 9
(p) A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation.	Chapter 9
(q) Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post-construction monitoring requirements finalised.	*Not Applicable*
(r) An undertaking under oath or affirmation by the EAP in relation to – (i) The correctness of the information provided in the reports; (ii) The inclusion of comments and inputs from stakeholders and I&APs; (iii) The inclusion of inputs and recommendations from the specialist reports where relevant; and	Appendix B

	(iv) Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.	
(s)	Where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post-decommissioning management of negative environmental impacts.	*None to date*
(t)	Any specific information that may be required by the competent authority.	Appendix G
(u)	Any other matters required in terms of section 24 (4)(a) and (b) of the Act.	*None to date*

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF PLATES

TABLE OF ACRONYMS

ATNS	Air Traffic and Navigation Services
ADM	Amathole District Municipality
BA	Basic Assessment
BAR	Basic Assessment Report
CAA	Civil Aviation Authority
CA	Competent Authority
CARA	Conservation of Agricultural Resources Act
CBA	Critical Biodiversity Area
CR	Critically endangered
CV	Curriculum Vitae
DALRRD	Department of Agriculture, Land Reform and Rural Development
DEFF	Department of Environment, Forestry and Fisheries
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DM	District Municipality
DMR	Department of Mineral Resources
DoE	Department of Energy
DWS	Department of Water & Sanitation
EN	Endangered
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioners Association of South Africa
ECPTA	Eastern Cape Parks and Tourism Agency
ECPHRA	Eastern Cape Provincial Heritage Resources Authority
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMPr	Environmental Management Programme

FEPA	Freshwater Ecosystem Priority Area
GN	Government Notice
GHG	Greenhouse Gas
ha	Hectares
HIA	Heritage Impact Assessment
IDP	Integrated Development Plan
IPP	Independent Power Producers
IRP	Integrated Resource Plan
I&AP	Interested and Affected Party
ISCW	Institute for Soil, Climate & Water
kV	Kilovolt
L	litres
LM	Local Municipality
m^3	Cubic meters
MEC	Member of the Executive Council
MPRDA	Mineral and Petroleum Resources Development Act
MW	Megawatt
MWp	Megawatt Peak
NDP	National Development Plan
NEMA	National Environmental Management Act
NEM:BA	National Environment Management: Biodiversity Act
NEMPAA	National Environmental Management: Protected Areas Act
NEM:WA	National Environmental Management Waste Act
NERSA	National Energy Regulator of South Africa
NFEPA	National Freshwater Ecosystem Priority Areas
NDP	National Development Plan
NDC	Nationally Determined Contribution
NGI	National Geospatial Information
NHRA	National Heritage Resources Act
NPAES	National Protected Areas Expansion Strategy
NSBA	National Spatial Biodiversity Assessment
NWA	National Water Act
OHSA	Occupational Health and Safety Act
PPP	Public Participation Process
PNECO	Provincial Nature and Environmental Conservation Ordinance
QDS	Quarter Degree Square
RDB	Red Data Book
REIPP	Renewable Energy Independent Power Producers
SACNASP	South African Council for Natural Scientific Professions
SAHRA	South African Heritage Resource Agency

SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
SG	Surveyor General
SIA	Social Impact Assessment
SOER	State of Environment Reporting
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change
VU	Vulnerable
WULA	Water Use Licence Application
WEF	Wind Energy Facility
WHS	World Heritage Site
WMA	Water Management Area
WRB	World Reference Base

1 PROJECT TEAM

1.1 CES PROJECT TEAM

Please refer to Appendix A for full *Curriculum Vitae* of the project team.

Dr Alan Carter

EAP, Project Leader & Report Reviewer

Alan is an Executive Director of CES and overseas the East London and Port Elizabeth branches. He has extensive training and experience in both financial accounting and environmental science disciplines with international accounting firms in South Africa and the USA. He is a member of the American Institute of Certified Public Accountants (licensed in Texas) and holds a PhD in Plant Sciences. He is also a certified ISO14001 EMS auditor with the American National Standards Institute. Alan has been responsible for leading and managing numerous and varied consulting projects over the past 30 years. He is a registered professional with the South African Council for Natural Scientific Professionals (SACNASP) and through Environmental Assessment Practitioners Association of South Africa (EAPASA). Alan has led large scale EIAs for 20+ wind and solar energy projects.

Ms Caroline Evans

Renewable Energy Specialist

Caroline is a Principal Environmental Consultant with more than 6 years' experience and she is based in the Grahamstown branch. She holds a BSc with majors in Environmental Science (distinction) and Zoology, as well as a BSc (Hons) in Environmental Science (distinction) both from Rhodes University. Her undergraduate degree included both commerce and natural sciences. Caroline's honours dissertation evaluated the economic impacts of degradation of the xeric subtropical thicket through farming practices, focusing on the rehabilitation potential of the affected areas in terms of carbon tax. She has a broad academic background including statistics, economics, management, climate change, wetland ecology, GIS, rehabilitation ecology, ecological modelling and zoology. Caroline has a strong focus on renewable energy and South African policy and legislation related to development.

Ms Robyn Thomson

Lead Report Writer & GIS Mapping & Project Manager

Robyn Thomson is a Senior Environmental Consultant and holds a BSc (Environmental Science) degree with majors in Archaeology, Environmental and Geographical Science, as well as a BSc (Hons.) in Environmental Science, with coursework in Environmental Management, Environmental Impact Assessment, Environmental Risk Assessment, Environmental Contamination Rehabilitation, Geographic Information Systems and fundamentals in Statistics. The Honours programme also entailed a research project, which looked at the effectiveness of the community awareness programme conducted by the Asbestos Interest Group (AIG) on the effects of and attitudes towards asbestos contamination in two rural communities, Heuningvlei and Ga-Mopedi respectively, in the Northern Cape Province. The research project formed part of a larger project quantifying the extent of secondary environmental asbestos contamination in South Africa. Robyn obtained her undergraduate degree at the University of Cape Town, and her Honours degree at Rhodes University. Robyn has 15 years of experience and expertise in Basic Assessments, Environmental Impact Assessments, Environmental Monitoring, Environmental Management Plans, Water Use Licencing, public participation, GIS and project coordination. Robyn has particularly strong experience in infrastructure projects for various municipal, provincial and national organisations.

Ms Brooke Mason

Report Writer & Public Participation Support

Brooke obtained an honours in Ichthyology and Fisheries Science from Rhodes University, with specific focus on climate change and the vulnerability index of 50 priority fish species along the South African coast. Prior to this Brooke completed her undergrad at Rhodes University in Environmental Science and Ichthyology and Fisheries Science. Brooke has trained and had experience in both Fisheries and Environmental science disciplines with working experience in the aquaculture and aquaponics industry. Brooke joined CES in 2021 and is currently involved in several projects, these include Basic Assessments and Public Participation Plans (PPP). Her studies have led her to have a keen interest in climate change and mitigating adverse impacts on the marine environment and wetland ecology, with the use of Environmental Impact Assessment (EIA) process and ecological studies.

1.2 EXPERTISE OF THE PROJECT TEAM

Table 1-1consist of the expertise of the project team and Table 1-2consists of a few projects which indicate the project team's relevant experience.

Table 1-1: Expertise of the Project Team.

NAME	POSITION IN COMPANY	HIGHEST QUALIFICATION	YEARS EXPERIENCE	ROLE ON PROJECT
Dr Alan Carter	Executive Director	PhD in Plant Science (Rhodes University)	25+	• EAP • Project Leader • Report Reviewer
Ms Caroline Evans	Principal Consultant	BSc Honours in Environmental Science (Rhodes University)	7.5	• Renewable Energy Specialist
Ms Robyn Thomson	Senior Consultant	BSc Honours in Environmental Science (Rhodes University)	15	• Lead Report Writer • GIS Mapping • Project Manager
Ms Brooke Mason	Environmental consultant	BSc Honours in Ichthyology and Fisheries Science	1	• Report Writer • Public participation support

Table 1-2: Project Team's Relevant Experience.

	PROJECT NAME	PROJECT DESCRIPTION
1.	**Environmental Impact Assessment for the Umsobomvu Wind Energy Facility in the Eastern and Northern Cape Provinces**	Project Description: Umsobomvu Wind Power, a subsidiary of InnoWind (Pty) Ltd., intend to construct the Umsobomvu Wind Energy Facility (277 MW) and associated infrastructure (400 kV and 132 kV powerlines, roads, switching stations, etc.) in the Northern and Eastern Cape Provinces of South Africa. CES was appointed to conduct a full Scoping and EIA process to obtain Environmental Authorisation for this project. This process included the management of nine specialist assessments, four of which were conducted using in-house consultants. This project received full Environmental Authorisation in 2016. Main Tasks: • Project Management • GIS Mapping • Scoping and Environmental Impact Report • Environmental Management Programme • Public Participation Process • Water Use Applications

	PROJECT NAME	PROJECT DESCRIPTION
2.	**Environmental Impact Assessment for the Dassiesridge Wind Energy Facility in the Eastern Cape Province**	Project Description: CES was appointed to undertake the EIA and associated specialist studies for the proposed Dassiesridge Wind Energy Facility (140 MW) and associated infrastructure (33 kV and 132 kV powerlines), situated near Uitenhage in the Eastern Cape. Main Tasks: • Project Management • GIS Mapping • Scoping and Environmental Impact Report • Environmental Management Programme • Public Participation Process • Water Use Applications
3.	**Environmental Impact Assessment for the Bayview Wind Farm in the Eastern Cape Province**	Project Description: CES was appointed to undertake the EIA for the proposed Bayview Wind Farm and associated powerlines, situated near Uitenhage in the Eastern Cape. Main Tasks: • GIS Mapping • Environmental Impact Report • Environmental Management Programme • Public Participation Process
4.	**Basic Assessment for the Scarlet Ibis Wind Energy Facility in the Eastern Cape Province**	Project Description: CES was appointed to undertake the Basic Assessment process for the proposed Scarlet Ibis Wind Energy Facility and associated powerlines, situated near Uitenhage in the Eastern Cape. Main Tasks: • Project Management • GIS Mapping • Basic Assessment Report • Environmental Management Programme • Public Participation Process
5.	**Environmental Impact Assessment for the Albany Wind Energy Facility in the Eastern Cape Province**	Project Description: CES was appointed to undertake the EIA for the proposed Albany Wind Energy Facility and associated powerlines, situated near Grahamstown in the Eastern Cape. Main Tasks: • Project Management • GIS Mapping • Scoping and Environmental Impact Report • Environmental Management Programme • Public Participation Process
6.	**Environmental Impact Assessment for the Waaihoek Wind Energy Facility in the KwaZulu-Natal Province**	Project Description: CES was appointed to undertake the EIA for the proposed Waaihoek Energy Facility, situated near Utrecht in KwaZulu-Natal. Main Tasks: • Project Management • GIS Mapping • Scoping and Environmental Impact Report • Environmental Management Programme • Public Participation Process

2 PROJECT DESCRIPTION

2.1 PROJECT DESCRIPTION

The Haga Haga Wind Energy Facility (WEF) was authorised on 5/07/2019 (DFFE Reference: 14/12/16/3/3/2/1087). The Environmental Authorisation (EA) received an amendment on 03/06/2021 (DFFE Reference: 14/12/16/3/3/2/1087/AM1). The original EIA included a 42 turbine layout and associated internal road network, the amendment reduced the number of turbines to 36 and the internal road network was changed to match this. The internal road layout will be built as per the layout submitted during the amendment, within allowable micro siting limits. The WEF has not yet been constructed.

Several of the site access points will require upgrades on farm portions which were not included in the previous applications. Haga Haga Wind Farm (RF) (Pty) Ltd. (the Applicant), is therefore proposing to upgrade the existing roads leading to the access points, which will link up with the approved WEF internal road layout to allow for access to the site for construction and operation purposes.

The proposed upgrades are described Table 2-1 below and shown in Figure 2-2, Figure 2-3, Figure 2-4, Figure 2-5 and Figure 2-6 below.

Table 2-1: Description of the upgrades.

MAP REF	FARM PORTION	UPGRADE DESCRIPTION
1	RE of Farm 94	Widening of existing intersection
	Portion 2 of Farm 94	Existing road needs to be widened and realigned slightly
2	RE of Farm 111 & Portion 1 of Farm 111	Existing road needs to be widened and realigned slightly
3	Portion 2 of Farm 69	Existing intersection to be widened
4	RE of Farm 225	Existing road needs to be widened and realigned
5		Existing intersection to be widened
6	RE Farm 222 and RE Farm 288	Road widening and/or vegetation trimming and possible clearance

2.2 PROJECT LOCALITY

The proposed project is located in Wards 3 and 5 of the Great Kei Local Municipality, within the Amathole District Municipality, in the Eastern Cape. Table 2-2 below lists the proposed properties which will be affected by the proposed road upgrades. The widening and realignment of roads is proposed on properties adjacent to the Haga Haga Wind Energy Facility (WEF) project site. The project locality is shown in Figure 2-1 below and the project layout Figure 2-2.

Table 2-2: 21-Digit Surveyor General (SG) Codes of the affected properties.

MAP REF	FARM PORTION	SG 21 DIGIT CODE	LOCAL MUNICIPALITY	WARD
1	Remainder of Farm 94	C04000000000009400000	Great Kei Local Municipality	5
	Portion 2 of Farm 94	C04000000000009400002	Great Kei Local Municipality	5
2	Remainder of Farm 111	C04000000000011100000	Great Kei Local Municipality	5
	Portion 1 of Farm 111	C04000000000011100001	Great Kei Local Municipality	5
3	Portion 2 of Farm 69	C04000000000006900002	Great Kei Local Municipality	5
4	Remainder of Farm 225	C04000000000022500000	Great Kei Local Municipality	5

MAP REF	FARM PORTION	SG 21 DIGIT CODE	LOCAL MUNICIPALITY	WARD
5				
6	Remainder Farm 222	C04000000000022200000	Great Kei Local Municipality	3
	Remainder Farm 288	C04000000000028800000	Great Kei Local Municipality	3

Table 2-3 Haga Haga WEF access road coordinates (see Figure 2-3 - Figure 2-6)

COORDINATE NUMBER ON MAPS	MAP REFERENCE DESCRIPTION	SCREENING TOOL REPORT	COORDINATES	
C1	1 & 2	Section 1&2	28° 18 ' 11" E	32° 41 ' 22" S
C2	1 & 2	Section 1&2	28° 18 ' 6" E	32° 41 ' 27" S
C3	1 & 2	Section 1&2	28° 18 ' 3" E	32° 41 ' 35" S
C4	1 & 2	Section 1&2	28° 17 ' 58" E	32° 41 ' 41" S
C5	1 & 2	Section 1&2	28° 17 ' 53" E	32° 41 ' 46" S
C6	1 & 2	Section 1&2	28° 17 ' 49" E	32° 41 ' 47" S
C7	1 & 2	Section 1&2	28° 17 ' 40" E	32° 41 ' 45" S
C8	1 & 2	Section 1&2	28° 17 ' 31" E	32° 41 ' 44" S
C9	1 & 2	Section 1&2	28° 17 ' 27" E	32° 41 ' 43" S
C10	1 & 2	Section 1&2	28° 17 ' 18" E	32° 41 ' 48" S
C11	1 & 2	Section 1&2	28° 17 ' 5" E	32° 41 ' 53" S
C12	3	Section 3	28° 13 ' 50" E	32° 38 ' 55" S
C13	4 & 5	Section 4&5	28° 9 ' 28" E	32° 40 ' 36" S
C14	4 & 5	Section 4&5	28° 9 ' 27" E	32° 40 ' 38" S
C15	4 & 5	Section 4&5	28° 9 ' 26" E	32° 40 ' 39" S
C16	4 & 5	Section 4&5	28° 9 ' 24" E	32° 40 ' 40" S
C17	4 & 5	Section 4&5	28° 9 ' 23" E	32° 40 ' 43" S
C18	4 & 5	Section 4&5	28° 9 ' 22" E	32° 40 ' 46" S
C19	6	Section 6	28° 9 ' 13" E	32° 42 ' 31" S
C20	6	Section 6	28° 9 ' 7" E	32° 42 ' 29" S

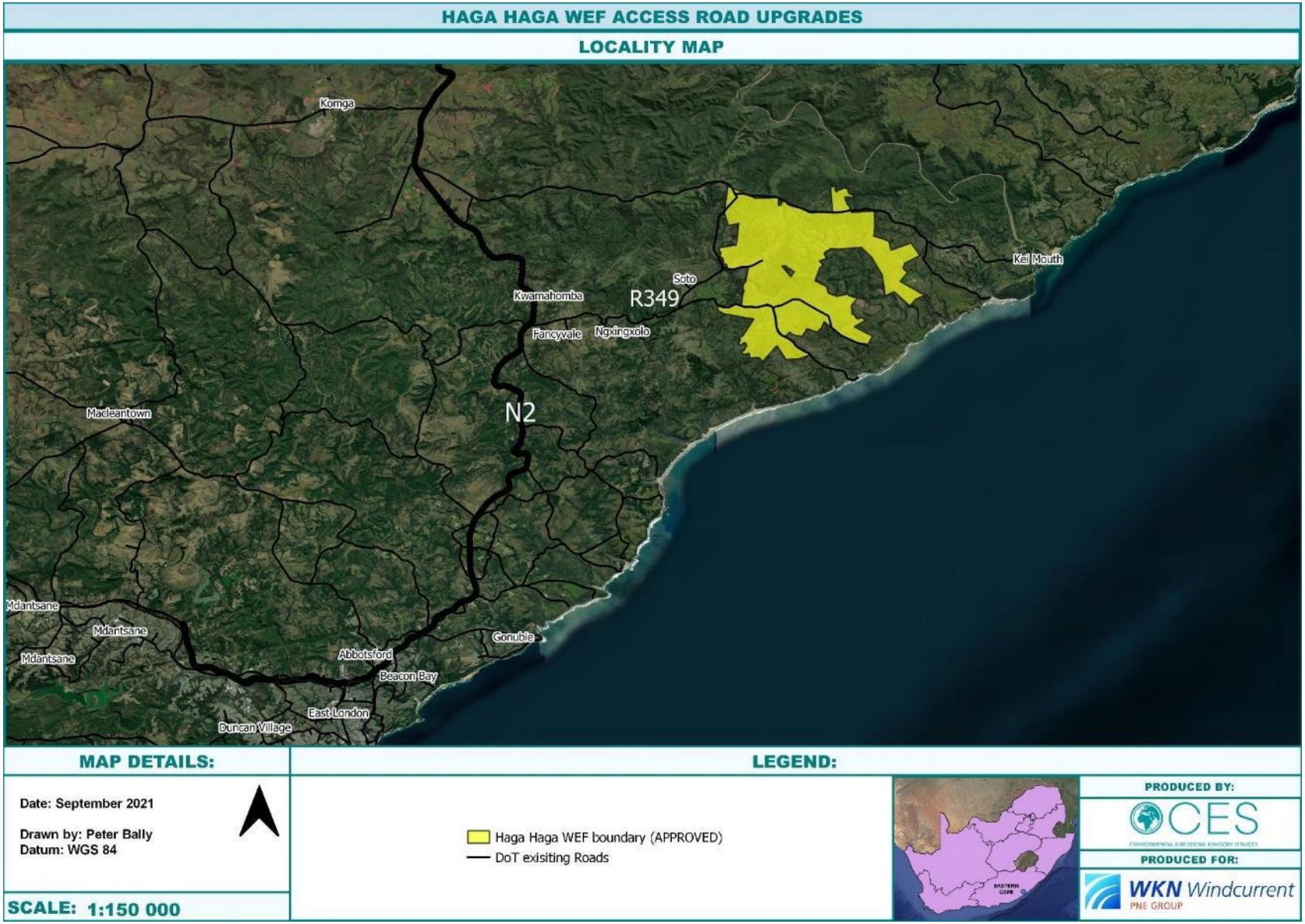


Figure 2-1: Locality map of the project area (approved Haga Haga WEF).

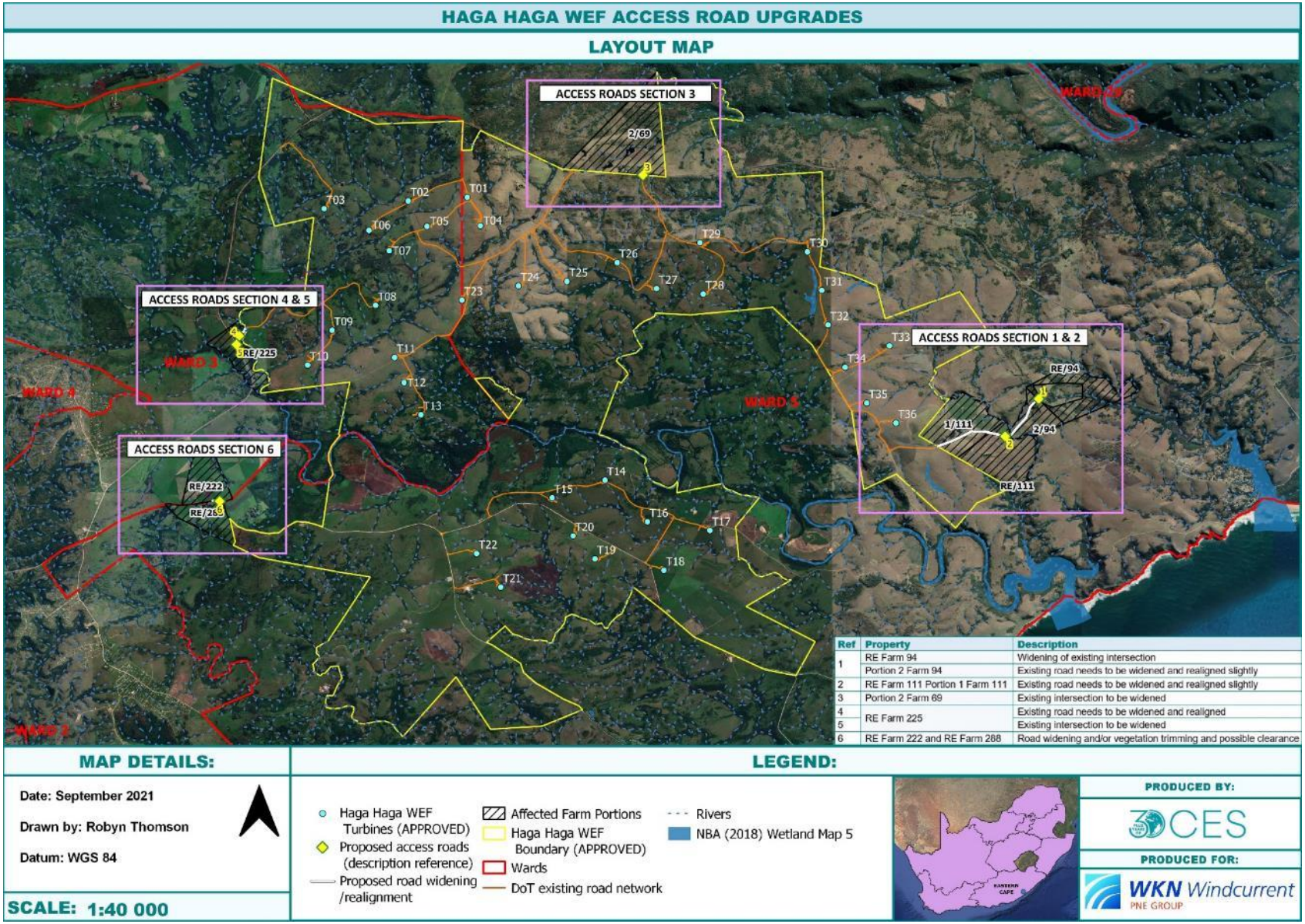


Figure 2-2: Layout map of the proposed access road upgrades.

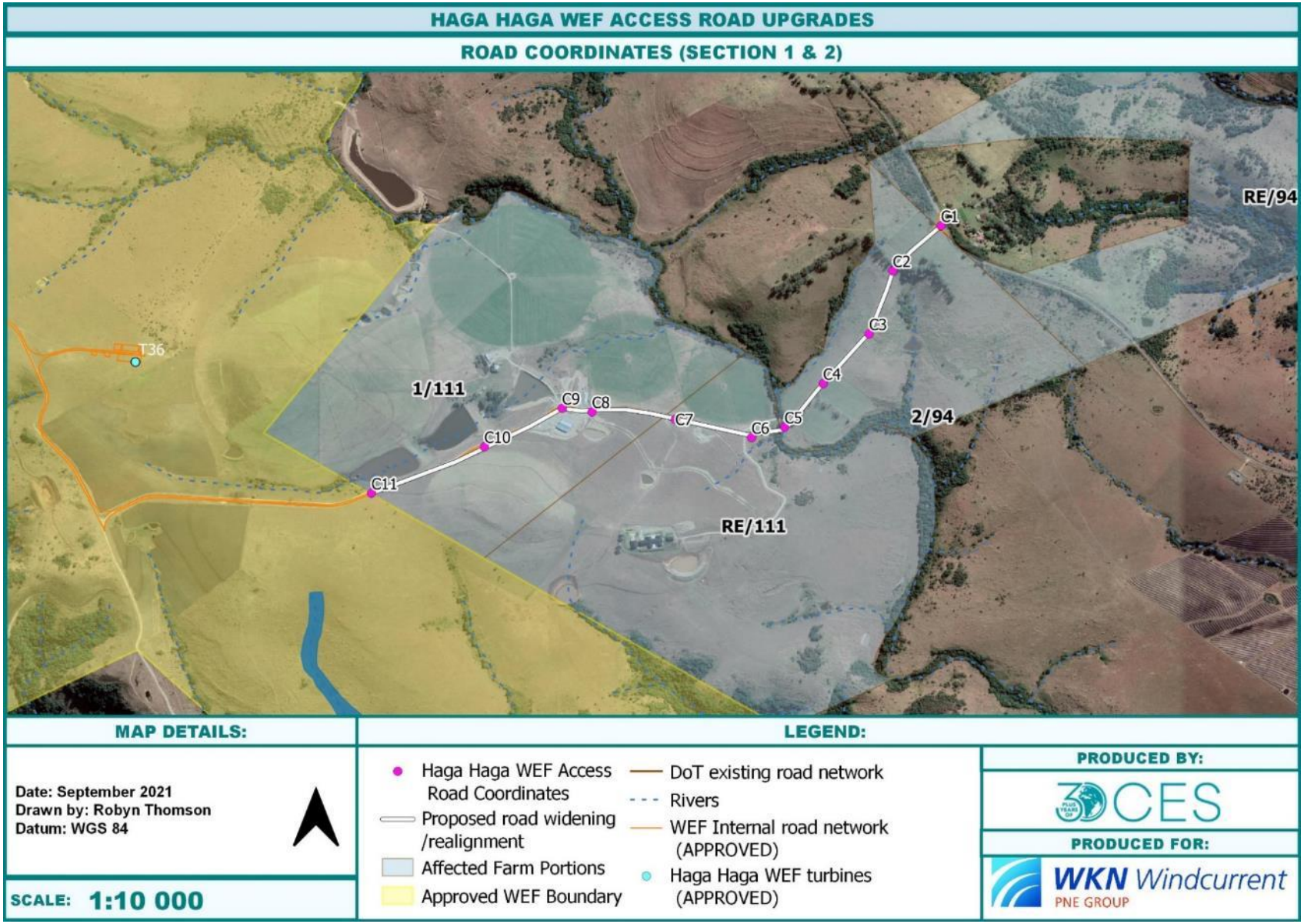


Figure 2-3: Access road coordinates section 1 and 2.

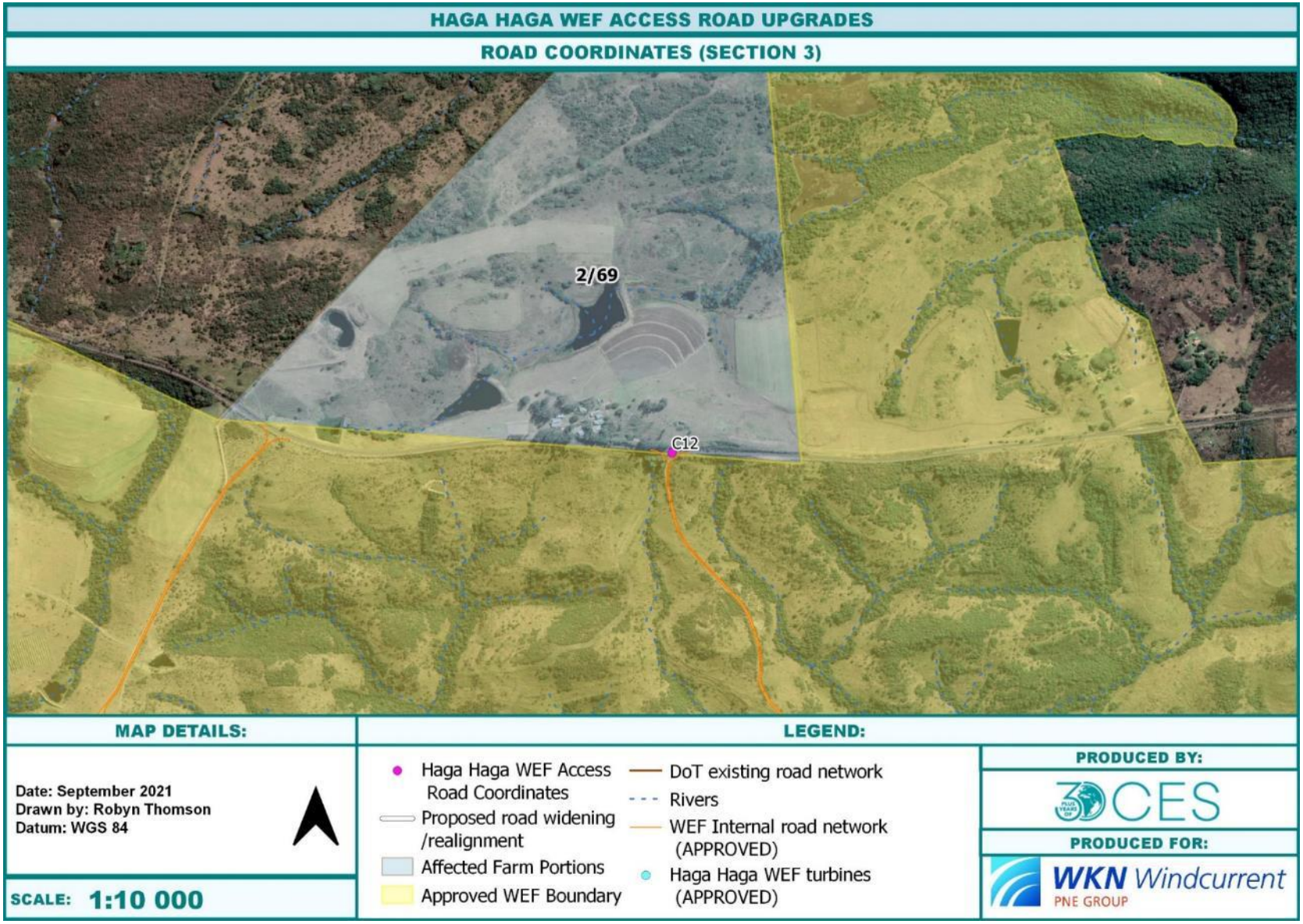


Figure 2-4: Access road coordinates section 3.

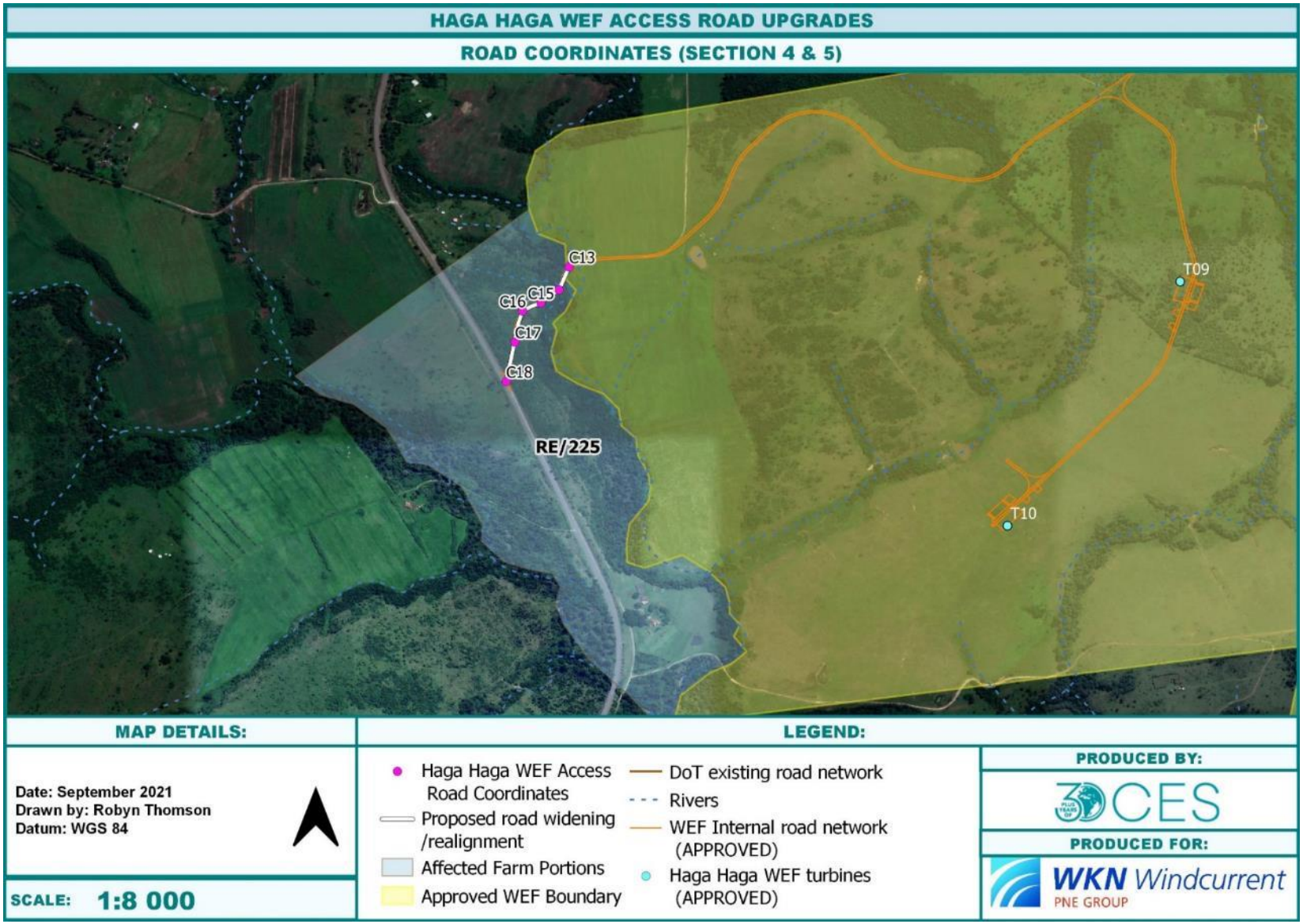


Figure 2-5: Access road coordinates section 4 and 5.

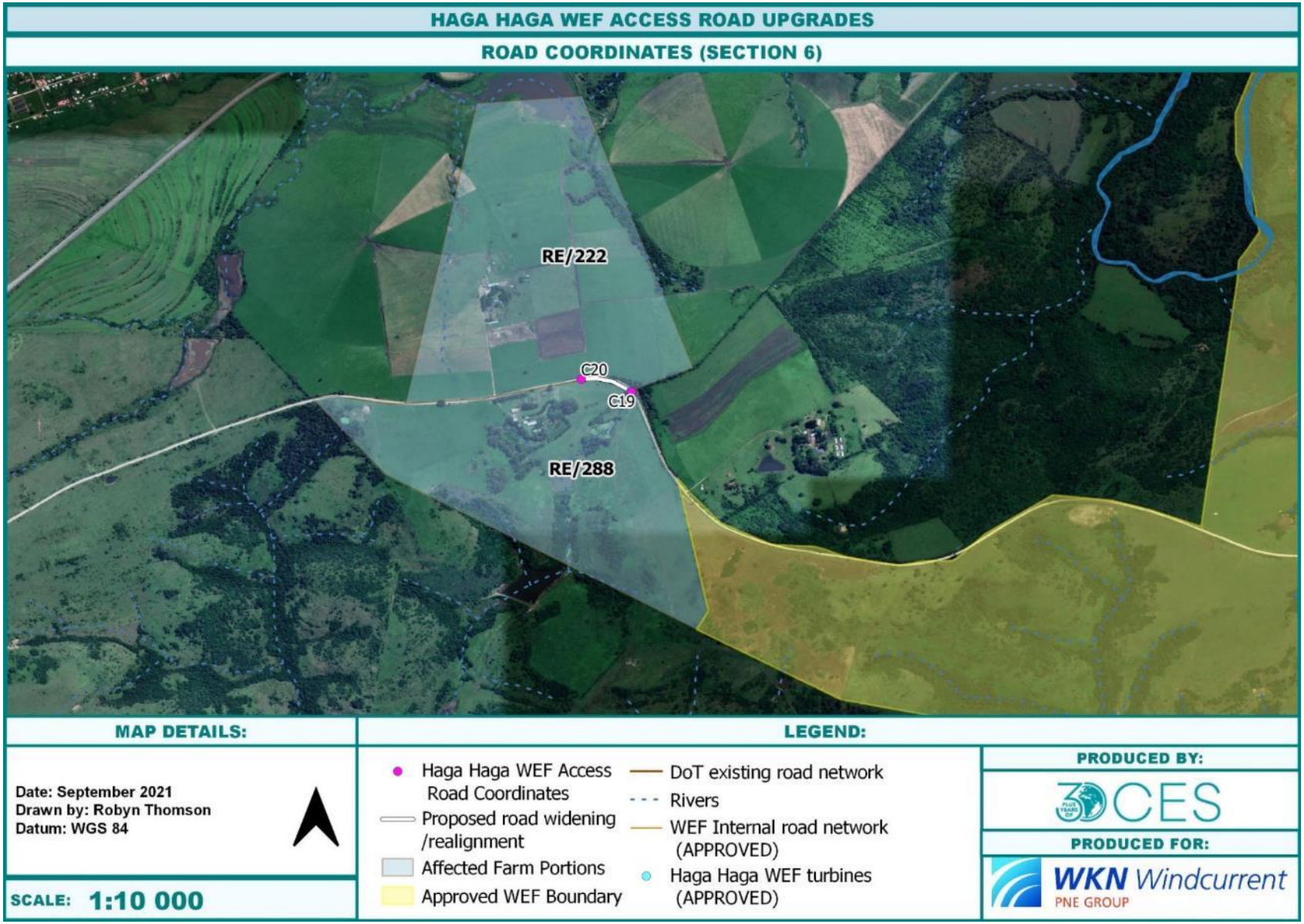


Figure 2-6: Access road coordinates section 6.

3 RELEVANT LEGISLATION

Table 3-1 below consists of the legislation which is relevant to the proposed Haga Haga WEF access road upgrades in the Great Kei Local Municipality, Eastern Cape.

Table 3-1: Relevant Legislation, Policies & Guidelines.

TITLE OF LEGISLATION, POLICY OR GUIDELINE	APPLICABILITY TO THE PROJECT
Constitution Act (Act No. 108 of 1996)	The Developer is obligated to ensure that the proposed Haga Haga WEF access road upgrades will not result in pollution and ecological degradation. In addition, the Developer is obligated to ensure that the proposed development is ecologically sustainable and that it demonstrates economic and social development.
National Environmental Management Act (NEMA, Act No. 107 of 1998 and subsequent amendments) Environmental Impact Assessment Regulations (2014 and subsequent 2017 amendments)	The upgrading of the proposed Haga Haga WEF access roads triggers listed activities in terms of Listing Notice 1 and Listing Notice 3 of the NEMA EIA Regulations (2014 and subsequent 2017 and 2021 amendments). Environmental Authorisation (EA) is required from the National Department of Forestry, Fisheries and the Environment (DFFE) prior to the commencement of construction.
National Environmental Management: Biodiversity Act (NEM:BA Act No. 10 of 2004)	The proposed upgrading of the Haga Haga WEF access roads will require the clearance of sections of vegetation, specifically Bhisho Thornveld and Albany Coastal Belt (Mucina and Rutherford, 2018) which will impact on the biodiversity of the area. The relevant permits must be obtained prior to the clearance of vegetation.
National Water Act (NWA, Act No. 36 of 1998)	The proposed Haga Haga WEF access road upgrades occur within 100 meters of a few watercourses. Water use authorisation is required from the Department of Water and Sanitation (DWS) prior to the commencement of the construction phase.
Mineral and Petroleum Resources Development Act (MPRDA, Act No. 28 of 2002)	The Department of Mineral Resources and Energy (DMRE) should be made aware of the proposed development and should any activities associated with the upgrading of the proposed Haga Haga WEF access roads require the excavation/extraction of sand or hard rock for construction purposes, the necessary approvals and/or permits must be obtained from the DMRE prior to the commencement of these activities.
National Heritage Resources Act (NHRA, Act No. 25 of 1999)	The proposed Haga Haga WEF access road upgrades could impact sensitive heritage resources. The South African Heritage Resource Agency (SAHRA) and the Eastern Cape Provincial Heritage Resources Authority (ECPHRA) must be informed of the proposed development and the relevant authorisation and/or permits must be obtained prior to the commencement of the construction phase.
National Environmental Management: Waste Act (NEM:WA, Act No. 59 of 2008)	The Developer must ensure that all activities associated with the proposed Haga Haga WEF access road upgrades address waste-related matters in compliance with the requirements on the NEM:WA. The Developer should communicate with the affected Local Municipalities (LMs) to ensure that waste is disposed of at a suitable registered landfill site.
National Forestry Act (NFA, Act No. 84 of 1998)	The proposed Haga Haga WEF access road upgrades footprints could contain Species of Conservation Concern (SCC), specifically protected trees. The necessary permissions and/or permits must be obtained prior to the clearance of vegetation.
Provincial Nature and Environmental Conservation Ordinance (No. 19 of 1974)	
Conservation of Agricultural Resources Act (CARA, Act No. 43 of 1983)	The Department of Agriculture, Land Reform and Rural Development (DALRRD) must be informed of the proposed Haga Haga WEF access road upgrades. An invasive species monitoring, control and eradication plan for land/activities under their control should be developed as part of the environmental plans in accordance with CARA.

TITLE OF LEGISLATION, POLICY OR GUIDELINE	APPLICABILITY TO THE PROJECT
Electricity Regulation Act (Act No. 4 of 2006)	The proposed Haga Haga WEF access road upgrades must be in line with the Electricity Regulation Act.
Occupational Health and Safety Act (OHSA, Act No. 85 of 1993)	The Developer must be mindful of the principles and broad liability and implications associated with the OHSA and mitigate any potential impacts which are identified prior to the construction phase.
National Environmental Management: Air Quality Act (NEM:AQA, Act No. 39 of 2004)	No major air quality issues are expected due to the proposed Haga Haga WEF access road upgrades; however, the Developer should be mindful of the impacts associated with dust generation during the construction phase.
National Road Traffic Act (NRTA, Act No. 93 of 1996)	The Developer must comply with all the requirements in terms of the NRTA during the construction and operational phases of the proposed Haga Haga WEF access road upgrades.
National Veld and Forest Fire Act (NVFFA, Act No. 101 of 1998)	The Developer must ensure that appropriate fire-fighting equipment, protective clothing and trained personnel (for extinguishing fires) are present onsite during the construction of the Haga Haga WEF access road upgrades.
Amathole District Municipality (Eastern Cape)	The Haga Haga WEF access road upgrades must comply with/be in line with all relevant municipal by-laws, the Spatial Development Frameworks (SDFs) and the Integrated Development Plans (IDPs). Representatives from the affected District Municipalities and Local Municipalities must be informed of the proposed development.
Great Kei Local Municipality (Eastern Cape)	

Table 3-2 provides the relevant listed activities, in terms of the NEMA EIA Regulations (2014 and subsequent 2017 and 2021 amendments), which are likely to be triggered by the activities associated with the proposed Haga Haga WEF access road upgrades.

The NEMA EIA Regulations (2014 and subsequent 2017 and 2021 amendments) allow for a Basic Assessment process for activities with limited environmental impact (GN R. 983 and 985, 2014 or GN R. 327 and 324, 2017) and a more rigorous two (2) tiered approach to activities with potentially greater environmental impact (GN R. 984, 2014 or GN R. 325, 2017). This two (2) tiered approach includes both a Scoping and EIA process. The proposed upgrading of the Haga Haga WEF access roads triggers the **Basic Assessment (BA) process**, due to the Listing Notice 1 and Listing Notice 3 activities, which will require an EA from the National DFFE.

Table 3-2: Listed Activities triggered by the proposed Haga Haga WEF access road upgrades.

Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 1** of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
12	The development of— ~~(i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or~~ **(ii) infrastructure or structures with a physical footprint of 100 square metres or more;** where such development occurs— **(a) within a watercourse;** ~~(b) in front of a development setback; or~~ **(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; —** excluding— (aa) the development of infrastructure or structures within existing ports or harbours that will not	The proposed roads cross watercourses in several places. The combined physical footprint at the various water course crossings exceeds 100 square metres.

	increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area**;** (ee) where such development occurs within existing roads, road reserves or railway line reserves; or (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.	
19	**The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;** but excluding where such infilling, depositing, dredging, excavation, removal or moving— (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; **(d)** occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or **(e)** where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	The proposed roads cross watercourses in several places. Therefore the widening and realignment of the roads will likely require the movement of more than 10 cubic metres of material within a watercourse.
56	**The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre—** (i) where the existing reserve is wider than 13,5 meters; or (ii) where no reserve exists, where the existing road is wider than 8 metres; excluding where widening or lengthening occur inside urban areas.	The proposed intersection upgrades will require the road to be widened by more than 6 m at these points.
~~Activity No(s):~~	~~Provide the relevant **Scoping and EIA Activity(ies)** as set out in **Listing Notice 2** of the EIA Regulations, 2014 as amended~~	~~Describe the portion of the proposed project to which the applicable listed activity relates.~~

Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 3** of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
4	**The development of a road wider than 4 metres with a reserve less than 13,5 metres.** **a. Eastern Cape** **Outside urban areas:** ~~(aa) A protected area identified in terms of NEMPAA, excluding disturbed areas;~~ ~~(bb) National Protected Area Expansion Strategy Focus areas;~~ ~~(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;~~ ~~(dd) Sites or areas identified in terms of an international convention;~~ **(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;** ~~(ff) Core areas in biosphere reserves;~~ **(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas;** ~~(hh) Areas seawards of the development setback line or within 1 kilometre from the high water mark of the sea if no such development setback line is determined; or~~ ~~(ii) In an estuarine functional zone, excluding areas falling behind the development setback line; or~~ ~~ii. Inside urban areas:~~ ~~(aa) Areas zoned for use as public open space;~~ ~~(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; or~~ ~~(cc) Seawards of the development setback line or within urban protected areas.~~	The proposed roads fall within both CBA 1 and 2 as defined in the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2020), and are located within 5km of protected areas (the Amathole Marine Protected Area and East London Coast Nature Reserve).
12	**The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.** **a. Eastern Cape** i. ~~Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;~~ **ii. Within critical biodiversity areas identified in bioregional plans;**	The road widening and realignment will result in the loss of Indigenous vegetation in excess of 300 square metres. The proposed roads fall within both CBA 1 and 2 as defined in the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2020).

	~~iii. Within the littoral active zone or 100 metres inland from the high water mark of the sea, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas;~~ ~~iv. Outside urban areas, within 100 metres inland from an estuarine functional zone; of~~ ~~v. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.~~	
14	The development of— i. dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or **ii. infrastructure or structures with a physical footprint of 10 square metres or more;** where such development occurs— **(a) within a watercourse;** ~~(b) in front of a development setback; or~~ **(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;** ~~excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.~~ **a. Eastern Cape** i. Outside urban areas: ~~(aa) A protected area identified in terms of NEMPAA, excluding conservancies;~~ ~~(bb) National Protected Area Expansion Strategy Focus areas;~~ ~~(cc) World Heritage Sites;~~ ~~(dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;~~ ~~(ee) Sites or areas identified in terms of an international convention;~~ **(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;** ~~(gg) Core areas in biosphere reserves;~~ **(hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;** ~~(ii) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or~~	The proposed roads cross watercourses in several places. The combined physical footprint at the various water course crossings exceeds 10 square metres. The proposed site falls within a CBA 2, Corridor 1 and 2, and is located within 5km of protected areas (the Amathole Marine Protected Area and East London Coast Nature Reserve).

	~~(jj) In an estuarine functional zone, excluding areas falling behind the development setback line; or~~ ~~ii. Inside urban areas:~~ ~~(aa) Areas zoned for use as public open space;~~ ~~(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for a conservation purpose; or~~ ~~(cc) Areas seawards of the development setback line.~~	
18	**The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.** **a. Eastern Cape** **i. Outside urban areas:** ~~(aa) A protected area identified in terms of NEMPAA, excluding conservancies;~~ ~~(bb) National Protected Area Expansion Strategy Focus areas;~~ ~~(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;~~ ~~(dd) Sites or areas identified in terms of an international convention;~~ **(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;** ~~(ff) Core areas in biosphere reserves;~~ **(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;** ~~(hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined;~~ ~~(ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined;~~ ~~(jj) An estuarine functional zone, excluding areas falling behind the development setback line; or~~ ~~(kk) A watercourse; or~~ ~~ii. Inside urban areas:~~ ~~(aa) Areas zoned for use as public open space; or~~ ~~(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.~~	The proposed roads will be wider than 4m in certain areas. The proposed site falls within a CBA 2, Corridor 1 and 2 and is located within 5km of protected areas (the Amathole Marine Protected Area and East London Coast Nature Reserve).

4 PROJECT NEED AND DESIRABILITY

The Haga Haga WEF access roads need to be upgraded in order to provide access to the site for the construction and future operation of the already authorised WEF. The turbine infrastructure, including but not limited to the blades and tower components, needs to be transported to the site on large trucks. Due to the length of the blades (up to 100m), the trucks require a minimum road width of 8m with the width increasing at the turning arcs to up to 110m in diameter (55m wide intersection radius) to allow for safe passage.

The project need and desirability also relates to the need and desirability of renewable energy on a local, district, provincial, national and international level as the upgrading of the Haga Haga WEF access roads is integral to the development of the WEF itself.

Increasing pressure is being placed on countries internationally to reduce their reliance on fossil fuels, such as oil and coal, which contribute towards Greenhouse Gases (GHG) being emitted into the atmosphere and therefore contributing to climate change. Renewable energy resources, such as Wind Energy Facilities (WEFs) and Solar PV farms, are being implemented as alternative sources of energy at both a global and national scale.

South Africa has recognised the need to expand electricity generation capacity within the country. This is based on national policy and informed by ongoing planning undertaken by the Department of Energy (DoE) and the National Energy Regulator of South Africa (NERSA). South African Integrated Resource Plan (IRP, 2019) sets out a new direction in energy sector planning. The plan includes a shift away from coal, increased adoption of renewables and gas, and an end to the expansion of nuclear power. The South African Government has not yet communicated a timeline for the final adoption of the plan. The previous two (2) proposed IRP updates (in 2013 and 2016) were not adopted by Cabinet.

The revised plan, if adopted, would mark a major shift in energy policy. The policy aims to decommission a total of 35 GW (of 42 GW currently operating) of coal generation capacity from Eskom by 2050, starting with 12 GW by 2030, 16 GW by 2040 and a further 7 GW by 2050. The draft IRP (2018) also proposes a significant increase in renewables-based generation from wind and solar as well as gas-based generation capacity by 2030 and beyond, with no further new nuclear capacity being procured. Implementing the IRP update (2018) could bring South Africa close to meeting the upper range of its 2030 Nationally Determined Contribution (NDC) target. The implementation of the IRP (2018) would constitute significant progress in the transformation of the South African energy sector. To be in line with the Paris Agreement goals for mitigation, South Africa would still need to adopt more ambitious actions by 2050, such as expanding renewable energy capacity beyond 2030, fully phasing out coal by mid-century, and substantially limiting unabated natural gas use.

Eskom currently has a net output of 47 201 MWp, and it produces 85% of South Africa's electricity, which is equivalent to 40% of Africa's electricity. Renewable energy contributes to 5% of South Africa's electricity. This is mainly due to the targets set in the IRP (2010-2030) which aimed to change the electricity landscape from high coal (91.7%) to medium coal (48%) using electricity produced by the Independent Power Producers (IPP), with the utility company, Eskom, as the single buyer of the electricity.

The Renewable Energy Independent Power Producers (REIPPP) programme procured over 6.3 GW by 2017 and of this, 3.8 GW was already feeding into the grid. A further 2.4 GW was procured in 2018, which included twenty-seven (27) projects signed by the minister. The REIPPP attracted $14.4 billion investment by December 2017. The concept is based on the public-private partnership model to increase new generation

capacity. It also encourages industrialisation as it requires that at least 40% of the technologies involved should have local content. This results in job creation for the local communities, where manufacturing takes place.

4.1 LOCAL & DISTRICT LEVEL

The proposed Haga Haga WEF access road upgrades, as supplementary infrastructure to the approved Haga Haga WEF, aim to promote local economic growth and development through the creation of direct and indirect employment opportunities.

4.1.1 Amathole District Integrated Development Plan (IDP), 2020-2021

The proposed Haga Haga WEF access road upgrades is in line with the Amathole District IDP as it will contribute to the creation of employment opportunities, which is a key issue as per the Amathole District IDP:

> *"In 2018, there were a total number of 81 600 people unemployed in Amatole, which is an increase of 27 400 from 54 200 in 2008. The total number of unemployed people within Amatole constitutes 10.38% of the total number of unemployed people in Eastern Cape Province. The Amatole District Municipality experienced an average annual increase of 4.17% in the number of unemployed people, which is better than that of the Eastern Cape Province which had an average annual increase in unemployment of 4.66%."*

While the Haga Haga WEF access road upgrades contribute to national energy supply by assisting in easy access to the wind facility. It is important to note that there is a deficit in electricity service delivery on a local scale, which will need to be rectified, as per the Amathole District IDP:

> *"Amatole District Municipality had a total number of 16 400 (6.69%) households with electricity for lighting only, a total of 191 000 (77.95%) households had electricity for lighting and other purposes and a total number of 37 700 (15.37%) households did not use electricity. The Region with the lowest number of households with electricity for lighting and other purposes is Great Kei Local Municipality with a total of 7 170 or a share of 3.75% of the total households with electricity for lighting and other purposes within Amatole District Municipality."*

4.1.2 Great Kei Municipality Integrated Development Plan (IDP), 2020 - 2021

The Great Kei Municipality IDP recognises the existing and planned WEFs in the area, including the proposed Haga Haga WEF, as important for meeting the local electricity supply requirements:

> *The municipality is also directly benefiting from wind farms in the area (both existing and planned) that have been/will be constructed to increase power. The Haga Haga Wind Farms (Pty) LTD which covers 9100 hectares will produce about 150 megawatts of power, forms part of the network strengthening initiative needed in order to meet Eskom's anticipated growth in electricity demand in the area.*

4.1.3 PROVINCIAL LEVEL

4.1.4 Eastern Cape Vision 2030 Provincial Development Plan, 2014

The proposed upgrading of the Haga Haga WEF access roads is in line with the Eastern Cape Vision 2030 Provincial Development Plan as it provides supporting infrastructure to the WEF itself which contributes to the development of the energy sector in the region.

The Eastern Cape Vision 2030 Provincial Development Plan states the following as a development focal point of Goal 1:

> *"positioning the Eastern Cape as a key investment hub in the energy sector and ensuring reliable energy supplies to high potential sectors"*

4.2 NATIONAL LEVEL

4.2.1 National Development Plan (NDP): Vision 2030, 2012

The National Development Plan (NDP) aims to promote sustainable and inclusive development in South Africa to reduce and ultimately eliminate poverty. Of the twelve (12) key focus areas of the NDP, the proposed Haga Haga WEF (and by association, the access road upgrades) will contribute to (1) an economy which will create more jobs, (2) improving infrastructure, and (3) transition to a low carbon economy.

The NDP prioritises the following infrastructure investments:

> *"Procuring at least 20 000MW of renewable electricity by 2030, importing electricity from the region, decommissioning 11 000MW of ageing coal-fired power stations and stepping up investments in energy-efficiency."*

4.2.2 National Climate Change Response White Paper, 2012

Climate change has been identified as one (1) of the greatest threats to sustainable development in South Africa. The National Climate Change Response White Paper obligates the country to make a fair contribution to the global effort to achieve the stabilisation of GHG concentrations in the atmosphere. The proposed Haga Haga WEF access road upgrades, required for the Haga Haga WEF, is in accordance with the National Climate Change Response White Paper as it will provide an alternative source of electricity, to fossil fuel-derived electricity, which will contribute to climate change mitigation.

4.3 INTERNATIONAL LEVEL

4.3.1 United Nations Framework Convention on Climate Change (UNFCCC), 1994

The UNFCCC is a framework convention which was adopted at the 1992 Rio Earth Summit. South Africa signed the UNFCCC in 1993 and ratified it in August 1997. The stated purpose of the UNFCCC is to:

> *"…achieve… stabilisation of greenhouse gas concentrations in the atmosphere at concentrations at a level that would prevent dangerous anthropogenic interference with the climate system", and to thereby prevent human-induced climate change by reducing the production of greenhouse gases defined as, "those gaseous constituents of the atmosphere both natural and anthropogenic, that absorb and re-emit infrared radiation."*

The proposed access road upgrades, required for the Haga Haga WEF, is in line with the UNFCCC as they will contribute to the reduction in the production of GHG by providing an alternative energy source to fossil fuel-derived electricity in South Africa.

4.3.2 The Kyoto Protocol, 2002

The Kyoto Protocol, which was adopted in Kyoto (Japan) in 1997 and enforced in 2005, is an international agreement which is linked to the UNFCCC. The Protocol contains internationally binding emission reduction targets, as an instrument to reduce climate change. *"Under the Protocol, countries' actual emissions have to be monitored and precise records have to be kept of the trades carried out."* The proposed access road upgrades, required for the Haga Haga WEF, is in line with the UNFCCC as they will contribute to the reduction in the production of GHG by providing an alternative energy source to fossil fuels.

4.3.3 IFC Performance Standards

The International Finance Corporation (IFC) Performance Standards are an international benchmark for identifying and managing environmental and social risk and has been adopted by Haga Haga Wind Farm RF (Pty) Ltd. as a key component of their environmental and social risk management. The IFC's Environmental, Health, and Safety (EHS) Guidelines provide technical guidelines with general and industry-specific examples of good international industry practice to meet IFC's Performance Standards.

5 PUBLIC PARTICIPATION PROCESS

5.1 ACTIVITY ON LAND OWNED BY PERSON OTHER THAN THE APPLICANT

In accordance with Section 39 (1), stipulated in Chapter 6 of the NEMA EIA Regulations (2014 and subsequent 2017 amendments), which states that *"If the proponent [Applicant] is not the owner or person in control of the land on which the activity is to be undertaken, the proponent must, before applying for an environmental authorisation in respect of such activity, obtain the written consent of the landowner or person in control of the land to undertake such activity on that land."*

The proposed access road upgrades are a linear development and therefore do not require landowner consent. Landowners have been notified of the application as part of the Basic Assessment Process.

5.2 OBJECTIVES OF THE PUBLIC PARTICIPATION PROCESS

In accordance with Section 40 (1), stipulated in Chapter 6 of the NEMA EIA Regulations (2014 and subsequent 2017 amendments), the purpose of public participation is to provide all potential or registered Interested and/or Affected Parties (I&APs), including the Competent Authority, with the opportunity to access the relevant documents and information which could reasonably or potentially influence any decision with regards to the proposed Haga Haga WEF access road upgrades Application for EA. The process aims to –

- Disclose activities planned by the Applicant and steps in the BA process by the environmental team;
- Identify concerns and grievances raised by the I&APs;
- Respond to all the I&APs grievances and enquiries;
- Identify local expertise, needs and knowledge from the I&APs;
- Identify additional or new stakeholders and people affected by, or interested in, the proposed project;
- Gather perceptions and comments on the specialist studies;
- Ensure that all issues raised by I&APs have been adequately addressed and/or assessed; and
- Share the findings of the Basic Assessment Process, such as significant impacts, mitigation measures, management actions, and monitoring programmes.

The PPP must include consultation with the following key members –

- The Competent Authority: National DFFE;
- All state departments which have laws relating to the proposed activity or the proposed location of the activity;
- All organs of the state which have jurisdiction relating to the proposed activity or the proposed location of the activity; and
- The registered and potential I&APs.

5.3 LEGISLATIVE REQUIREMENTS

In accordance with Section 41 (2) of Chapter 6, the person conducting the PPP must provide notice using the following methods –

a) Placing notice boards at visible locations, which are accessible to the public, on the boundary of the affected property and within proximity to the affected property must [please see Section 5.5.4 for photographs on the onsite signage]. The notice board(s) must –
   - Be at least 60 cm x 42 cm in size;

- Specify whether a Basic Assessment Process or Scoping and EIA Process is triggered by the proposed activity;
- Indicate the nature and location of the activity to which the application relates;
- Explain where further information can be obtained; and
- Stipulate the manner in which and the person to whom correspondence relating to the application or proposed application may be made.

b) Providing written notice to [please see proof included as Appendix F] –

- The owner and/or occupiers of the proposed site as well as the owner(s) and/or occupiers of the alternative sites;
- The owners and/or occupiers of the land adjacent to the site as well as the owners and/or occupiers of the land adjacent to the alternative sites;
- The municipal ward councillor of the affected property and the alternative sites (if different to the preferred alternative) as well as any organisation of ratepayers that represent the community in the affected area;
- The municipality which has jurisdiction in the area;
- All organs of the state which have jurisdiction relating to the proposed activity or the proposed location of the activity; and
- Any other parties as required by the Competent Authority.

c) Placing an advertisement in one (1) local newspaper and/or any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations [please see Section 5.5.9 or proof of advertisements];

d) If necessary, placing an advertisement in one (1) provincial newspaper or national newspaper if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken [please see Section 5.5.9 for proof of advertisements]; and

e) Using reasonable alternative methods, as agreed to by the Competent Authority, in those instances where a person is interested but not able to participate in the process due to illiteracy, disability or any other disadvantage.

5.4 INTERESTED AND/OR AFFECTED PARTIES

According to Sections 42 to 44 of Chapter 6, the Applicant (or the EAP on behalf of the Applicant) must ensure the opening and maintenance of a register of I&APs and submit such register to the Competent Authority, which register must contain the names, contact details and address of (a) all persons who have submitted comments during the PPP on the proposed Haga Haga WEF access road upgrades , (2) all individuals who have requested to register/registered on the project I&AP Database, and (3) all organs of state which have jurisdiction in respect of the activity to which the application relates. * Please see sections 5.5.1 (Stakeholder Database), 5.5.2 (I&AP Database) and 5.5.3 (Landowners and Surrounding Landowners Database of this report, which contain the databases for the Haga Haga WEF access road upgrades BA Process. Please note that individuals who were on the register for the original Haga Haga WEF EIA and subsequent EA Amendment application (DFFE Reference Numbers: 14/12/16/3/3/2/1087 and 14/12/16/3/3/2/1087/AM1) I&AP Databases have been automatically registered on the Haga Haga WEF access road upgrades I&AP Database due to the proximity of the developments to each other and linkages between the developments.

The Draft BAR has been made available for Public Review for a minimum period of thirty (30) days. The Draft BAR and associated documents are available at http://www.cesnet.co.za/ and hard copies are available upon request. In addition, hard copies and/or soft copies have been sent directly to the following

stakeholders/authorities: (a) National DFFE, (b) DFFE: Biodiversity and Conservation, (c) Eastern Cape DEDEAT, (d) Eastern Cape DWS and (e) Eastern Cape Provincial Heritage Resources Authority (ECPHRA).

Please refer to **Appendix F** (Proof of PPP) and **Appendix G** (Issues & Response Trail) for proof of PPP and copies of all comments received to date – as well as the responses to these comments.

5.5 PROOF OF PUBLIC PARTICIPATION

5.5.1 Stakeholder Database

Table 5-1: Key Project Stakeholders (as part of the I&AP Database).

STAKEHOLDER	NAME	EMAIL
Department of Forestry and Fisheries and the Environment (DFFE)	Mr. Muhammad Essop	messop@environment.gov.za
	Lunga Dlova	LDlova@environment.gov.za
	Thulisile Nyalunga	TNyalunga@environment.gov.za
	Fiona Grimett	FGrimett@environment.gov.za
	Masina Litsoane	MLitsoane@environment.gov.za
Department of Forestry and Fisheries and the EnvironmenT: Biodiversity & Conservation	Mr Shonisani Munzhedzi	smunzhedzi@environment.gov.za
	Mr Simon Malete	smalete@environment.gov.za
Department of Economic Development, Environmental Affairs and Tourism (Eastern Cape)	Mr Gerry Pienaar	Gerry.Pienaar@dedea.gov.za
	Mr Alistair McMaster	alistair.mcmaster@dedea.gov.za
	Mr Albert Mfenyana	albert.mfenyana@dedea.gov.za
	Mr Siyabonga Gqalangile	Siyabonga.gqalangile@dedea.gov.za
	Mr Briant Noncembu	Briant.noncembu@dedea.gov.za
	Ms Hlomela Hanise	Hlomela.hanise@dedea.gov.za
	Mr Div DeVilliers	Div.DeVilliers@dedea.gov.za
	Mr Ricky Hannan	ricky.hannan@dedea.gov.za
Department of Water & Sanitation (DWS) (Eastern Cape)	Ms Marisa Bloem	BloemM@dws.gov.za
	Mr Thabo Nokoyo	NokoyoT@dws.gov.za
	Ms Lizna Fourie	fouriel4@dws.gov.za
	Mr Sonke Ngxeba	Ngxebas@dws.gov.za
Department of Mineral Resources (DMR) (Eastern Cape)	Ms Brenda Ngebulana	Brenda.Ngebulana@dmr.gov.za
	Ms Zimkita Tyala	Zimkita.Tyala@dmr.gov.za
Department of Forestry and Fisheries and the Environment (DFFE): Forestry	Ms Thoko Buthelezi	thokob@environment.gov.za
	Ms Mashudu Marubini	MashuduMa@environment.gov.za
	Mr Thobani Vetsheza	ThobaniV@environment.gov.za
	Ms Dorothy Jagers	DorothyJ@environment.gov.za
Department of Agriculture Rural Development and Land Reform	Mr Patrick Maqabangqa	Patrick.Maqabangqa@dardlr.gov.za
Department of Energy	Ms Mokgadi Mathekgana	mokgadi.mathekgana@energy.gov.za
Eskom	Mr Eddie Leach	eddie.leach@eskom.co.za
Eskom: Renewable Energy	Mr John Geeringh	GeerinJH@eskom.co.za
Eastern Cape Parks and Tourism Agency (ECPTA)	Mr Dean Peinke	Dean.peinke@ecpta.co.za
	Eleanor Van Den Berg-McGregor	Eleanor.VanDenBerg-McGregor@ecpta.co.za
	Ms Shanè Gertze	Shane.Gertze@ecpta.co.za
	Mr Kagiso Mgwale	Kagiso.Mgwale@ecpta.co.za
Eastern Cape Development Corporation (ECDC)	Mr Rory Haschick	rory@ecdc.co.za
SALGA Eastern Cape	Ms Aseza Dlanjwa	adlanjwa@salga.org.za
	Mr Zamikhaya Mpulampula	zmpulampula@salga.org.za
	Ms Zona Cokie	zcokie@salga.org.za
	Mr Lennox Zote	info@ecphra.org.za

STAKEHOLDER	NAME	EMAIL
Eastern Cape Provincial Heritage Resources Authority (ECPHRA)	Mr Sello Mokhanya	smokhanya@ecphra.org.za
South African Heritage Resources Agency (SAHRA)	Admin	info@sahra.org.za
Roads (SANRAL/Public Works)	Ms Nanna Gouws	GouwsJ@nra.co.za
	Nenekazi Songxaba	SongxabaN@nra.co.za
Eastern Cape Roads	General	Customercare@dot.gov.za
	Mr Sashin Nair	sashin.nair@dot.gov.za
	Randall Moore	randall.moore@dot.gov.za
BirdLife South Africa	Mr Daniel Marnewick	daniel.marnewick@birdlife.org.za
	Dr Hanneline Smit-Robinson	hanneline.smit-robinson@birdlife.org.za
BirdLife South Africa: Birds and Renewable Energy Manager	Ms Samantha Ralson	energy@birdlife.org.za
BirdLife South Africa: Policy & Advocacy Manager	Mr Simon Gear	advocacy@birdlife.org.za
Endangered Wildlife Trust: CEO	Ms Yolan Friedman	yolanf@ewt.co.za
Endangered Wildlife Trust: Head of Conservation Science	Dr Harriet Davies-Mostert	harrietd@ewt.org.za
Endangered Wildlife Trust: African Crane Conservation Programme Manager	Ms Kerryn Morrison	kerryn@ewt.org.za
Endangered Wildlife Trust: African Crane Conservation Programme Field Officer	Ms Glenn Ramke	glennr@ewt.org.za
Endangered Wildlife Trust: Wildlife & Energy Programme	Mr Lourens Leeuwner	lourensl@ewt.org.za
VULPRO	Mrs Kate Webster	kate@lcom.co.za
ADM: Municipal Manager	Mr Chris Magwangqana	chrism@amathole.gov.za
ADM: Environmental Manager	Mr Luyanda Mafumbu	mafumbul@amathole.gov.za
Great Kei LM manager	MR Chris Mbekela	manager@greatkeilm.gov.za
Great Kei Strategic Manager	Mr D Mbizeni	nmbokoma@greatkeilm.gov.za
Ward councillor 5	Cllr Mgema	nkantshashe@greatkeilm.gov.za
		nkantshashe@yahoo.com
Ward councillor 3	Cllr Ndileka Kansthashe	nkantshashe@yahoo.com
Chairman of Komga Farmers Association	Mr Norton Thompson	
SANParks		petern@sanparks.org / addoenquiries@sanparks.org / reservations@sanparks.org
Department of Rural Development and Agrarian Reform	Nomfundo Mxenge	Nomfundo.Mxenge@drdar.gov.za
Eastern Cape Department of Public Works	Susanth Nair	Susanth.Nair@dot.gov.za
Eskom Holdings SOC (Pty) Ltd	Mr Are van Zyl	vzylaw@eskom.co.za
	Kiran Ranchhod	kiran.ranchhod@eskom.co.za
	John Geering	GeerinJH@eskom.co.za
	Justine Wyngaardt	WyngaaJO@eskom.co.za
	Mr John Geeringh	John.Geeringh@eskom.co.za
Eastern Cape Department of Agriculture and Land Affairs	Mr Lumkile Ngada	akile@yebo.co.za
National Department of Agriculture, Forestry and Fisheries (DAFF)	Annette Stoltz	AnnetteS@daff.gov.za

STAKEHOLDER	NAME	EMAIL
National Department of Agriculture, Forestry and Fisheries (DAFF)	Ms. Thoko Buthelezi	ThokoB@daff.gov.za
National Department of Energy	Ms Nomawethu Qase & Ms Babalwa Mpopo	noma.qase@energy.gov.za
		babalwa.mbobo@energy.gov.za
National Department of Water Affairs (Eastern Cape)	Ms P. Makhanya	MakhanyaP@dws.gov.za
Eastern Cape Department of Economic Development, Environmental Affairs and Tourism	Mr Leon Els	leon.els@dedea.gov.za
Department of Water and Sanitation (DWS)	Mr Colin Pitso	pitsoc@dwa.gov.za
South African National Roads Agency (SANRAL)	Rene de Kock	dekockr@nra.co.za
South African Civil Aviation Authority (SACAA)	Harry Roberts	Robertsh@caa.co.za
South African Air Force (SAAF)	Col. N.D. Khumalo	nananomie@gmail.com
Sentech Ltd	Johan Koegelenberg	koegelenbergj@sentech.co.za
	Alishea Pretorius	PretoriusA@sentech.co.za
Sentech Ltd	Zane Mannel	mannellz@sentech.co.za
Department of Forestry, Fisheries and the Environment (DFFE): Forestry	Mashudu Marubini	mashuduma@environment.gov.za
Eastern Cape Department of Rural Development & Agrarian Reform	Glen Thomas	glen.thomas@drdar.gov.za; Lumkile.Ngada@drdar.gov.za ; nosiphiwo.mlamla@drdar.gov.za
Eastern Cape Department of Rural Development & Agrarian Reform	Thembani Nyokana	thembani.nyokana@drdar.gov.za
Eastern Cape Provincial Heritage Resources Authority	Mr. Sello Mokhanya	smokhanya@ecphra.org.za
National Energy Regulator of South Africa (NERSA)	Andile Gxasheka	info@nersa.org.za
South African Heritage Resources Agency (SAHRA)	Mariagrazia Galimberti	mgalimberti@sahra.org.za
South African National Parks (SANParks)	Peter Novellie	petern@sanparks.org / addoenquiries@sanparks.org / reservations@sanparks.org
South African National Roads Agency (SANRAL)	Nanna Gouws	gouwsj@nra.co.za
	Fanie van Aardt	aardts@nra.co.za
	Izak Botha	bothai@nra.co.za
Telkom	Portia M	PortiaM@openserve.co.za
Amathole District Municipality (Head Office)	Chris Magwangqana	info@amathole.gov.za
Amathole District Municipality (Head Office)	Busi Kweba	busiswam@amathole.gov.za
Amathole District Municipality (Great Kei Office)		info@amathole.gov.za
Great Kei Local Municipality	Isikhulu Nqwena	isikhulu@greatkeilm.gov.za
	Loyiso Tshetshe	isikhulu@greatkeilm.gov.za
	Thozama Nelani	tnelani@greatkei.gov.za
	Sinesittho Sicwevu	ssicwebu@greatkeilm.gov.za
Morgans Bay RPA	Ray Brown	raybrown052@gmail.com / ankervas@keimouth.co.za
	Yohane Breetzeke	

STAKEHOLDER	NAME	EMAIL
Kei Mouth RPA	Johan Deetlef	ianscott1948@gmail.com
	Ian Scott	
Haga Haga Ratepayers Association	Dianne Williams	marshstrand@isat.co.za
Ward 3 Councillor (Haga Haga)	Lwandisa Mhontlo / Florence	lmhlontlo722@gmail.com
Haga-Haga Library	Gill Rensburg	gillrensburg@alantic.net
Department of Environmental Affairs	Sabelo Malaza	pdunywa@environment.gov.za
Go! And Express - Time Media Group	Terry Zitzke	zitzket@tisoblackstar.co.za
The Daily Dispatch	Sindi Mbambo	sindim@dispatch.co.za

5.5.2 I&AP Database

Table 5-2: Registered I&APs (as part of the I&AP Database).

NAME	ORGANISATION/RESPONSIBILITY	EMAIL
Brendon Steytler	Spokesperson for Finn Weakley	brendon@indwecon.co.za
Marguerite Goedvolk	Property Consultant & General Agent	estateskm@keimouth.co.za
Monique Weschta	General Manager	info@mitfordhotel.co.za
Mr. Rory Haschick	Sector Specialist: Aquaculture & Tourism	rdhaschic@ecdc.co.za
Mr. Warren Randall		warren.randall@gmail.com
Sheila Riekert		sheila@professionalconnection.co.za; riekert@absamail.co.za
Tamzyn Zweig		info@endalweni.co.za
Darryl Deetlefs		deetlefsdarryl@gmail.com
		bosbokstrand@gmail.com
Bill Moir		bmoir2@gmail.com
Howard Champ		bowdansa@gmail.com
Philip Whittington	Ornithologist	philw@elmuseum.za.org
Algy Kietzmann		algy.kietzmann@gmail.com
Adrian Fouche		Adrian.Fouche@mtn.com
Frank Krull	THE EV KRULL Trust	frank@krullgroup.co.za
Peter Meyer/ Sheryle Meyer		ps@webafrica.org.za
Mark Purves		mark.purves@liblink.co.za
Ian Scott		ianscott1948@gmail.com
Carl Wakeham	Member	carlnw@mweb.co.za
Grant Bresler		Grant.Bresler@vodacom.co.za>;
Peter Stockwell		Peter.Stockwell@vodacom.co.za>
Stuart Smith		stuart@rvsmith.co.za
Amande Bester		BesteAD1@telkom.co.za>;
Chumisa Njingana		njinganac@nra.co.za
Wilma Lutsch		wlutsch@environment.gov.za
Anne Gillham		annegillham@gmail.com
Derrick Standing	Roads Planning	derrick@bmkgroup.co.za
John Davies		John.Davies@dpw.ecape.gov.za
Mr AZ Soko		Al.Soko@dot.ecprov.gov.za
Thosaphon Srichinda		lamovax@yahoo.co.za
Lucy Kemp	Project Manager	project@ground-hornbill.org.za
Kate Webster		kate@lcom.co.za
Kerri Wolter		kerri.wolter@gmail.com
Andre van der Spuy		avdspuy@iafrica.com
Sharief Harris		s.harris@buildingenergy.it

NAME	ORGANISATION/RESPONSIBILITY	EMAIL
Magdalena Michalowska	Environmental, Legal Compliance Manager Africa & Middle East	m.michaloska@buildingenergy.it
Jarl Heurlin		jarlheurlin@norland.co.za
Rob Williamson	Chair	rwhw@iafrica.com
Dave Hart	Chairman	admin@borderaviation.co.za
Aly Verbaan	Journalist	alyverbaan@icloud.com
Andre Farr		andref@telkomsa.net
Connie Ooshthuizen		
Kevin Cole	Principal Natural Scientist	kcole@elmuseum.za.org
Graham Murray	Estate Manager	wildlife@miarestate.co.za
Althea de Coning		dave@agfin.co.za
Pieter Haak	Resident Morgans Bay	Pieter@haak.co.za/ phaakza@gmail.com
Reid Wardle		reid@thomasriver.com
Sally Haak	Resident Morgans Bay	sally.haak@gmail.com
Terrence Gilham	Landowner	brillo.gillham1@gmail.com
Julie-Anne		wildcoasthorsetrails2@gmail.com
Yvonne		yvonneksu@gmail.com
Mr Roy Hagemann		admin@amarokquaries.co.za
Mr Tim Kinnell		tim.kinnell@comply360.co.za
John-Marc Russell	Farm Manager	kembalihaga@gmail.com
William Cawthorn	Farm Manager	kembalihaga@gmail.com
Putumile Mali	Farm Manager	kembalihaga@gmail.com
Johan De Klerk	Farm Manager	kembalihaga@gmail.com
J Du Bryn	Farm Manager	
Mandange Tyali	Farm Manager	man.tyali@gmail.com
Jenny Jeffries	Resident	Jenmg2402@gmail.com
Ingrid Preston		ingrid@pullensbay.co.za
Fabio Venturi		fabio@terramanzi.co.za
Veronique Fyfe		veronique@g7energies.com
Richard R. Reynolds		richr.reynolds@gmail.com
Richard Montjoie		rmontjoie@umbono.co.za
Wayne Kretzmann		umfuyo.sales@gmail.com
Bill Moir		wmoir2@gmail.com
Eivind Bergkaasa		eivind.bergkaasa@gmail.com

5.5.3 Landowners & Surrounding Landowners Database

Table 5-3: Landowners and Surrounding Landowners (as part of the I&AP Database).

FARMS	NAME	EMAIL
Access Road Landowner	Aubrey Zolani Tyali	man.tyali@gmail.com
Access Road Landowner	Revel Saint	revell@kembali.co.za
Access Road Landowner	Augustine Matolengwe	monaugusterfarming@gmail.com
Access Road Landowner	Joe Hobson Family Trust	hobbers@mweb.co.za
Access Road Landowner	Donovan Gerald Deutschmann	donovand@nedbank.co.za
Access Road Landowner	John Winston Jefferies	jenmg2402@gmail.com
WEF Landowner	KEMBALI FARMS CC	revell@kembali.co.za
WEF Landowner	SAINT FAMILY TRUST	revell@kembali.co.za
WEF Landowner	IZOTSHA PROP HOLDINGS CC	revell@kembali.co.za
WEF Landowner	THEO DICKE TRUST	mwdicke@mweb.co.za
WEF Landowner	THEO DICKE PTY LTD	mwdicke@mweb.co.za
WEF Landowner	RALTON JOHN FREITAG	freitags@vodamail.co.za
WEF Landowner	HECTOR ALLISON FREITAG	freitags@vodamail.co.za
WEF Landowner	JOHN WINSTON JEFFERIES	jenmg2402@gmail.com

FARMS	NAME	EMAIL
WEF Landowner	P OSTERLOH PROP TRUST	kraemerdorothy@gmail.com
WEF Landowner	MKULU KEI NATURE RESERVE PTY LTD	buildit_hiberdene@telkomsa.net
WEF Landowner	MBAMBANI FAMILY TRUST	mbambaniml@telkomsa.net
WEF Landowner	SANDRA CAROL VAN DER TOORN	charlesknox630@gmail.com
WEF Landowner	Khula Dhamma CC	damiendewet@gmail.com
Landowner Adjacent to WEF	IZOTSHA PROP HOLDINGS CC	revell@kembali.co.za
Landowner Adjacent to WEF	Quick Traders 1040 CC Sheila Riekert	sheila@professionalconnection.co.za; riekert@absamail.co.za
Landowner Adjacent to WEF	DEUTSCHMANN DONOVAN GERALD	donovand@nedbank.co.za
Landowner Adjacent to WEF	NATIONAL GOVERMENT OF THE REPUBLIC (Dept of Rural Dev)	mojalefa.seetse@drdlr.gov.za
Landowner Adjacent to WEF	MPAMBANI SINTU ARTHUR	smpambani@eskom.co.za
Landowner Adjacent to WEF	GAMING FOOTPRINTS INV HOLDINGS	ludwe.gantsho@gmail.com
Landowner Adjacent to WEF	BARICHIEVY JOANNA MARY	
Landowner Adjacent to WEF	OSTERLOH TRUST	kraemerdorothy@gmail.com
Landowner Adjacent to WEF	TYALI FARMING CC	deslorgratz@absamail.co.za
Landowner Adjacent to WEF	GOVERNMENT REPUBLICOF SOUTH AFRICA (Dept of Rural Dev)	mojalefa.seetse@drdlr.gov.za
Landowner Adjacent to WEF	KRULL ELVIN VICTOR	karlkrul@iafrica.com
Landowner Adjacent to WEF	JEFFERIES JOHN WINSTON	jenmg2402@gmail.com
Landowner Adjacent to WEF	PARK ROAD INV 4 PTY LTD	*
Landowner Adjacent to WEF	SAINT FAMILY TRUST	revell@kembali.co.za
Landowner Adjacent to WEF	DOUBLE MOUTH DEVELOPMENTS PTY	*
Landowner Adjacent to WEF	CORPCLO 2417 CC	
Landowner Adjacent to WEF	TYALI AUBREY ZOLANI	man.tyali@gmail.com
Landowner Adjacent to WEF	COCKIN SHAUN RUSSELL	narimank@nda.agric.za
Landowner Adjacent to WEF	SAINT FAMILY TRUST	revell@kembali.co.za
Landowner Adjacent to WEF	WILLEM FOURIE DOROTHEA	springcotoms@telkomsa.net
Landowner Adjacent to WEF	SAINT FAMILY TRUST	revell@kembali.co.za
Landowner Adjacent to WEF	M MBABALA TRUST	
Landowner Adjacent to WEF	SAINT FAMILY TRUST	revell@kembali.co.za
Landowner Adjacent to WEF	MEYER PETER ANDREW	
Landowner Adjacent to WEF	VESTRIX FOURTEEN	accounts@adek.co.za
Landowner Adjacent to WEF	HILLANDALE TRUST	english@telkomsa.co.za
Landowner Adjacent to WEF	IZOTSHA PROP HOLDINGS CC	revell@kembali.co.za
Landowner Adjacent to WEF	MOLDENHAUER IVAN RAY ROWAN	
Landowner Adjacent to WEF	S SIFO RAYMOND MTUTUZELI (52072759270	
Landowner Adjacent to WEF	MOLDENHAUER IVAN RAY ROWAN	
Landowner Adjacent to WEF	TALJAARD PROP TRUST	
Landowner Adjacent to WEF	MIYA MAZWAI FAMILY TRUST	
Landowner Adjacent to WEF	HONEY COASTLINE INV 102 CC	
Landowner Adjacent to WEF	ARENA BOSHOFF DARYLL DIETLEFF	bosbokstrand@gmail.com deetlefsdarryl@gmail.com
Landowner Adjacent to WEF	Mhleli Fadana	fadana.pilisa@gmail.com
Landowner Adjacent to WEF	Joe Hobson	hobbers@mweb.co.za

5.5.4 Proof of Signage

Plate 5-1: Proof of signage located at Section 1 & 2 32°38'30"S, 28°11'44"E.

Plate 5-2: Proof of signage located at the Haga Haga turnoff (St Anthony's) 32°42'48"S, 28°07'42"E.

5.5.5 Proof of Initial Notification

Please see Appendix F.

5.5.6 Copy of Comments Received

Please see Appendix F.

5.5.7 Issues & Response Trail (IRT)

Please see Appendix G

5.5.8 Copy of Initial BID

BASIC ASSESSMENT PROCESS: PROPOSED HAGA HAGA WEF ACCESS ROAD UPGRADES, GREAT KEI LOCAL MUNICIPALITY, EASTERN CAPE PROVINCE

BACKGROUND INFORMATION DOCUMENT (BID) & INVITATION TO COMMENT

AIM OF THIS DOCUMENT

The purpose of this document is to ensure that **people who are interested in** or **affected by the proposed project** are **provided with information about the proposal, the process being followed** and **provided with an opportunity to be involved** in the Basic Assessment (BA) process for proposed Haga Haga Wind Energy Facility (WEF) Access Road upgrades in the Great Kei Local Municipality, Eastern Cape Province.

Registering as an **Interested and/or Affected Party** (I&AP) allows individuals or groups the opportunity to **contribute ideas, issues, and concerns relating to the project**. I&APs also have an opportunity to **review all of the reports and submit their comments** on those reports. All of the comments that are received will be included in the reports that are submitted to the Competent Authority (CA).

THE PROPONENT

Haga Haga Wind Farm (RF) (Pty) Ltd., a subsidiary of WKN Windcurrent SA (Pty) Ltd. proposes to upgrade the roads (outside of the approved WEF area), that are required in order to provide access to the Haga Haga WEF (approved) in the Great Kei Local Municipality, in the Eastern Cape. Listed activities applicable under the 2014 EIA regulations (as amended) to the Haga Haga WEF access roads will be applied for. WKN Windcurrent SA (Pty) Ltd have appointed Coastal and Environmental Services (t/a CES) as the project Environmental Assessment Practitioners (EAP).

LOCATION

The proposed Haga Haga Wind Energy Facility Access Roads are located within the Great Kei Local Municipality, within the Amathole District Municipality, Eastern Cape Province.

The table below lists the properties affected by the proposed development:

Map REF	Farm number	Upgrade Description
1	RE of Farm 94	Widening of existing intersection
	Portion 2 of Farm 94	Existing road needs to be widened and realigned slightly
2	RE of Farm 111 and Portion 1 of Farm 111	Existing road needs to be widened and realigned slightly
3	Portion 2 of Farm 69	Existing intersection to be widened
4	RE of Farm 225	Existing road needs to be widened and realigned
5		Existing intersection to be widened
6	RE Farm 222 and RE Farm 288	Road widening and/or vegetation trimming and possible clearance

PROJECT DESCRIPTION

The Haga Haga WEF was authorised on 5/07/2019 (DFFE Reference number: 14/12/16/3/3/2/1087) and the EA received an amendment on 03/06/2021 (DFFE Reference: 14/12/16/3/3/2/1087/AM1). The original EIA included a 42-turbine layout and associated internal road network, the amendment reduced the number of turbines to 36 and the internal road network was changed to match. The internal road layout will be built as per layout submitted during the amendment, within allowable micro siting limits.

However, several of the site access points will require upgrades on farm portions which were not included in the previous applications. The Applicant, is therefore proposing to upgrade the existing roads leading to the access points, which will link up with the approved WEF internal road layout, to allow for access to the site in order for the turbine infrastructure, including but not limited to the blades and tower components, to be transported to the site on large

trucks. Due to the length of the blades (up to 100m), the trucks require a minimum road width of 8m with the width increasing at the turning arcs to up to 110m in diameter (55m wide intersection radius) to allow for safe passage. The upgrades are described in the table above and shown in the attached locality Map.

Refer to the Figure 1: Locality Map

THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

CES was established in 1990 as a specialist environmental consulting company and has considerable experience in terrestrial, marine and freshwater ecology, the Social Impact Assessment (SIA) process, State of Environment Reporting (SOER), Integrated Waste Management Plans (IWMP), Environmental Management Programme (EMPr), Spatial Development Frameworks (SDF), public participation, as well as the management and co-ordination of all aspects of the Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) processes. EOH CES has been active in all of the above fields, and in so doing have made a positive contribution towards environmental management and sustainable development in the Eastern Cape, South Africa and many other African countries. We believe that a balance between development and environmental protection can be achieved by skilful, considerate and careful planning.

THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

According to the EIA regulations (2014, as amended) promulgated under the National Environmental Management Act (NEMA) (Act No.107 of 1998; NEMA) the potential impacts on the environment will have to be assessed in terms of the listed activities. The proposed road upgrades trigger listed activities (Table 1 below) in terms of the NEMA EIA Regulations (2014, as amended) as per Listing Notices 1, 2, and 3, and as such require a **Basic Assessment** process to be undertaken in accordance with Regulation 6 of the EIA Regulations (2014, as amended). The competent authority for this application will be the national Department of Forestry, Fisheries and the Environment (DFFE).

Table 1: The potential triggered listed activities in terms of the NEMA EIA regulations (2014, as amended).

Activity No(s):	Listing Notice 1 of the EIA Regulations, 2014 as amended	Description
12	The development of— **(i) infrastructure or structures with a physical footprint of 100 square metres or more;** where such development occurs— **(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; —**	The proposed roads cross watercourses in several places. The combined physical footprint at the various water course crossings exceeds 100 square metres.
19	**The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;**	The proposed roads cross watercourses in several places. Therefore, the widening and realignment of the roads will likely require the movement of more than 10 cubic metres of material within a watercourse.
56	**The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre**	The proposed intersection upgrades will require the road to be widened by more than 6 m at these points.
Activity No(s):	**Listing Notice 3 of the EIA Regulations, 2014 as amended**	**Description**
4	**The development of a road wider than 4 metres with a reserve less than 13,5 metres.** **a. a. Eastern Cape** **b. Outside urban areas:** **(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;** **(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas;** .	The proposed roads fall within both CBA 1 and 2 as defined in the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2020), and are located within 5km of protected areas (the Amathole Marine Protected Area and East London Coast Nature Reserve).
12	**The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes**	The road widening and realignment will result in the loss of indigenous vegetation in excess of 300 square metres. The proposed roads fall within both CBA 1 and CBA 2 as defined in the Eastern

Activity No(s):	Listing Notice 1 of the EIA Regulations, 2014 as amended	Description
	undertaken in accordance with a maintenance management plan. **(a) Eastern Cape** **ii. Within critical biodiversity areas identified in bioregional plans;**	Cape Biodiversity Conservation Plan (ECBCP, 2020).
14	The development of— **ii. infrastructure or structures with a physical footprint of 10 square metres or more;** where such development occurs— **(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;** **a. Eastern Cape** **i. Outside urban areas:** **(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;** **(hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;**	The proposed roads cross watercourses in several places. The combined physical footprint at the various water course crossing exceeds 10 square metres. The proposed site falls within a CBA 2, Corridor 1 and 2, and is located within 5 km of protected areas (the Amathole Marine Protected Area and East London Coast Nature Reserve).
18	**The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.** **a. Eastern Cape** **i. Outside urban areas:** **(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;** **(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;**	The proposed roads will be wider than 4 m in certain areas. The proposed site falls within a CBA 2, Corridor 1 and 2 and is located within 5 km of protected areas (the Amathole Marine Protected Area and East London Coast Nature Reserve).

APPROACH TO THE EIA PROCESSES

The EIA process required for the Haga Haga WEF access roads is a **Basic Assessment (BA)** process. The illustration below indicates where we are currently in the BA process:

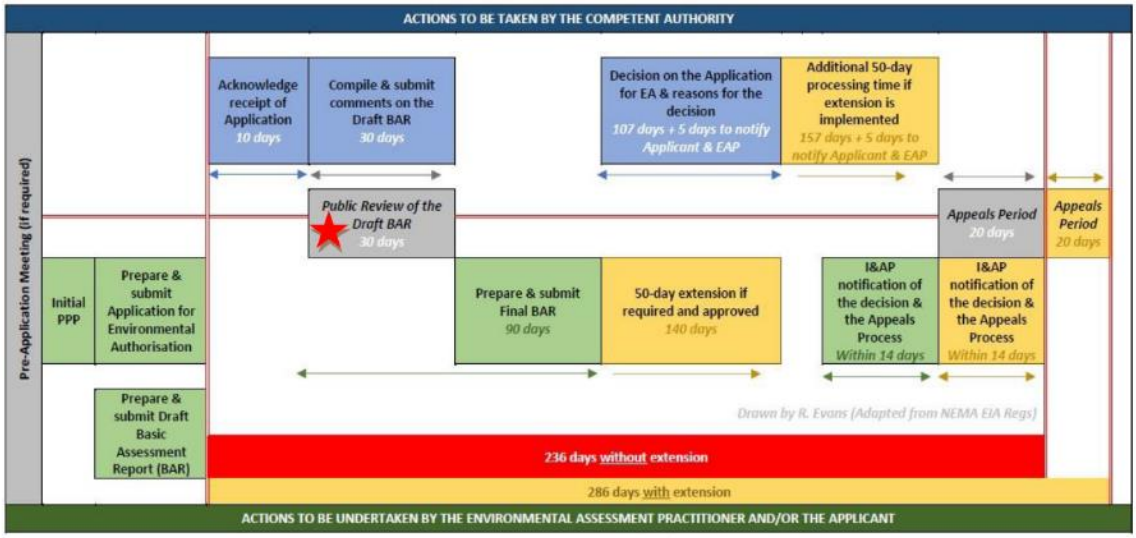


Figure 1. Basic Assessment (BA) process

POTENTIAL IMPACTS AND BENEFITS

CES will assess the impacts of the proposed activity on the environment. Impacts will be assessed for alternatives; including the preferred alternative and the "No-Go" alternative. Impacts will be assessed for the planning and design phase, construction phase, operational phase and decommissioning phase of the proposed development.

HOW CAN YOU BE INVOLVED?

A Public Participation Process (PPP) is being conducted as part of the BA process for the proposed Haga Haga WEF Access Road Upgrades project in the Great Kei Local Municipality. The aim of the PPP is to allow everyone who is interested in, or likely to be affected by the proposed development to provide input into the process.

The Public Participation Process includes:

- Advertisement in a local newspaper;
- On-site signage;
- Written notifications and circulation of the BID *(this document)* to all identified I&APs and stakeholders;
- 30-day review of the reports by all registered I&APs and stakeholders.

If you consider yourself an interested and/or affected person/party, it is important that you become, and remain, involved in the PPP. In order to do so, please follow the steps below to ensure that you are continually informed of the project developments and will ensure your opportunity to raise issues and concerns pertaining to the project.

STEP 1: Please register by responding to our notification and invitation, with your name and contact details (details provided on cover page and below). As a registered I&AP, you will be informed of all meetings, report reviews and project developments throughout the BA process.

STEP 2: Review and comment on reports that are made available. Your valuable inputs are needed to ensure that accurate information is captured and that all potential issues are addressed.

CES is required to engage with all private and public parties that may be interested and/or affected by the proposed Haga Haga WEF Access Road Upgrades, in order to distribute information for review and comment in a transparent manner.

In the same light, it is important for I&APs to note the following:

1. In order for CES to continue engaging with you, please **ENSURE** that you register on our database by contacting the person below.
2. As the BA process is regulated by specific review and comment timeframes, it is your responsibility to submit your comments within these timeframes.

Please send your enquiries and/or comments to:

Ms. Robyn Thomson
P.O Box 8145, Nahoon, East London, 5241
Tel: (087) 830 9806
Fax: 086 410 7822
Email: r.thomson@cesnet.co.za

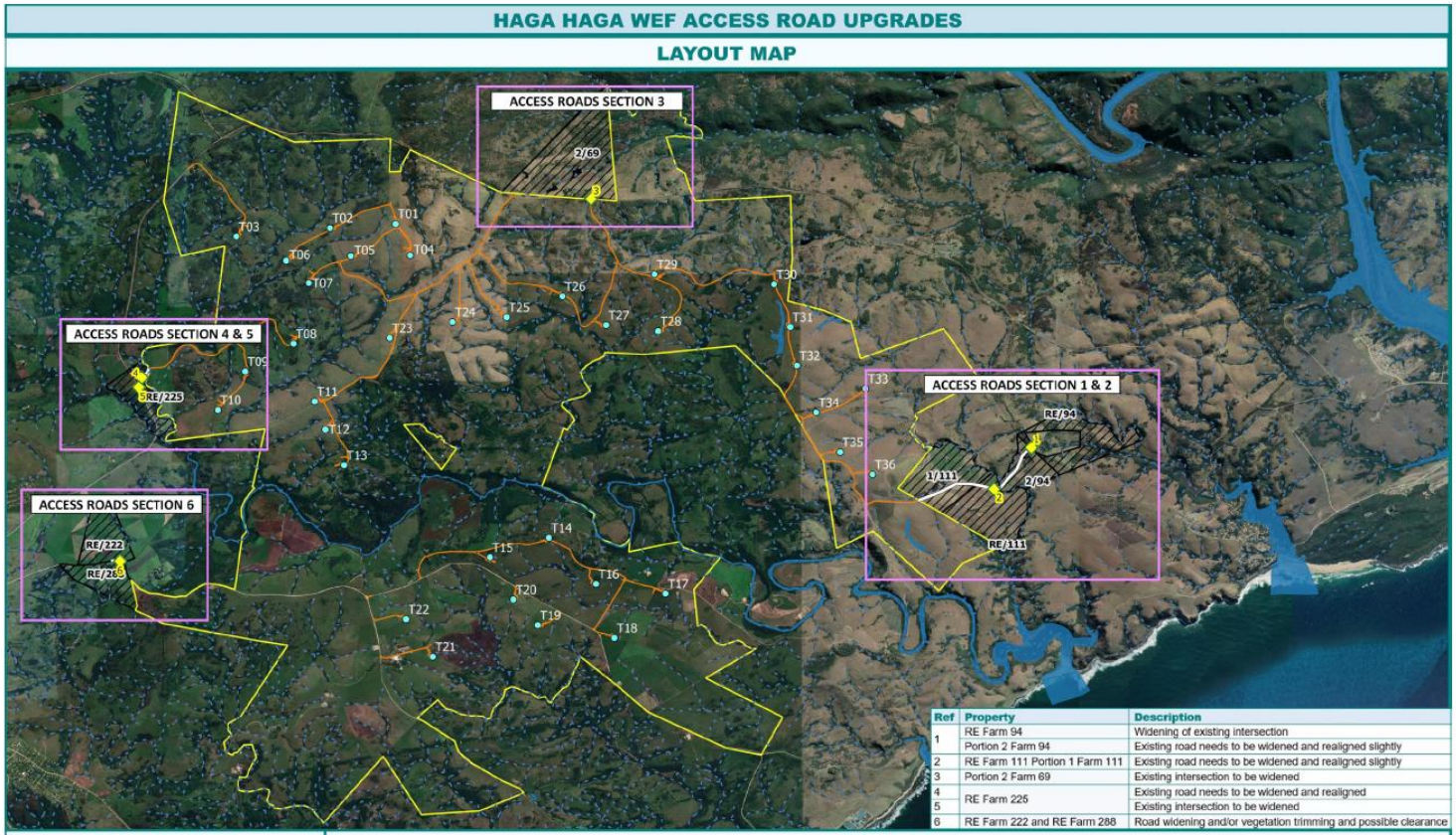
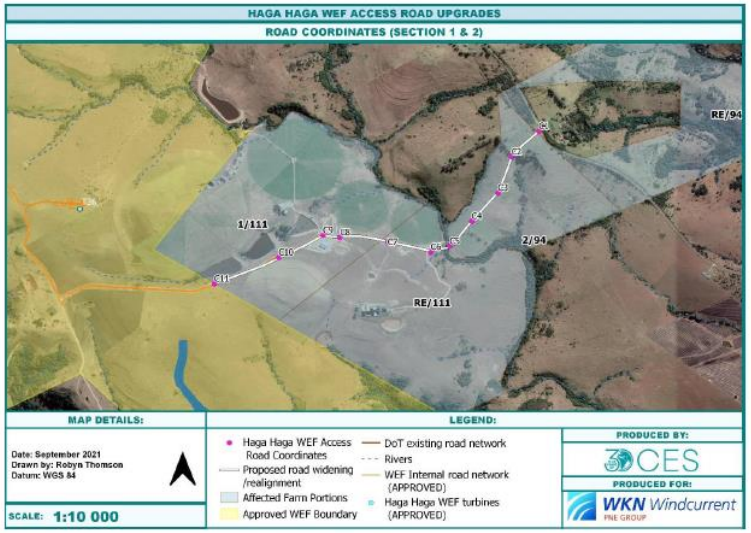
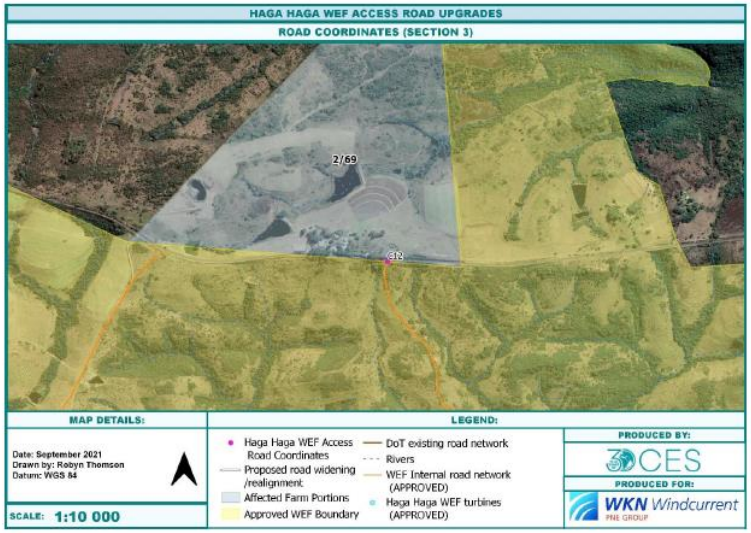
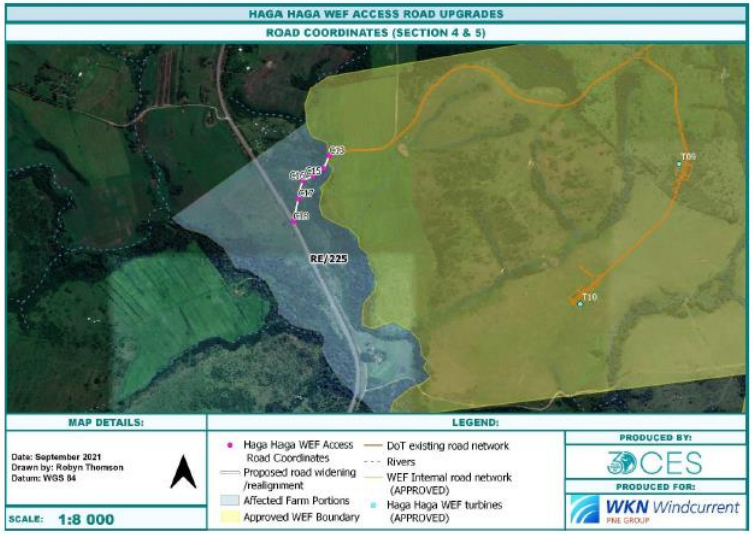


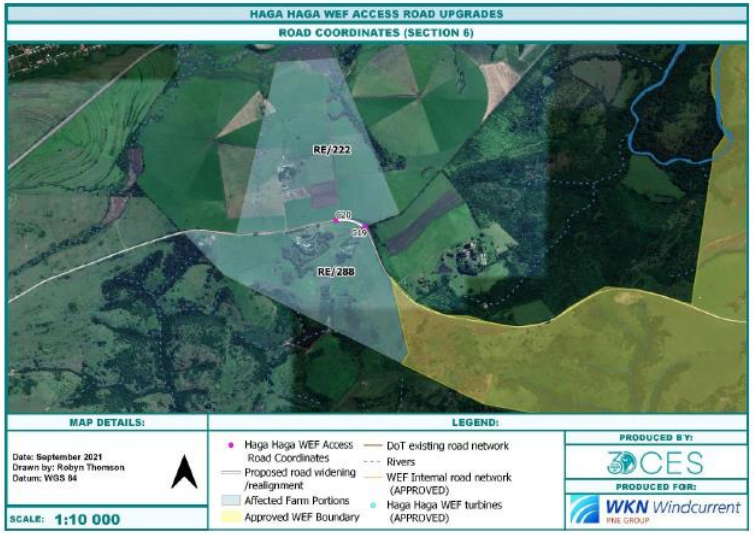
Figure 1: Locality Map. Approved WEF boundary in yellow

Haga Haga WEF access road upgrades









Haga Haga WEF access road upgrades

I hereby wish to register as an Interested and Affected Party (I&AP) for the proposed Haga Haga WEF Access Road Upgrades in the Great Kei Local Municipality, Eastern Cape Province

Name & Surname:

Organisation:

Postal Address:

Email:

Phone #:

Fax #:

My initial comments, issues or concerns are:

Other individuals, stakeholders, organisations or entities that should be registered are:

Name & Surname:

Organisation:

Postal address:

Contact details:

Please return details to: **Robyn Thomson:** P.O. Box 8145, Nahoon, East London, 5214

Telephone: (087) 830 9806 | Fax: 086 410 7822 | Email: r.thomson@cesnet.co.za

5.5.9 Proof of Initial Advertisement

rs in a management position with experience in general management in assenger transport operation, fleet management, workshop management /or budgetary oversight.

uired Competencies:
xtensive knowledge in policy making and implementation • Innovation, fidence and integrity • Planning, problem solving, managing conflict, report ing and negotiation skills • Proficient in the use of computers • Be renowned a team leader and strategic thinker who manages relationships well and verse to stress • Manage Depot revenue, costs and budget compliance xperience in working with a large and unskilled/semiskilled workforce orough understanding of passenger bus operations and working knowledge ngines and vehicles at large • Local stakeholder engagement.

Applications must be submitted to: recruitment@ab350.ltd
Closing Date: 22 October 2021

B350 is an equal opportunity employer and as such, preference will be given candidates who will add to the diversity of our organisation. Kindly take note at if we do not respond to you in the next two months, you may regard your pplication as unsuccessful. The company reserves the right not to make any ppointment.

been ill.
"This isn't normally the place you come and do that."

MNQUMA LOCAL MUNICIPALITY

MNQUMA

NOTICE

REZONING APPLICATION FROM RESIDENTIAL ZONE 1 TO RESIDENTIAL ZONE VIN ORDER TO PERMIT A STUDENT ACCOMMODATION RESIDENCE ON ERF 4215 BUTTERWORTH, IN TERMS OF THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT. 16 OF 2013

Notice is hereby given that an application has been lodged with the Mnquma Local Municipality, in terms of the Spatial Planning and Land Use Management Act in order to operate the property as a student accommodation residence.
Details of the application, information and a sketch plan of the proposed application are available for inspection in the office of the Manager Land Use Planning, Mr Xokozela for a period of thirty (30) days from the date of publication of this notice. Any objection in this proposal must be lodged in writing with the office of Municipal Manager, Top Blyth Street, PO Box 36, Butterworth, 4960 during the aforesaid period of 30 days.
LAND DEVELOPMENT APPLICANT: Maxson Mziwamadoda Vuzani

Province of the
EASTERN CAPE
OFFICE OF THE PREMIER

BID NOTICE - BID NO: SCMU1-21/22-0007

ITMENT OF A SERVICE PROVIDER TO SUPPLY, DELIVER AND INSTALL FURNITURE FOR THE OFFICE OF THE PREMIER

uments are available at Office of the Premier, Independence Avenue, old Building Bhisho Second Floor, Office Number 2056. Electronic Documents vailable on the website www.ecprov.gov.za under Procurement and on the Treasury e-tenders page: www.etenders.gov.za.

ed bid documents in a sealed envelope endorsed with the relevant bid bid description must be deposited in the bid box situated at Office of the Independence Avenue old ECDC Building, Ground Floor (Reception Area) than 11 O'clock on 15 November 2021 when bids will be opened in public.

RENTIAL PROCUREMENT POLICY FRAMEWORK ACT WILL BE D AND BBBEE POINTS WILL BE AWARDED AS FOLLOWS:

- 80 points	BBBEE - 20 points

ALUATION
will be evaluated in three (3) phases as follows:
: Pre-qualification Criteria (SCM Compliance and Mandatory Requirements)
: Functionality Evaluation Criteria (detailed in bid document)
: Price and B-BBEE Evaluation

(Phase 1): -qualification Criteria	(Phase 2) Functionality Evaluation Criteria	(Phase 3) Price and B-BBEE Evaluation
s must submit all ents on under atory require- Only bidders omply with ALL criteria will pro- o Phase 2	Bidder(s) must obtain a minimum of 70 points out of 100 points to proceed to Phase 3 (Price and BEE).	Bidder(s) will be evaluated in terms of section 5 of PPPFA 2000, Preferential Procurement Regulations, 2017. Eighty (80) points for price and twenty (20) points for B-BBEE status level.

ECIFICATIONS, CONDITIONS AND RULES
imum specifications, bid conditions and pre-qualification criteria are detailed d document
ns on Regulation 4 of Preferential Procurement Regulations of 2017, this only inviting responses from Exempted Micro Enterprises (EME) and ing small business enterprise (QSE) as defined in the said regulation within quired service. Only bidders with a B-BBEE level status 1-3 are eligible to t bids and will be considered. Attach a valid B-BBEE level verification cate or sworn affidavit in the prescribed format confirming their annual er and level of black ownership.
ems quoted must be manufactured in South Africa and meet the minimum gnated threshold.
ers must: - Provide the exemption letter from the DTIC confirming that the ls are manufactured locally and imported material has been exempted. mit completed SBD 6.2 and annexure C-D-E (Local Content Declaration).

NG PROCEDURE ENQUIRIES	TECHNICAL / PROJECT SPECIFIC
ies: Vuyo Nkonki Email: vuyo. @otp.ecprov.gov.za Tel No: 067 19 OR scmrequests@ecotp.gov.za	Name: Mongezi Mazimba Tel: 078 968 1524 Email:Mongezi.mazimba@ecotp.gov.za

CES
ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT BASIC ASSESSMENT PROCESS FOR THE HAGA HAGA WEF ACCESS ROAD UPGRADES GREAT KEI LOCAL MUNICIPALITY

PROPOSED HAGA HAGA WIND ENERGY FACILITY (WEF) ACCESS ROAD UPGRADES IN GREAT KEI LOCAL MUNICIPALITY, EASTERN CAPE
Notice is hereby given in terms of Regulation 41 (2) published in Government Notice No. 982 under Chapter 6 of the National Environmental Management Act (NEMA, Act No. 107 of 1998 and subsequent amendments) Environmental Impact Assessment (EIA) Regulations (2014, and subsequent 2017 amendments) of the submission of an application to the national Department of Forestry, Fisheries and the Environment (DFFE) for Environmental Authorisation (EA).
Proponent, Activities and Location:
Haga Haga Wind Farm (RF) (Pty) Ltd, a subsidiary of WKN Windcurrent SA (Pty) Ltd. proposes to upgrade several of the site access points to the Haga Haga Wind Energy Facility (approved), on farm portions which were previously not authorized in the initial EA in the Great Kei Local Municipality, Eastern Cape Province. The proposed roads are located on Portion 2 of Farm 94, RE of Farm 94, RE of Farm 111, Portion 1 of Farm 111, Portion 2 of Farm 69, RE of Farm 225, RE Farm 222 and RE Farm 288 near Haga Haga in the Great Kei Local Municipality, Eastern Cape Province.
NEMA Listed Activities:
A Basic Assessment (BA) process is triggered by at least the following listed activities:
Listing Notice 1
Activity 12 (i) (c): the development of infrastructure or structures with a physical footprint of 100 square metres or more within 32 metres of a watercourse, measured from the edge of a watercourse
Activity 19: The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;
Activity 56: The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre
Listing Notice 3
Activity 4: The development of a road wider than 4 metres with a reserve less than 13,5 metres in (a) Eastern Cape, outside urban areas in (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas;
Activity 12: The clearance of an area of 300 square metres or more of indigenous vegetation, (a) Eastern Cape, (ii) Within critical biodiversity areas identified in bioregional plans.
Activity 14: The development of infrastructure or structures with a physical footprint of 10 square metres or more (c) within 32 metres of a watercourse, measured from the edge of a watercourse in (a) Eastern Cape, Outside urban areas in (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;
Activity 18: The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre in (a) Eastern Cape Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;
Competent Authority:
The competent authority for this application is the National Department of Forestry, Fisheries and the Environment (DFFE).
CES has been commissioned by WKN Windcurrent SA (Pty) Ltd. to undertake the BA process in terms of NEMA EIA Regulations. You are hereby invited to register as an Interested & Affected Party (I&AP). Please submit your name, contact information and any comments to the contact person below.
For more information, registration as an I&AP or submission of written comments contact by post, phone, fax or e-mail: Robyn Thomson, PO Box PO Box 8145 Nahoon, East London, 5210, Tel: 046 622 2364; Fax: 086 410 7822; Email: r.thomson@cesnet.co.za

6 ALTERNATIVES

One (1) of the requirements of a Basic Assessment is to investigate alternatives associated with a proposed project activity.

6.1 REASONABLE & FEASIBLE ALTERNATIVES

Alternatives should include consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. In all cases, the no-go alternative must be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

"Alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- The property on which or location where it is proposed to undertake the activity;
- The type of activity to be undertaken;
- The design or layout of the activity;
- The technology to be used in the activity;
- The operational aspects of the activity; and/or
- The option of not implementing the activity.

6.2 FUNDAMENTAL INCREMENTAL & NO-GO ALTERNATIVES

6.2.1 Fundamental Alternatives

Fundamental alternatives are developments which are completely different to the proposed project description and usually include the following:

- Alternative property or location where it is proposed to undertake the activity;
- Alternative type of activity to be undertaken; and
- Alternative technology to be used in the activity.

6.2.2 Incremental Alternatives

Incremental alternatives relate to modifications or variations to the design of a project that provide different options to reduce or minimise environmental impacts. Incremental alternatives which can be considered, include:

- Alternative design or layout of the activity; and
- Alternative operational aspects of the activity.

6.2.3 No-go Alternative

It is mandatory to consider the "no-go" option in the Basic Assessment Process. The "no-go" alternative refers to the current status quo and the risks and impacts associated with it. Some existing activities may carry risks and may be undesirable (e.g. an existing contaminated site earmarked for a development). The no-go is the continuation of the existing land use, i.e. to maintain the status quo.

6.3 ANALYSIS OF ALTERNATIVES

Table 6-1 illustrates the methodology used to assess the identified alternatives. The table includes the assessment of the advantages and disadvantages and provides further comments on the selected alternatives.

Table 6-1: Alternatives which were Considered for the Proposed Haga Haga WEF Road Upgrades.

ALTERNATIVE LEVEL	ALTERNATIVES	ADVANTAGES	DISADVANTAGES	REASONABLE & FEASIBLE	COMMENT
PROPERTY OR LOCATION This refers to the fundamental location options, and the environmental risks and impacts associated with such options.	**Alternative location 1**: Current proposed site (Preferred alternative). Location alternatives are limited to the proposed project study area as the proposed Haga Haga WEF access roads will connect to the approved Haga Haga WEF internal road network situated within the project study area.	• Uses existing access roads, therefore well located to minimise potential negative impacts to facilitate access to the Haga Haga WEF; and • Livestock grazing would be able to continue around the development footprints.	• Potential environmental, heritage, ecological and palaeontological impact to sensitive areas on the site.	YES	The determining factor for selecting the proposed location is because the proposed access roads are existing roads that link up to the approved WEF road network.
	Alternative location 2: No alternative site locations have been identified.	N/A	N/A	N/A	No alternative site locations have been identified because the access roads need to link to the approved WEF road layout.
TYPE OF TECHNOLOGY This refers to the fundamental technology options and the environmental risks and impacts associated with such options.	**Alternative technology 1**: Gravel surface	• Cost effective;	• Potential to generate dust	YES	The technology alternatives which have been considered for the road upgrades include gravel surface and asphalt surface roads. Asphalt surface roads are prohibitively expensive to construct and are only warranted when constructing roads experiencing high traffic volumes. The proposed access roads will only be used for access to the Haga Haga WEF by construction/ maintenance
	Alternative technology 2: Asphalt surface	• Limited dust generation;	• Expensive	NO	

ALTERNATIVE LEVEL	ALTERNATIVES	ADVANTAGES	DISADVANTAGES	REASONABLE & FEASIBLE	COMMENT
					vehicles and materials delivery vehicles, therefore traffic volumes are very low. Gravel surface technology is the preferred alternative and the only technology which has been assessed further in the BA Process.
DESIGN OR LAYOUT This relates mostly to alternative ways in which the proposed development or activity can be physically laid out on the ground to minimise or reduce environmental risks or impacts	**Alternative layout 1:** Current proposed layout (Preferred alternative)	• Suitably located to access the Haga Haga WEF. • Upgrades to existing roads, therefore smaller impact than if new locations were selected.	• Potential environmental, heritage, ecological and palaeontological impact to sensitive areas on the site.	YES	No layout alternatives have been assessed as it is proposed to upgrade existing roads that link into the approved WEF road layout. As such there are no feasible alternatives to this layout.
	Alternative layout 2: No alternative layout alternatives have been considered.	N/A	N/A	N/A	
OPERATIONAL ASPECTS This relates mostly to alternative ways in which the development or activity can operate in order to reduce environmental risks or impacts	**Alternative operational activities**	N/A	N/A	YES	Operational management recommendations will be informed by specialist input and included in the Final EMPr to reduce the likelihood of adverse environmental impacts occurring during the operational phase.
NO-GO OPTION This refers to the current status quo and the risks and impacts associated with it.	The primary land use is that of an existing road. The area adjacent to the existing road is currently unused or livestock grazing.	• Should the proposed Haga Haga WEF access roads not be upgraded, the natural areas will remain as such; and	• Should the Haga Haga WEF access roads not be upgraded, this would have adverse impacts on the ability to construct the Haga Haga WEF.	YES	The No-Go Option has been assessed as an alternative to the proposed upgrading of the Haga Haga WEF access roads.

ALTERNATIVE LEVEL	ALTERNATIVES	ADVANTAGES	DISADVANTAGES	REASONABLE & FEASIBLE	COMMENT
		• Most of the adverse impacts associated with upgrading of the Haga WEF access roads are unlikely to occur in the absence of the development.			

7 DESCRIPTION OF THE ENVIRONMENT

The criteria used to assess the sensitivity of the proposed Haga Haga WEF access road upgrades site included climate, geology and soils, topography, vegetation, surface water, the Eastern Cape CBAs, land use and specialist findings.

7.1 CLIMATE

Climate associated with the Savanna Biome is typically characterised by seasonal precipitation with wet summers and dry winters and no, or usually low, incidence of frost (Rutherford et al., 2011). Morgans Bay is the closest town to the project site and as such available climate data for this town has been used.

Average temperatures vary from highs of 26˚C in the summer (February) to average lows of 14˚C in the winters months (July and August) (worldweatheronline.com, 2021).

Rainfall occurs during the summer months with October and February typically receiving the highest rainfall with averages of 100mm for these months. May and June are the drier months with rainfall averages of 34.8 and 41.4mm respectively. The mean annual rainfall for this area is 815mm.

7.2 TOPOGRAPHY

The northern edge of the study area is bounded by the R349, which connects the N2 with Kei Mouth.

The topography of the general area is characterised by an undulating relief with a number of steeply incised river valleys. The are many small non-perennial streams crossing the study area, mostly with thick – moderate riverine vegetation. The current land use of the area is farming, in particular cattle rearing with some agricultural. According to Carter Environmental (2009) about 92% of land is used for private commercial agriculture.

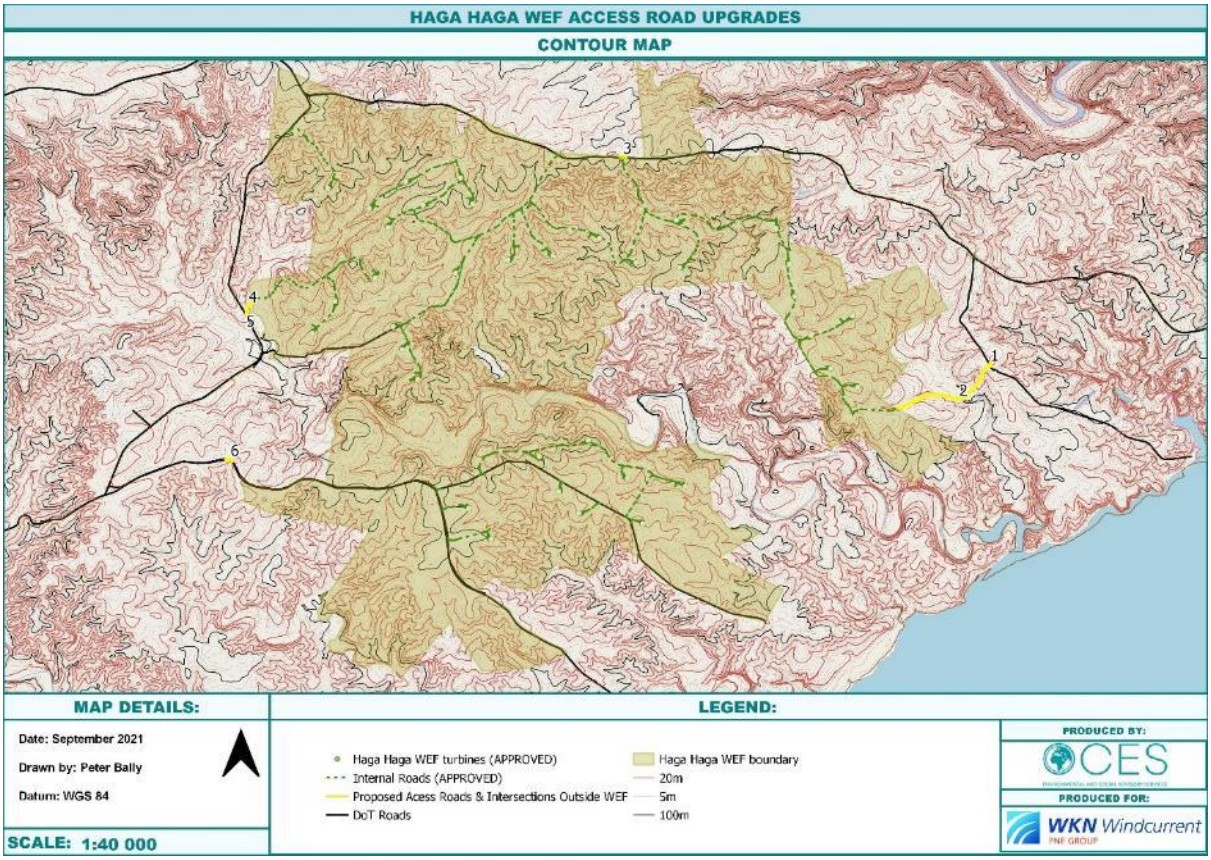


Figure 7-1: Topography Map of the study area.

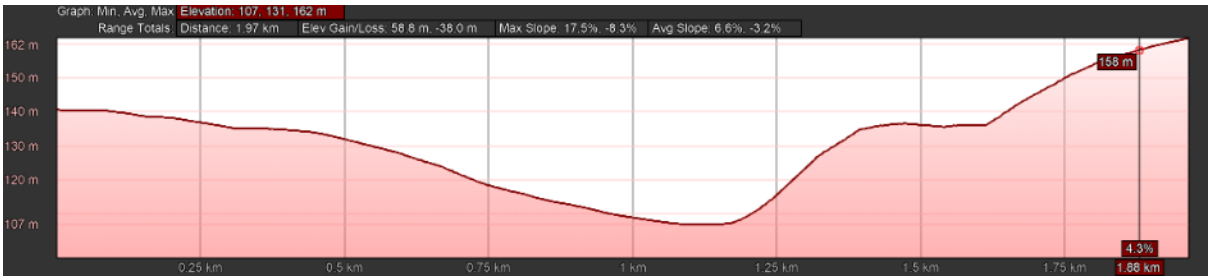


Figure 7-2: Elevation of profile of the study site from south-west to north-east (Google Earth Pro 2020) of Map Reference 1 and 2 (See Figure 2-3) road upgrade sections.

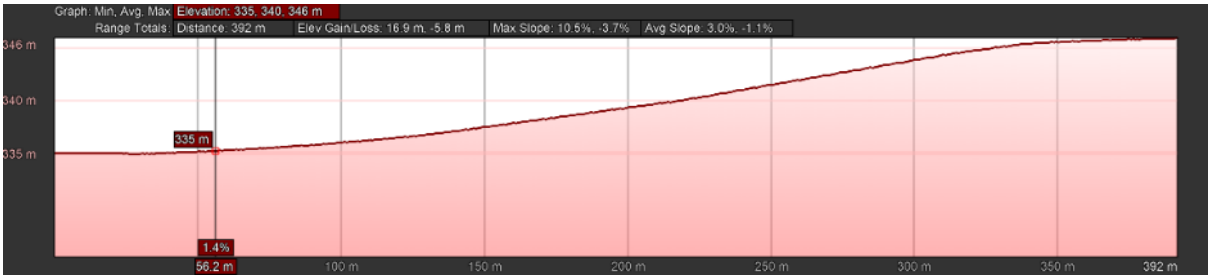


Figure 7-3:Elevation of profile of the study site from south-west to north-east (Google Earth Pro 2020) of Map Reference 3 (See Figure 2-4) road upgrade section

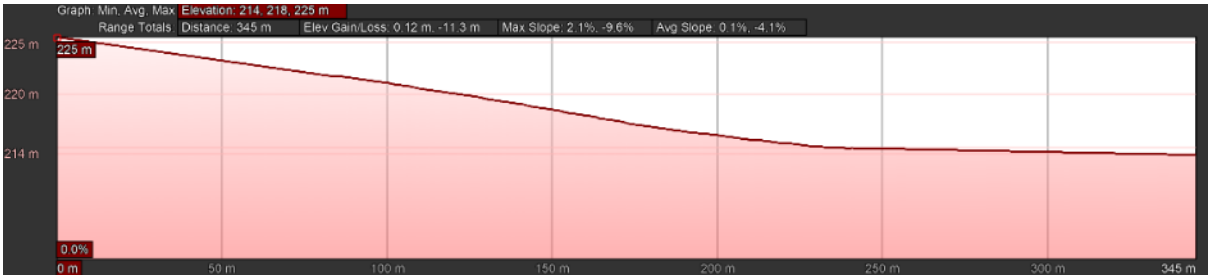


Figure 7-4: Elevation of profile of the study site from south-west to north-east (Google Earth Pro 2020) of Map Reference 4 and 5 (see Figure 2-5) road upgrade sections.

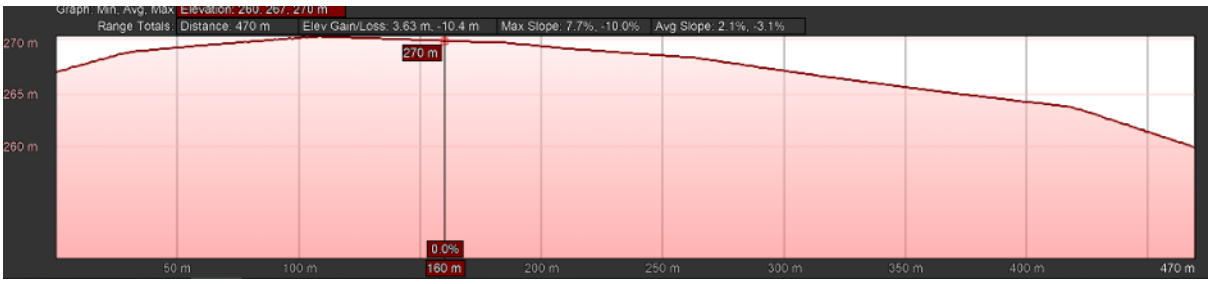


Figure 7-5: Elevation of profile of the study site from south-east to north-west (Google Earth Pro 2020) of Map Reference 6 (see Figure 2-6) road upgrade section.

7.3 GEOLOGY AND SOILS

The area is dominated by sandstone and mudstone of the Adelaide Subgroup (Permian age) of the Karoo Supergroup (green on map in Figure 7-6). These sedimentary rocks have been extensively intruded by karoo dolerite dykes and sills of Jurassic age (red on map). There are strong NNW-SSE and WSW-ENE structural lineaments, which have had a significant control in the emplacement of the dykes. The sedimentary rocks generally dip to the north and south at angles of less then 10°, but there is some localised folding with steeper dip angles.

Previous experience in the area suggests that shallow rock is expected over much of the study area, covered by thin soil veneer of mixed origin. Some thicker soils are expected in areas underlain by weathered dolerite.

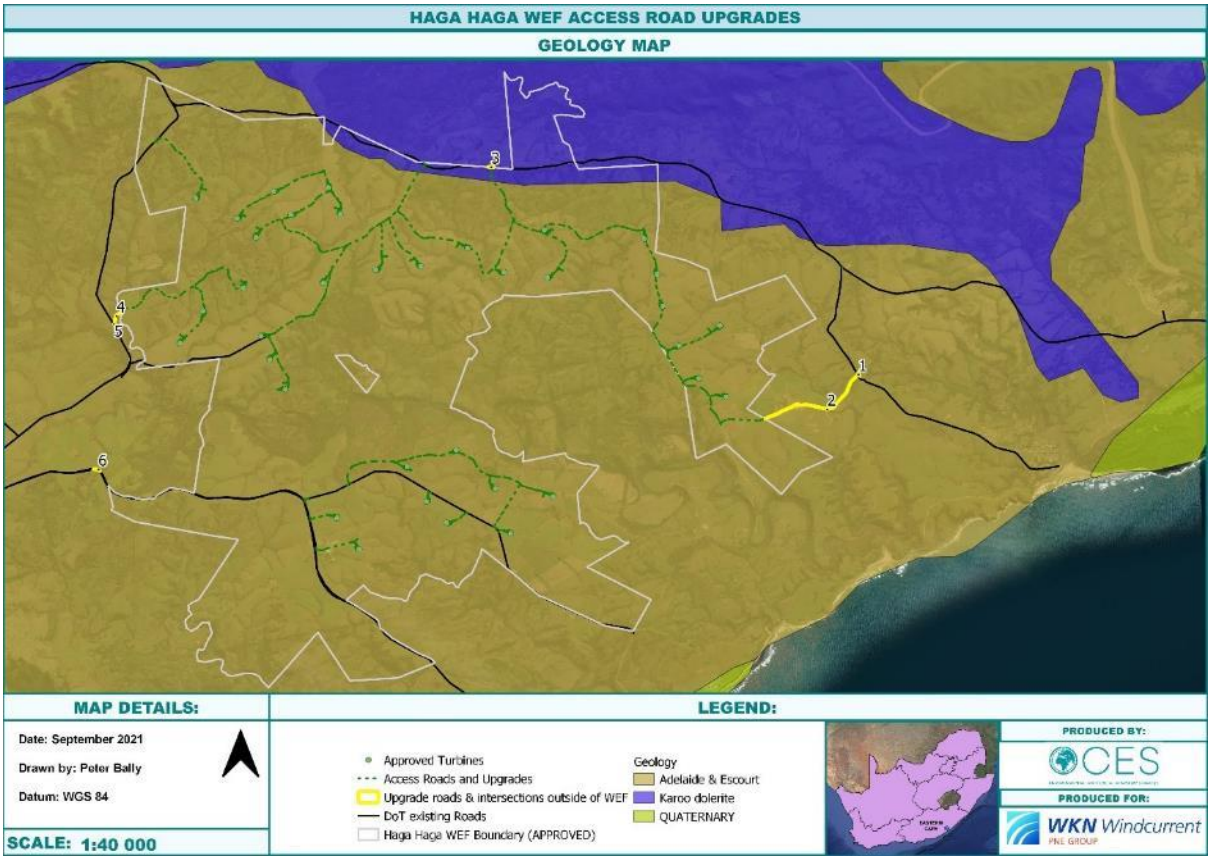


Figure 7-6: Geological map.

Imported gravel wearing course material will be required for the upgrading of the access roads to accommodate heavy axle loads. Potential sources of road-building material include the insitu weathered dolerite or sandstone rock obtained from excavations for gravity bases or nearby borrow pit sources. Commercial sources of gravel or crushed rock material will have to be imported from East London environs. There are no known formal quarries or borrow pits on the site and mining rights permits may have to be obtained to extract local materials

7.4 EROSION POTENTIAL

Predicted soil loss within the larger project area takes place at a moderate rate due to the shallow depth of topsoil as well as the gravelly subsoil properties. Natural sediment developing potential is considered as low, especially in areas that are already eroded. Due to the loamy properties of soils on the plains and low undulating landscapes, soils are susceptible to both water (fluvial) and wind (aeolian) erosion while soils in the valleys are mostly eroded by fluvial activities.

Soils within the larger project area are considered as having a high erodibility, especially when the vegetative cover is removed. This in turn causes reduced water quality in nearby rivers and dams due to high turbidity/suspended solids in the rivers and dams as well as siltation of dams.

7.5 LAND COVER AND CURRENT LAND USE

According to the SA National Land-Cover Map (SANLC, 2020) the existing roads, and associated upgrades, traverse agricultural land of various classifications, including natural grassland, commercial annual crops, planted forest, low forest and thicket, and small patches of dense forest and woodland. It is noted that the existing road itself is classified as bare. See Figure 7-7, Figure 7-8, Figure 7-9 and Figure 7-10 below.

The general area has been historically disturbed and transformed by farming and livestock grazing.

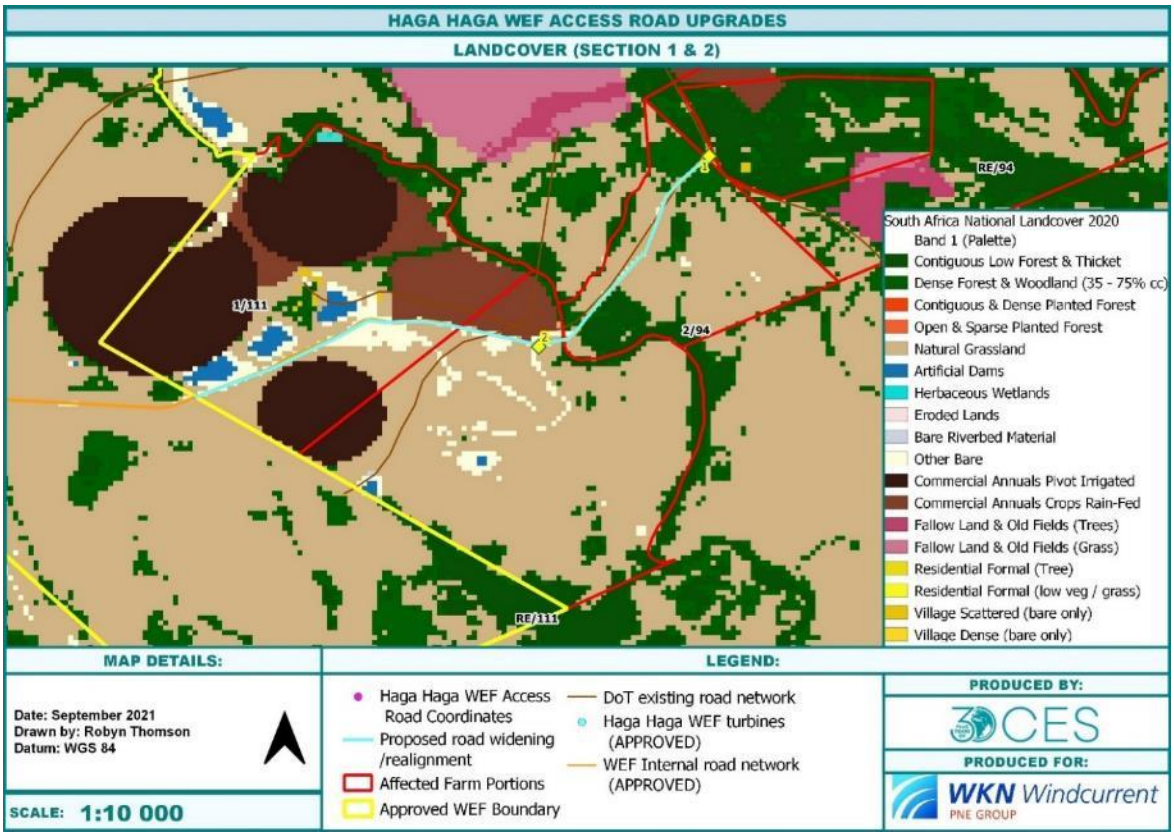


Figure 7-7: Land use map of the access road upgrades Section 1 & 2 and surrounds.

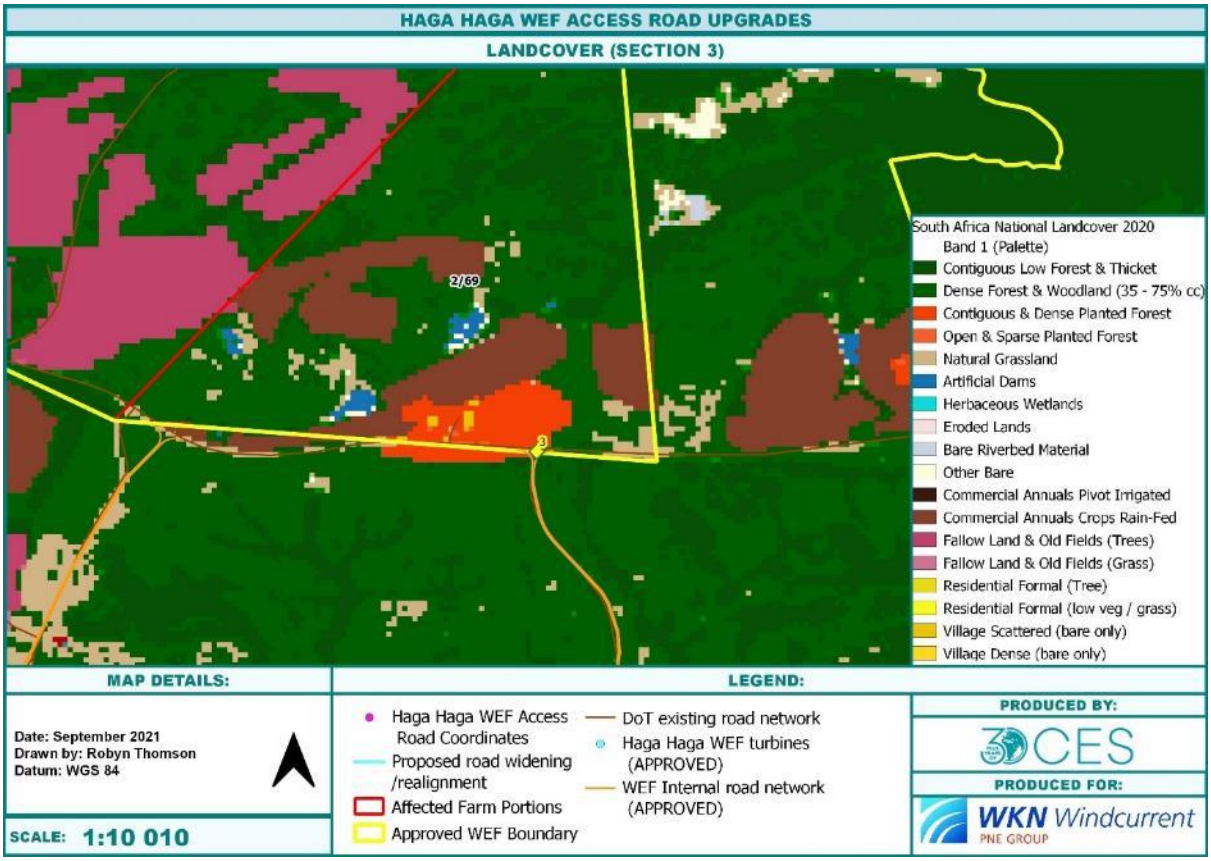


Figure 7-8: Land use map of the access road upgrades Section 3 and surrounds.

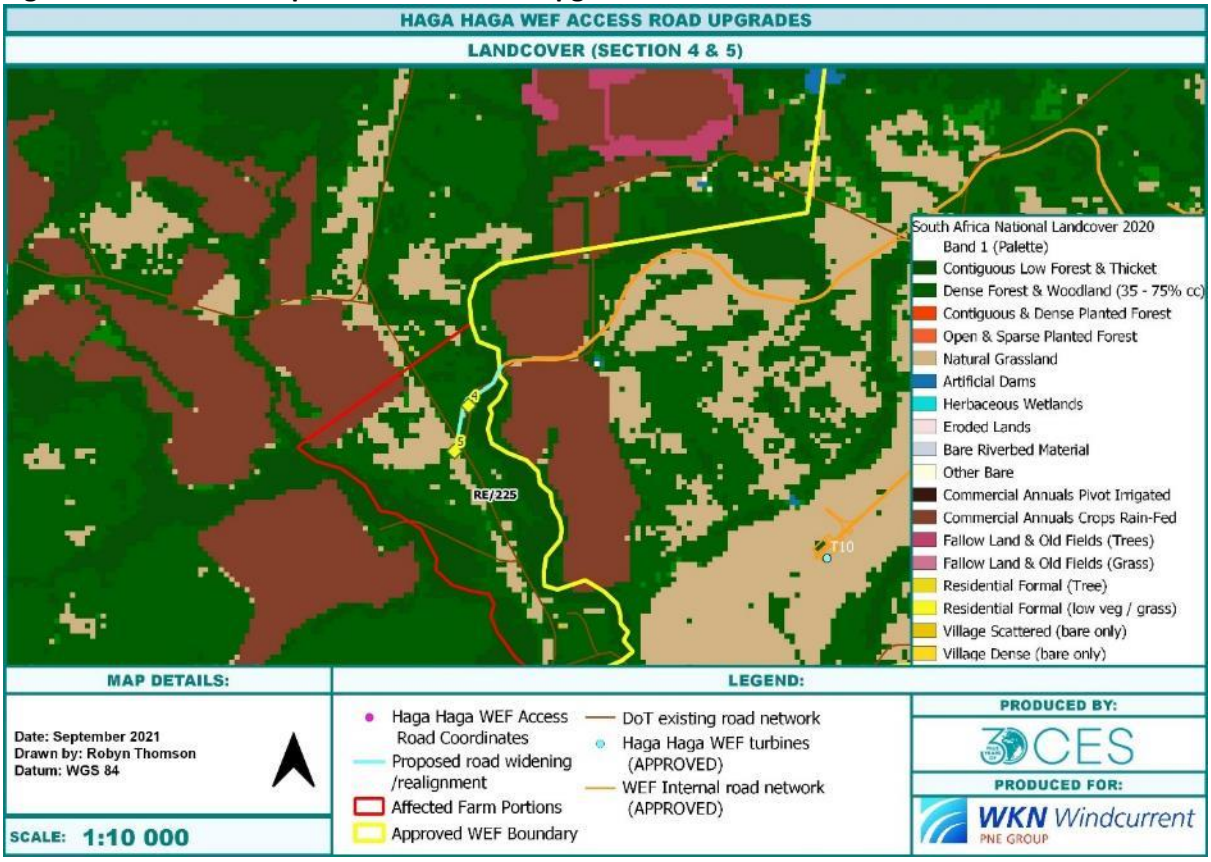


Figure 7-9: Land use map of the access road upgrades Section 4 & 5 and surrounds.

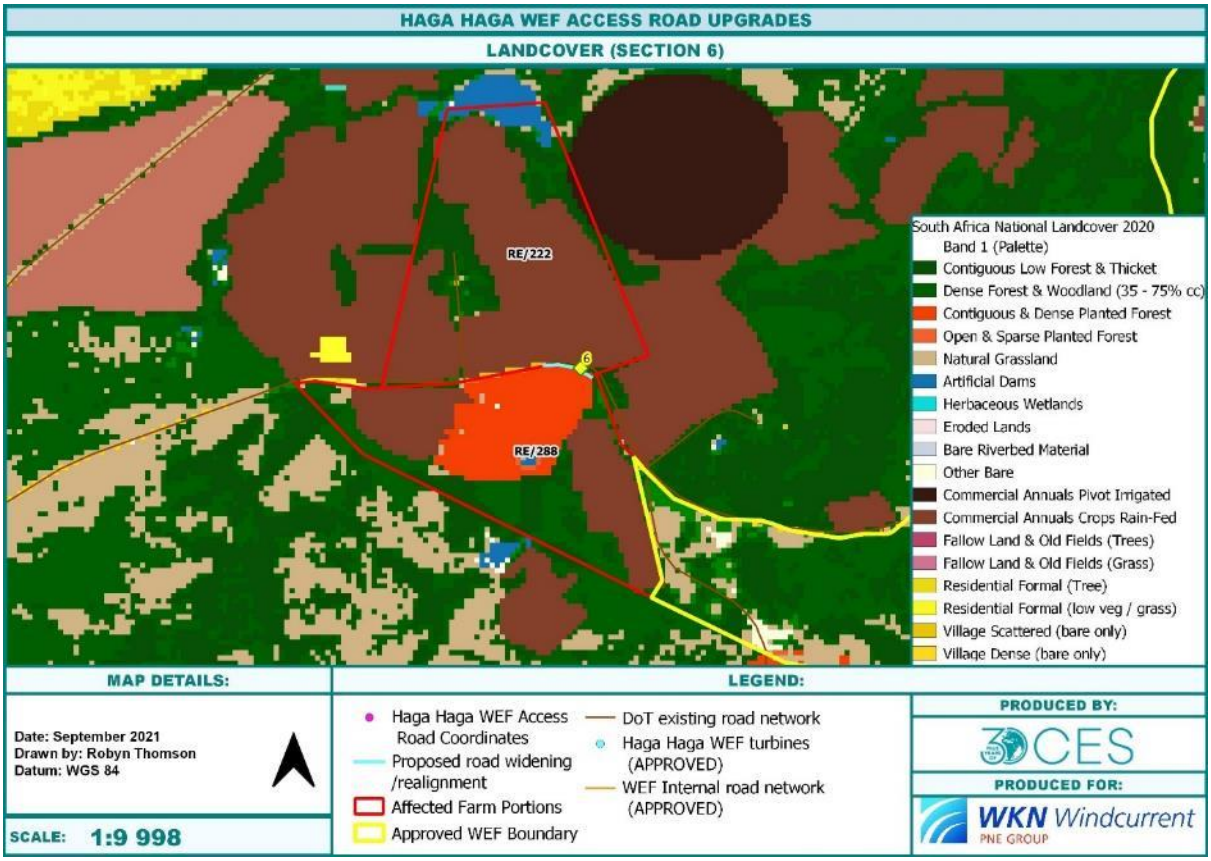


Figure 7-10: Land use map of the access road upgrades Section 6 and surrounds.

7.6 LAND CAPABILITY

Land capability classes are interpretive groupings of land with similar potential and limitations, or similar hazards. Land capability involves consideration of difficulties in land use owing to physical land characteristics, climate and the risks of land damage from erosion and other causes.

The classic eight-class land capability system (Klingebiel & Montgomery, 1961) was adapted for use by the South African Department of Agriculture in their Agriculture Geographic Information System (AGIS). Land capability is classified according to guidelines published by the National Department of Agriculture in AGIS.

Land Capability is determined by the collective effects of soil, terrain and climate features and shows the most intensive long-term use of land. At the same time, it indicates the permanent limitations associated with the different land-use classes:

- Order A: Arable land – high potential land with few limitations (Classes 1 and 2);
- Order B: Arable land – moderate to severe limitations (Classes 3 and 4);
- Order C: Grazing and forestry land (Classes 5, 6 and 7);
- Order D: Land not suitable for agriculture (Class 8).

Section 1 and 2 of the road upgrades can be classified as Order B: Arable land – moderate to severe limitations, with the remaining sections being classified as Order C: Grazing and forestry land (Figure 7-11 below).

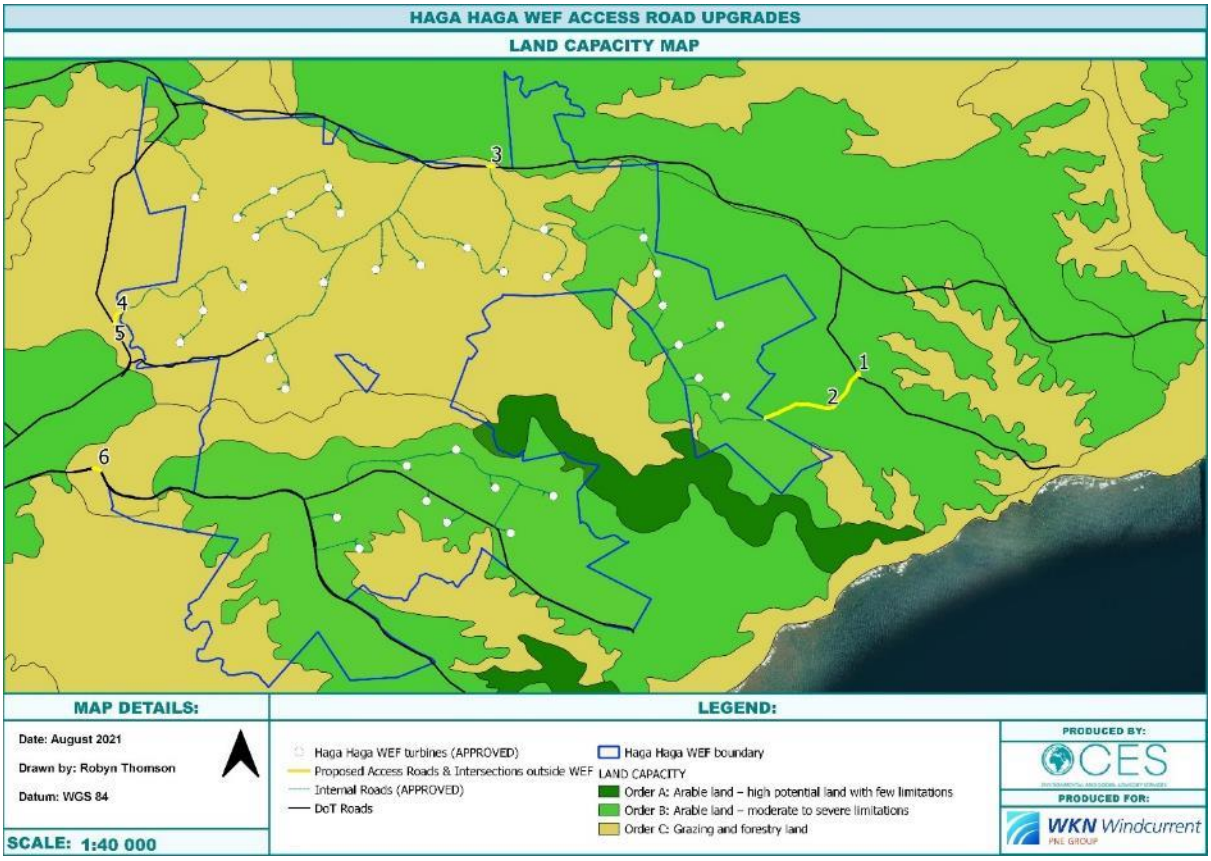


Figure 7-11: Land capability of the project sites.

7.7 AGRICULTURAL POTENTIAL

The agricultural potential of the farmland (i.e. natural veld) that comprises the development site is dependent on weather conditions, mainly whether enough rainfall is realised during the raining season. The development potential of the land for more intensive agricultural production purposes, like cropping, is limited due to, *inter alia:*

- Relatively low and unreliable rainfall in the region, and
- Absence of lasting irrigation water.

The area has a low to medium suitability for crop production. The critical limiting factor in this regard is an unreliable rainfall to produce crops successfully. Rain fed crop production will thus be too risky and the land can thus be described as good natural grazing land. This situation is not expected to change in the future (J. Laubscher and F. Ellis, 2018; J. Laubscher and F. Ellis, 2021).

The expected farming area to be taken up by the expansion of the access road network on the relevant farms is indicated in Table 7-1. It is noted that the intersection areas do not need to be included as these will not involve permanent removal of grazing and therefore not a concern for agriculture. The areas shown in Table 7-1 therefore only included **affected** grazing area.

Table 7-1: Affected farming area

Farm Portion	Area (ha)	Road distance(m)	Road area (ha)	% of farm area
Portion 2 of Farm 69	189,4	0	0,0	0.0%
RE of Farm 94	86,3	10	0,0	0,0%
Portion 2 of Farm 94	44,9	891	0,7	1,6%
RE of Farm 111	101,9	361	0,3	0,3%
Portion 1 of Farm 111	102,4	972	0,8	0,8%
RE of Farm 225	59	369	0,3	0,5%
RE Farm 222	63,1	72	0,1	0,1%
RE Farm 288	52,9	61	0,0	0,1%
TOTAL	**700,0**	**2736**	**2,2**	**0,3%**

Should appropriate mitigation measures be employed during construction, the negative impact of the project on farming practices at the Haga Haga development sites for the proposed road upgrades can be seen as insignificant.

7.8 VEGETATION AND FLORISTICS

The project site occurs within the Savanna Biome which is the most widespread biome in Africa and covers 32.8% of South Africa (Rutherford et al., 2006). Savanna is typically characterised by an herbaceous layer dominated by grass species and an irregular sometimes very open tree layer. Scholes and Archer (1997) state that "Savanna grasslands may grade into tree savanna, shrub savanna, savanna woodland or savanna parkland".

According to the National Vegetation Map (2006-2018), which was compiled to provide a greater level of detail for floristic vegetation units in South Africa, the project site occurs within Bhisho Thornveld and South Eastern Coastal Thornveld (Mucina et al., 2006-2018) (Figure 7-12).

7.8.1 Bhisho Thornveld

Bhisho Thornveld is situated within the Eastern Cape Province between Mthatha and East London and up to the southern side of the Amathole Mountains to Beafourt West. It also occurs on dissected hills and low mountains around Grahamstown/Makhanda.

This vegetation type is typically associated with undulating to moderately steep slopes and is characterised by an open canopy of small trees of *Vachellia natalita* with a grass understory dominated by *Themeda triandra* when in good condition. Other woody species are typically present and these increase with increased grazing pressure.

This vegetation type is listed as Least Threatened with a conservation target of 25%. This vegetation unit is poorly conserved with only 0.2% statutorily conserved in Doubledrift and Thomas Baines Nature Reserves although an additional 2% is conserved in private reserves such as Shamwari Game Reserve amongst others.

Site access road sections 3, 4, 5 and 6 occur within this vegetation type.

7.8.2 South Eastern Coastal Thornveld

South Eastern Coastal Thornveld vegetation occurs along the southeastern seaboard of the Eastern Cape between the Gamtoos and the Kei River, typically within 15-20km of the coast. The vegetation type can be described as a short grassland with scattered bush clumps or solitary trees of *Vachellia natalitia/V. karroo*, sometimes with emergent Euphorbia triangularis. It is estimated that 60% remains intact. This vegetation type is listed as Least Concern with a poor level of protection.

In the region a mosaic of different vegetation types occurs, depending on topographical, hydrological, fire and grazing regimes. It is thought that the vegetation type has been moulded by anthropogenic activities and that the natural state may have a larger woody component.
Site access roads 1 and 2 occur within this vegetation type.

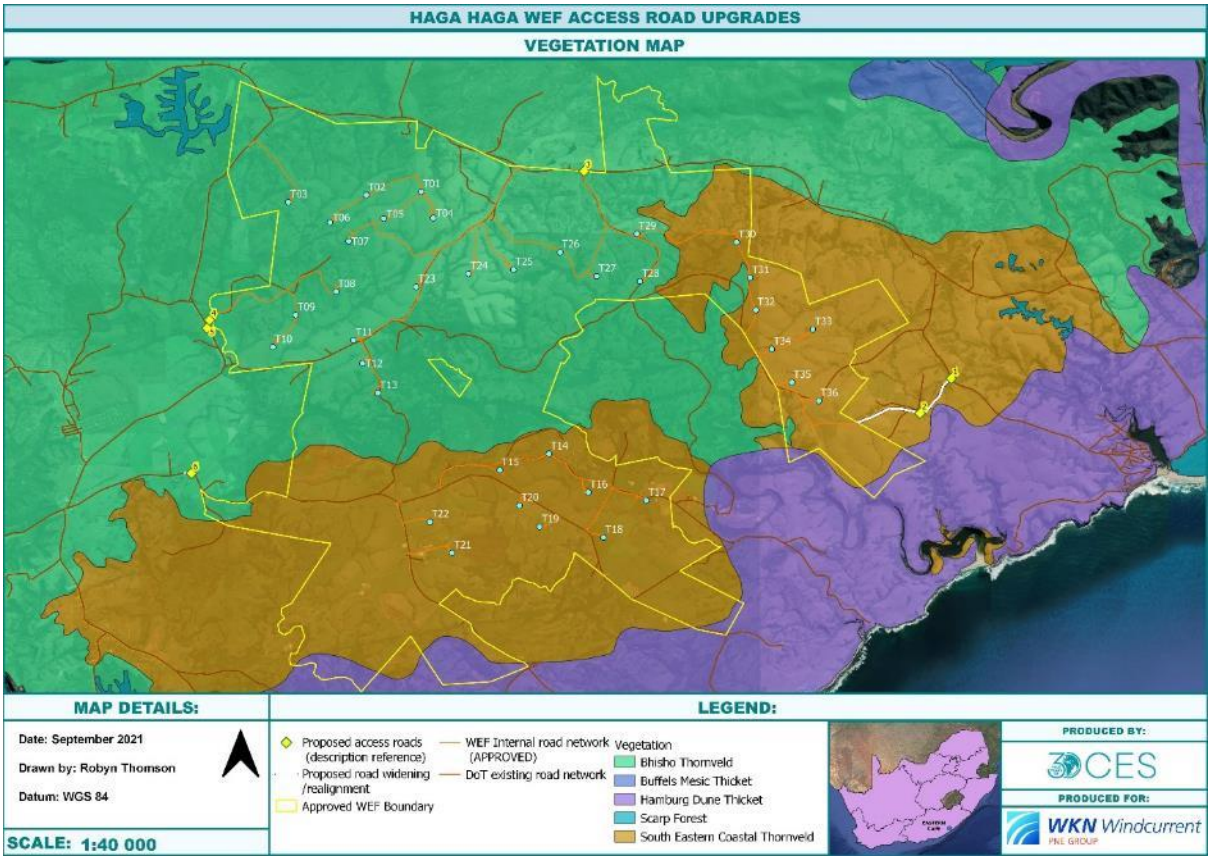


Figure 7-12: SANBI Vegetation types within and surrounding the project area.

7.8.3 Species of Conservation Concern

A list of species of conservation concern that could occur within the project site was compiled during the desktop study undertaken by Hawley-McMaster et al. (2021). This list draws on records from the POSA database, the DFFE screener and the baseline study undertaken by McDonald (2017).

Eighteen species of conservation concern were identified as species that could occur on site. Four of these were determined to have a medium likelihood of occurrence and fourteen have a low likelihood of occurrence. No species had a high likelihood of occurrence at any of the site.

Based on the site visit, no species of conservation concern were confirmed to occur on site.

Table 7-2 List of Critically Endangered (CR), Endangered (EN) and Vulnerable (VU) species that have a high likelihood of occurrence on site or were confirmed to occur on site.

Family	*Scientific Name*	Red List Status	Probability of occurrence on site	Comment
IRIDACEAE	*Dietes bicolor*	Rare	Low	This species is known as a habitat specialist that is associated with streams and vleis between Grahamstown and East London (Raimondo *et al.,* 2008). Since the project areas are not within any vleis or streams the likelihood of occurrence for this species is low.
ORCHIDACEAE	*Disperis woodii*	Vulnerable	Low	This species occurs within coastal areas between Kosi Bay in Kwa-Zulu Natal down to Port Elizabeth in the Eastern Cape (von Staden, 2018). It is associated with damp grassland and is typically found in open places with sandy soils and sometimes within grass tussocks. Since there is no damp grassland associated with the sites, the likelihood of occurrence is low.
APOCYNACEAE	*Riocreuxia flanaganii var. flanaganii*	Rare	Low	This species has been recorded from four collections between Port Alfred and Komga and is associated with dolerite outcrops in coastal grassland and savanna. The likelihood of occurrence for this species is low due to a lack of available habitat.
FABACEAE	*Umtiza listeriana*	VU	Low	This species has a range that stretches from East London to Kentani and King Williams Town and is only known from 6 locations (Williams and von Staden, 2008). It is associated with Thicket, Thornveld, Bushveld and Dr Forest habitats. No *Umtiza listeriana* were observed during the field survey. Given its habitat requirements the likelihood of occurrence on site is low.
AMARYLLIDACEAE	Sensitive species 579	VU	Low	This species occurs from Suurberg to Qora River mouth and is associated with coastal and inland forest patches below 600m (Williams *et al.,* 2008*).* No individuals of this species were observed at any of the sites. The likelihood of occurrence is determined to be low.
EUPHORBIACEAE	Sensitive species 686	VU	Low	This species occurs between Port Alfred in the Eastern Cape and the south coast of Kwa-Zulu Natal (Williams *et al.*, 2014). It is associated with coastal grasslands and low dune bush, mainly on sandstone. No individuals of this species were observed at any of the sites. The likelihood of occurrence is determined to be low.
ORCHIDACEAE	*Satyrium hallackii*	EN	Low	This species has a habitat range that includes Betty's Bay, Pearly Beach, Cape St. Francis, Komga and Kentani (von Staden *et al.*; 2006). It is associated with moist soils in dune slacks immediately inland from the shoreline.
HYACINTHACEAE	*Merwilla plumbea*	NT	Low	A widespread species in the eastern half of South Africa that is highly sought after for medicinal use. This species is associated with the Montane mistbelt

Family	*Scientific Name*	Red List Status	Probability of occurrence on site	Comment
				and Ngongoni grassland as well as rocky areas on steep, well drained slopes. The likelihood of occurrence at the project site is low given the lack of suitable habitat.
FABACEAE	*Bauhinia bowkeri*	NT	Low	This species occurs from Kei Mouth up to Mzimvubu and is associated with riparian vegetation. It's likelihood of occurrence within the project area is therefore low.
AMARYLLIDACEAE	*Cyrtanthus mackenii*	NT	Low	This species is widespread occurring below the Amathole Mountains around King Williamstown, Stutterheim and East London (Snijman and Raimondo, 2007). It is associated with seasonally damp places in open grasslands. Given the species' range and its habitat requirements it is unlikely to occur within the project site.
GESNERIACEAE	*Streptocarpus kentaniensis*	VU	Low	This species occurs between Kentani and Kei Mouth and is only known from 3 locations. It is associated with dry forest, occurring amongst moss and lichens on rocks (Victor *et a.*, 2005). The likelihood of occurrence within the project site where the infrastructure will be located is considered low as it is not anticipated that forest will be directly impacted.
RANUNCULACEAE	*Anemone bracteata*	VU	Low	This species occurs from the Eastern Cape to Kwa-Zulu Natal and is associated with the forest understorey, edges of seeps and vleis in grasslands (Williams *et al.;* 2020). The likelihood of occurrence within the project site where the infrastructure will be located is considered low as it is not anticipated that forest, seeps or vleis will be directly impacted.
FABACEAE	*Aspalathus gerrardii*	VU	Low	This species occurs in the Eastern Cape and Kwazulu Natal and is associated with grasslands, forest margins, often in damp or marshy sites on sandstones. Although there is available habitat, no individuals of this species were recorded within the site. The likelihood of occurrence is medium.
POACEAE	*Capeochloa cincta* subsp. *sericea*	VU	Low	This species occurs from Cape St. Francis to Kei mouth and is associated with coastal dunes in sandy seeps (Victor *et al.*, 2004). The likelihood of occurrence at the project site is low given the lack of suitable habitat.
ACANTHACEAE	*Justicia bolusii*	Rare	Medium	This species is found from Kentani to Komga to East London and is associated with coastal forest (Victor and Dold, 2007). There was no coastal forest at any of the sites, only riparian forest. The likelihood of occurrence is thus medium.
ZAMIACEAE	Sensitive species 191	VU	Medium	This species occurs from Bathurst in the Eastern Cape up to southern Mozambique. It is associated with scarp and coastal forest, Ngonigoni and coastal grassland (Williams *et al.*, 2008). No individuals of this

Family	*Scientific Name*	Red List Status	Probability of occurrence on site	Comment
				species were observed at any of the sites. The likelihood of occurrence is determined to be Medium.
AMARYLLIDACEAE	Sensitive species 814	VU	Medium	This species occurs within the Wild Coast and coastal Kwa-Zulu Natal up to Ngome (Williams *et al.,* 2008). It occurs in damp or marshy places along watercourses within coastal and riverine forests and scarp forest. It is not associated with grasslands. Although there is available habitat, no individuals of this species were recorded within the site. The likelihood of occurrence is medium.
ZAMIACEAE	Sensitive species 828	VU	Medium	This species occurs within the Eastern Cape and southern KwaZulu Natal coast and is associated with open shrubland, steep, rocky slopes and forests near the coast (Donaldson, 2009). It typically occurs along river banks. Although there is available habitat, no individuals of this species were recorded within the site. The likelihood of occurrence is medium.

7.8.4 Alien Species

According to Hawley-McMaster *et al*., (2021), the Botanical Impact Assessment Report undertaken for the WEF notes that there are two notable species present in the broader area (McDonald, 2017). These are *Acacia mearnsii* (Black Wattle) and *Lantana camara.* It was noted by the author that *Acacia mearnsii* invades bush clumps and valley thicket within the site and that *Lantana camara* occurred on the margins of the thicket. The field survey confirmed these species to be present along with *Solanum chrysotrichum, Solanum mauritianum* and *Eucalyptus* sp.

Lantana camara, *Solanum mauritianum* and *S. chrysotrichum* are listed as a category 1b species. Of relevance to this project is that allowing the spread of a category 1b species is prohibited. An alien invasive management plan for the removal of this species in impacted areas will thus be required. It is likely this already forms part of the current EA received for the WEF itself and it is thus recommended that this plan is applied to the access roads that form part of this assessment.

Acacia mearnsii is listed as Category 2 species. For species listed in this category, allowing the spread of these species requires a permit otherwise they need to be removed. Permits are typically linked to plantations.

It was also noted that *Eucalyptus sp.* trees occur within the study area as plantations.

7.9 FAUNA

The DFFE screener generated on the 22 September 2021 identified the animal species theme as having a high sensitivity (Figure 7-13). The sensitivity is due to the potential use of the site by five bird species and three mammal species (Table 7-3). Terrestrial vertebrate faunal groups with specific reference to the highlighted sensitive animal species will be discussed below.

Table 7-3: Sensitive Animal Species that have a distribution which includes habitats available on site

Common Name	Scientific Name	Threat Status		Sensitivity
		Global	National	
Mammalia				
Giant Golden Mole	*Chrysospalax trevelyani*	EN	EN	Medium
Southern Tree Hyrax	*Dendrohyrax arboreus*	LC	EN	Medium
Sensitive Species 7	*Sensitive Species 7*	LC	VU	Medium
Birds				
African Marsh Harrier	*Circus ranivorus*	LC	EN	High & Medium
Denham's Bustard	*Neotis denhami*	NT	NT	High & Medium
Mangrove Kingfisher	*Halcyon senegaloides*	LC	EN	High & Medium
Sensitive Species 2	*Sensitive Species 2*	EN	EN	High
Knysna Warbler	*Bradypterus sylvaticus*	VU	VU	Medium

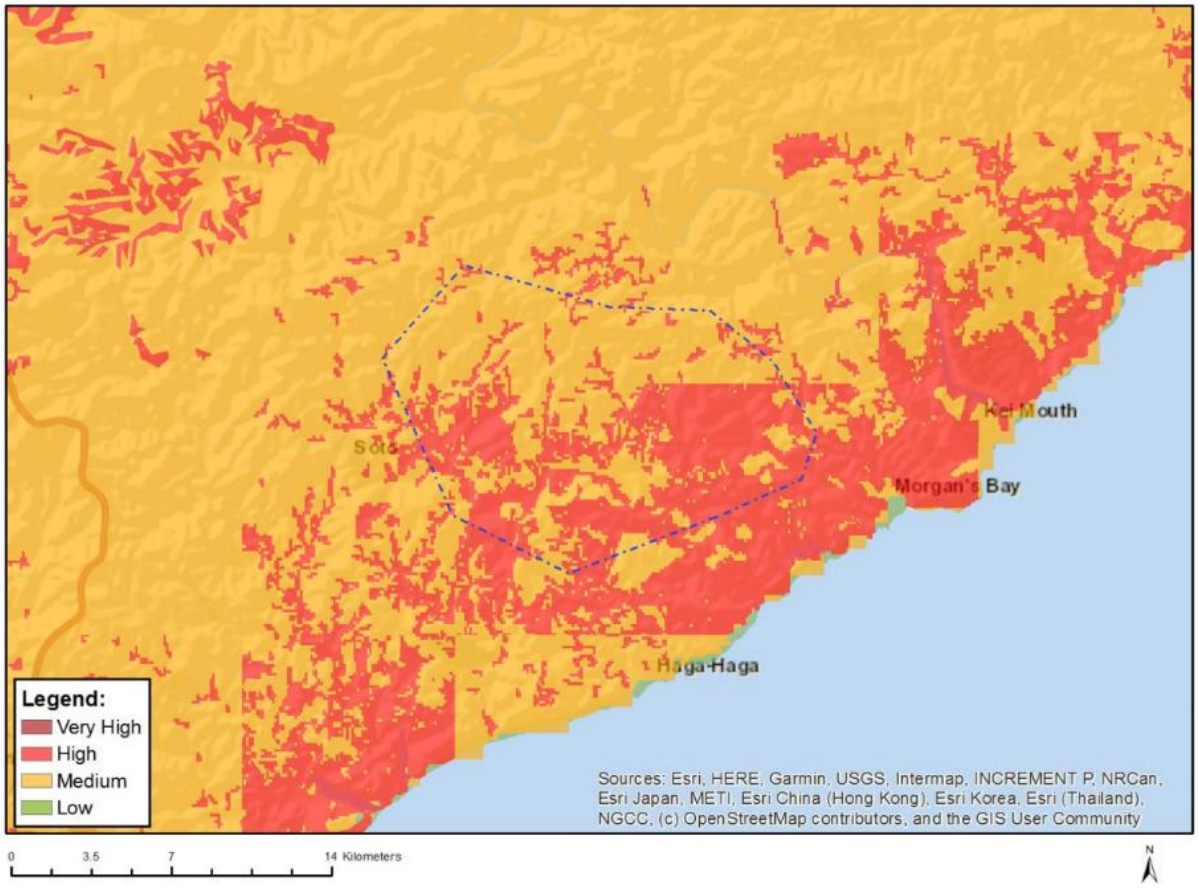


Figure 7-13: Animal Species Sensitivity theme of the project area.

7.9.1 Amphibians

NCC (2017), referenced in Hawley-McMaster *et al.*, (2021) identified 21 amphibian species that possibly occur on site due to the amphibian species distribution and habitat availability on site and confirmed the presence of ten of these. These figures are still considered accurate. No threatened or provincial endemic amphibian species have a distribution which includes the project area (NCC, 2017; IUCN ASG, 2016). At site 1&2 and 4&5, existing bridges cross non-perennial streams where amphibians may be present. None of the likely species are threatened.

7.9.2 Reptiles

NCC (2017), referenced in Hawley-McMaster *et al*., (2021) identified 57 reptile species that have a distribution that includes the project area and may occur on site due to habitat availability. These figures are still considered accurate. One reptile SCC with a distribution that includes the project area is the Kentani Dwarf Chameleon (*Bradypodion kentanicum*) listed as Near-threatened. This species inhabits wooded watercourses and forest-like habitats. At site 1&2 and 4&5, existing bridges cross non-perennial streams that support forest and wooded riparian thicket that is likely to be suitable habitat for the chameleon.

Two additional SCC were assed in the FIA of the WEF but their listings have since been downgraded to least concern. This includes the KwaZulu-Natal Black Snake (*Macrelaps microlepidotus*) previously listed at NT and FitzSimons' Long-tailed Seps (*Tetradactylus fitzsimonsi*) previously listed as VU.

7.9.3 Mammals

The project area is included in the distribution range of 59 mammal species, excluding bats. The NCC (2017) field survey, referenced in Hawley-McMaster *et al*., (2021), confirmed the occurrence of 24 species. Ten SCC have a distribution which includes the project area (Table 7-4).

Table 7-4: Mammal SCC that have a distribution which includes the project area and likelihood of occurring at habitats available in the project area.

Species	Threat status		Habitat preference	Likelihood of occurrence at each site (Probable, possible, unlikely, none)
	Global (IUCN)	National (Child *et al.*, 2016)		
Giant Golden Mole (*Chrysospalax trevelyani)*	EN	EN	Transkei Coastal Scarp forests and Amathole Mistbelt forests and occasionally marginally into adjacent grassland habitats. Restricted to larger forest patches, preferring areas in forest patches with soft soils, well-developed undergrowth, and deep leaf litter layers. (Bronner, 2015)	**Unlikely** *due to absence of sufficient forest habitat.*
Southern Tree Hyrax *(Dendrohyrax arboreus)*	LC	EN	Forested and well-wooded areas where it shelters in dense matted forest vegetation, epiphytes, or tree cavities. Its main threat is loss of structure within habitat, rather than forest size. (Butynski, *et al*., 2015)	**Possible** *Riparian forest may be suitable habitat for foraging or movement between large forests.*
White-tailed Rat *(Mystromys albicaudatus)*	EN	VU	Associated with calcrete soils within grassland. They do not inhabit soft, sandy substrate, rocks, wetlands or riverbanks. In the Eastern Cape Province, it was found in habitats with crests and ridges and on bare patches with sparse vegetation. Appear to be dependent on vegetation post fire. (Avenant**,** *et al*., 2019)	**Unlikely** *No representative habitat in the areas of activity.*
Dark-footed Shrew (*Myosorex cafer)*	VU	VU	Moist, densely vegetated forests and grasslands. In the Eastern Cape Province they can be the dominant small mammal species in Afromontane forest. (Baxter, *et al*., 2020)	**Possible** *Suitable habitat is present.*
Leopard (*Panthera pardus)*	LC	VU	Has a wide habitat tolerance, including woodland, grassland savannah and mountain habitats but also occur widely in coastal scrub, shrubland and semidesert but prefers densely wooded and rocky areas. (Stein, *et al*., 2020; Swanepoel, *et al*., 2016).	**Possible** *Generally, not known from this region, but occasionally some individuals do pass through the area* (NCC, 2017).
Sensitive Species 7	LC	VU	*Inhabits forested and wooded habitats, including primary and secondary forests, gallery forests, dry forest patches, coastal scrub farmland and regenerating forest. Within the assessment region, they occur mainly within scarp and coastal forests, thickets or dense coastal bush although they can occupy modified habitats. They frequent forest glades and open areas but need dense underbrush to rest or take*	**Unlikely** *No representative habitat in the areas of activity.*

Species	Threat status		Habitat preference	Likelihood of occurrence at each site (Probable, possible, unlikely, none)
	Global (IUCN)	National (Child *et al.*, 2016)		
			cover. They are selective foragers which mainly feed on fruit, dicots and a small percentage of monocots. (Venter, *et al.*, 2016)	
Golden Vlei Rat (*Otomys auratus)*	NT	NT	Exclusively herbivorous. Inhabits mesic grasslands and wetlands, typically in mountain and submontane regions. Requires dense vegetation near water. (Taylor, *et al.*, 2016)	**Unlikely** *No representative habitat in the areas of activity.*
African Clawless Otter (*Aonyx capensis)*	NT	NT	Predominantly aquatic and seldom found far from permanent water. Prefers riverine habitat characterised by reed beds, boulders and overhanging vegetation, particularly rocks covered with dense vegetation and large areas of undisturbed long grasses and dense bushes. (Okes, *et al.*, 2016)	**Probable** *Water courses, and probably from time to time also some of the artificial wetlands within the study area (NCC, 2017).*
African Striped Weasel (*Poecilogale albinucha)*	LC	NT	Wide habitat tolerance includes lowland rainforest, semi-desert grassland, fynbos, pine plantations, pastures, and cultivated fields. (Stuart, *et al.*, 2015)	**Possible** *Suitable habitat is present.*
Spectacled Dormouse (*Graphiurus ocularis)*	LC	NT	Shelters and nests in rock cracks and crevices (Cassola, 2016).	**Probable** *Inhabits the cliff faces along river.*

7.9.4 Birds

The avifaunal reports for the Haga Haga WEF identified 314 bird species with a distribution that includes the project area and recorded 133 bird species during the monitoring (Arcus,2020; BioInsight, 2017).

The Haga Haga area includes the distribution of 18 threatened bird species, including 12 endangered and five vulnerable species (Table 7-5). The species observed onsite during the monitoring included the Grey Crowned Crane, Southern Ground Hornbill, Black Harrier, African Marsh Harrier, Secretarybird, Martial Eagle, Lanner Falcon, Denham's Bustard, Crowned Eagle and Maccoa Duck.

The DFEE screener identified five species of concern, these are discussed below and as well as the Southern Ground Hornbill.

African Marsh Harrier
The African Marsh Harrier (*Circus ranivorus*) is listed as Endangered in the Red Data book of Birds (Taylor et al., 2015). This species inhabits inland and coastal wetlands and adjacent moist grassland for breeding and forages in fynbos, grasslands, floodplains and croplands (Taylor *et al*., 2015). This species was recorded in the 2017 survey and has a high likelihood of occurrence in the study area.

Denham's Bustard
Denham's Bustard (*Neotis denhami*) listed as vulnerable, and the site was rated as having a high sensitivity due to the occurrence of this species on site. The Denham's Bustard was recorded by SABAP2 and during the avifaunal monitoring in 2017 on the WEF site. This species inhabits grasslands, grassy *Acacia*-studded dunes, fairly dense shrubland, light woodland, farmland, crops, dried marsh and arid scrub plains, high rainfall sour grassveld, planted pastures and cereal croplands in fynbos in South Africa (BirdLife Int., 2021) and has a high likelihood of occurrence in the study area.

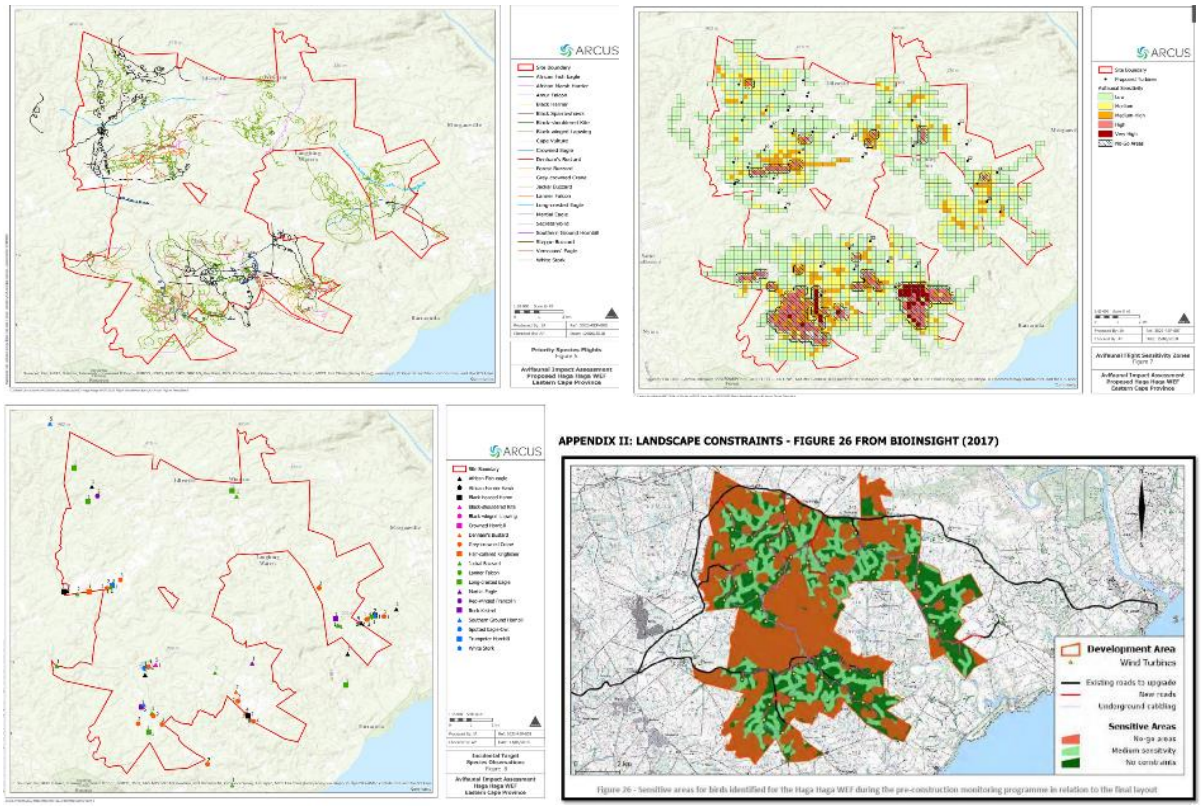
Mangrove Kingfisher
Mangrove Kingfisher (*Halcyon senegaloides*) is listed as Endangered due to its small breeding population. The Mangrove Kingfisher migrates from Kwa-Zulu Natal coast to breed on the Eastern Cape coast and remains within 30m of a river course in a woodland mosaic only absent June to August. The non-perennial streams that are present at the sites of activity are unlikely to support this species and the likelihood of occurrence is therefore low.

Sensitive Species 2
Marshes, pans and dams with fairly tall emergent vegetation are important for this species breeding. It forages in short to medium height open grassland and cultivated fields and pastures. This species was observed at the WEF (BioInsight, 2017) foraging on the ground or in flight and was strongly associated with agriculture areas. Although this species has been confirmed in the study area, they are not observed in close proximity to the road or intersections being assessed in this study.

Knysna Warbler
Knysna Warbler *(Bradypterus sylvaticus)* is listed as Vulnerable and inhabits thick, tangled vegetation along the banks of watercourses. Suitable habitat is present at Sites 1&2 and 4&5.

Southern Ground Hornbill
A species assessment on the endangered Southern Ground Hornbill **(**SGH) (*Bucorvus leadbeater*) was conducted by Dr Kemp from the Mabula Ground-Hornbill Project and IUCN SSC Hornbill Specialist Group. She found the WEF likely supported three groups of the SGH (i.e. 10 individuals) which is 0.5% of the estimated national population of South Africa (~2000). Two groups were confirmed to have some or all of their territory within the WEF boundaries. Suitable habitat exists for foraging, roosting

and breeding of the SGH on the WEF site and includes the cultivated fields, grasslands and copses of large exotic trees. The proposed widening of the road and intersections is unlikely to directly impact this species further through displacement and habitat loss as the roads and intersections already exist and the upgrades to this infrastructure are minor.



APPENDIX II: LANDSCAPE CONSTRAINTS - FIGURE 26 FROM BIOINSIGHT (2017)

Figure 26 - Sensitive areas for birds identified for the Haga Haga WEF during the pre-construction monitoring programme in relation to the final layout

Table 7-5: Bird SCC with a distribution range that includes the project area

Scientific Name	Common Name	SA Red Data Book (2015)	IUCN Global	TOPS - Terrestrial (No. 27306, 2005)	SABAP2 3235_2805, 3235_2810, 3235_2815, 3240_2805, 3240_2810, 3240_2815.	Recorded during the avifauna monitoring (2017)
Sensitive Species 2	Sensitive Species 2	Endangered	Endangered	Endangered	X	X
Circus maurus	Black Harrier	Endangered	Endangered			X
Gyps coprotheres	Cape Vulture	Endangered	Endangered	Endangered		
Phalacrocorax capensis	Cape Cormorant	Endangered	Endangered		X	
Polemaetus bellicosus	Martial Eagle	Endangered	Endangered	Vulnerable	X	X
Geokichla guttata	Spotted ground thrush	Endangered	Endangered			
Torgos tracheliotos	Lappet-faced Vulture	Endangered	Endangered	Endangered		
Neophron percnopterus	Egyptian Vulture	Extinct	Endangered	Critically Endangered		
Bucorvus leadbeater	Southern Ground-hornbill	Endangered	Vulnerable		X	X
Poicephalus robustus	Cape Parrot	Endangered	Vulnerable			
Circus ranivorus	African Marsh-harrier	Endangered	Least Concern		X	X
Stercorarius antarctica	Subantarctic Skua	Endangered	Least Concern		X	
Mycteria ibis	Yellow-billed Stork	Endangered	Least Concern			
Sagittarius serpentarius	Secretarybird	Vulnerable	Endangered			X
Falco biarmicus	Lanner Falcon	Vulnerable	Vulnerable		X	X
Bradypterus sylvaticus	Knysna Warbler	Vulnerable	Vulnerable			
Stephanoaetus coronatus	African Crowned Eagle	Vulnerable	Near-threatened		X	X
Neotis denhami	Denham's Bustard	Vulnerable	Near-threatened		X	X
Anthropoides paradiseus	Blue Crane	Near-threatened	Vulnerable	Endangered		
Oxyura maccoa	Maccoa Duck	Near-threatened	Vulnerable			X

7.10 Terrestrial Ecology Sensitivity Assessment

7.10.1 Eastern Cape Biodiversity Conservation Plan

The ECBCP (2019) replaces the ECBCP (2007) in its entirety and provides a map of important biodiversity areas, outside of the Protected Areas network, which must be used to inform land use and resource-use planning and decision making. The objectives of the ECBCP (2019) are to:

1) Identify the minimum spatial requirements needed to maintain a living landscape that continues to support all aspects of biodiversity and retain/maintain essential ecological infrastructure. This is achieved through the selection of areas, based on achieving targets, which represent important biodiversity pattern AND ecological processes;
2) Serve as the primary source of biodiversity information for land use planning and decision-making; and
3) Inform conservation and restoration action in important biodiversity areas.

The aim of the ECBCP (2019) was to map biodiversity priority areas through a systematic conservation planning process. The main outputs of the ECBCP include Protected Areas (PA), Critical Biodiversity Areas (CBA), Ecological Support Areas (ESA), Other Natural Areas (ONA) and No Natural Habitat Remaining (NNR) for both terrestrial and aquatic ecosystems.

Of relevance to this project are CBAs and ESAs as they may be impacted by project infrastructure. Access roads 1 & 2 occur within a CBA 1, access roads 3, 4 and 5 occur within an ESA1 and access road 6 occurs within an ESA1 and ESA2 (Figure 7-14).

CBAs are areas that have been "*selected to meet biodiversity targets for species, ecosystems and ecological processes"* (ECBCP, 2019). These areas are recognised as having a high biodiversity value and as such must be maintained in a natural state with no further loss of habitat.

ESAs are area that are not essential for meeting biodiversity targets but from a terrestrial perspective they are areas that are considered important for ensuring connectivity between CBAs. ESAs typically include riparian areas, coastal corridors and ridges. These areas must be maintained in a semi-natural state although a natural state is preferable.

Although the project area is located within an ESA and CBA, the roads already exist and these areas have therefore already been impacted either directly or indirectly through edge effects. The upgrading and widening of the roads will occur within areas where biodiversity has already been affected the current infrastructure.

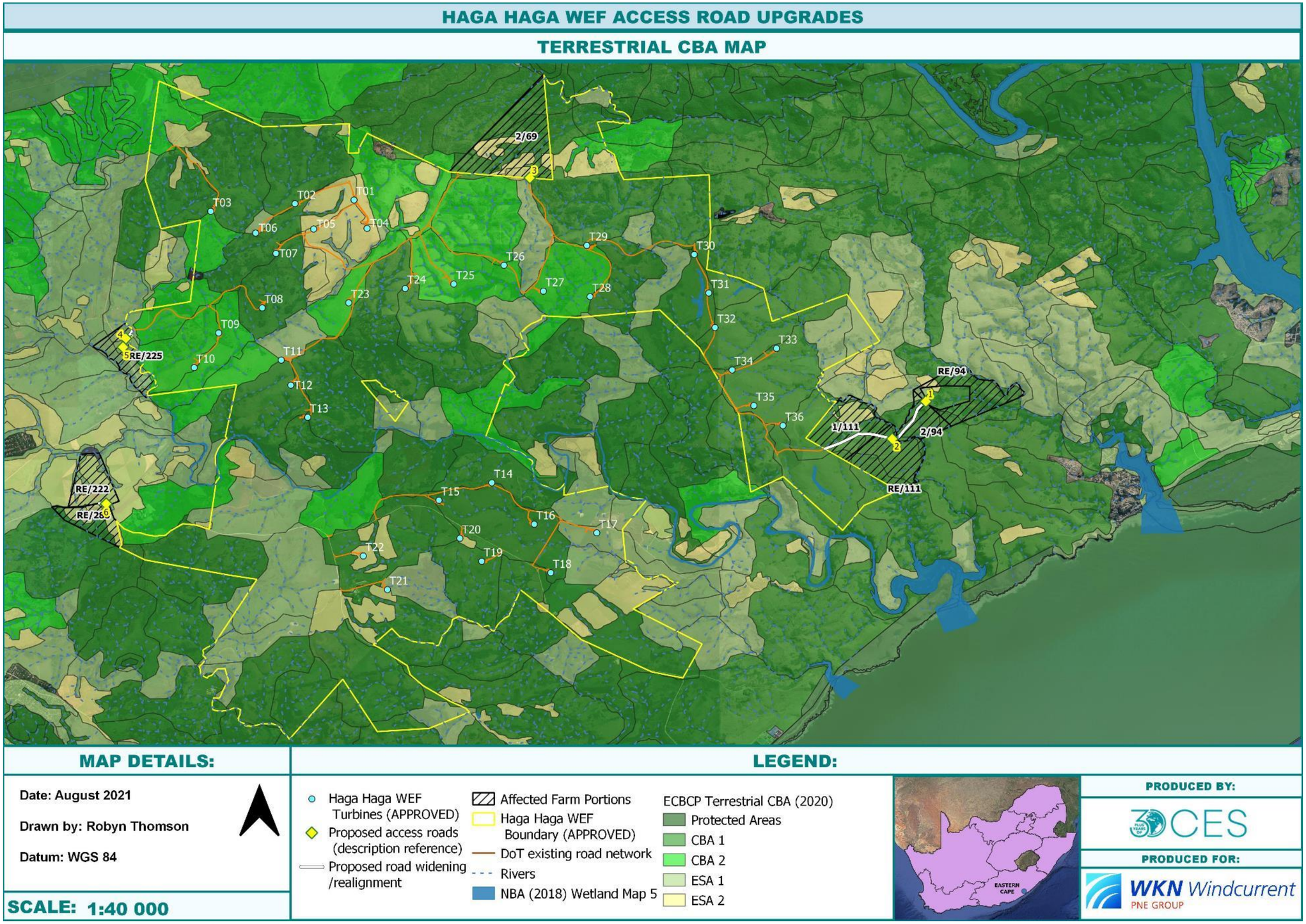


Figure 7-14: The project site in relation to identified CBAs and ESAs.

7.10.2 Sensitivity Assessment

Given how small the footprint of infrastructure will be at each site, the Site Ecological Importance (SEI) was assessed for each site.

Riparian forest at sites 1&2 and sites 4&5 was determined to be of medium sensitivity due to these areas already being degraded as a consequence of edge effects from the existing road (Table 7-6).

Grassland at sites 1 & 2 was determined to be of low sensitivity due to its ability to recover quickly to its current, degraded state. Similarly, the thicket at sites 4 & 5 were also determined to be of low sensitivity due to it being degraded and infested with alien invasive plant species (Table 7-6).

Sites 3 & 6 are highly modified by the current land use and were determined to be of Very Low sensitivity (Table 7-6).

Table 7-6: Evaluation of Site Ecological Importance (SEI) of habitat and SCC

Vegetation Type	Conservation Importance (CI)	Functional Integrity (FI)	Receptor Resilience	SEI
Sites 1 & 2 (Riparian Forest)	**Low** No confirmed or highly likely populations of SCC are likely to be present	**High** The riparian vegetation at the stream crossings at these sites provides a narrow ecological corridor, allowing for migrations across the site.	**Low** The Riparian Forest is unlikely to recover fully after a relatively long period of time and as such receptor resilience is low.	**Medium**
Site 1 & 2 (Grassland)	**Low** No confirmed or highly likely populations of SCC are likely to be present.	**High** The grassland areas provide good connectivity with potentially functional ecological corridors.	**High** Habitat is likely to recover relatively quickly (5-10 years) to restore >70% of the original composition at the impacted site which is already degraded due to edge effects.	**Low**
Site 3 & 6	**Low** No confirmed or highly likely populations of SCC are likely to be present.	**Low** Both sites show evidence of transformation however migrations across these areas are still possible.	**Very High** Given the degradation at the sites, habitat can recover quickly (less than 5 years).	**Very Low**
Sites 4 & 5 (Forest)	**Low** No confirmed or highly likely populations of SCC are likely to be present	**High** The riparian vegetation provides a narrow ecological corridor, allowing for migrations across the site.	**Low** The Riparian Forest is unlikely to recover fully after a relatively long period of time and as such receptor resilience is low.	**Medium**
Sites 4 & 5	**Low**	Medium	**Medium**	

Vegetation Type	Conservation Importance (CI)	Functional Integrity (FI)	Receptor Resilience	SEI
(Thicket and Alien invasive vegetation)	No confirmed or highly likely populations of SCC are likely to be present	The riparian vegetation at the stream crossings at these sites provides a narrow ecological corridor, allowing for migrations across the site.	Thicket is likely to recover slowly (more than 10 years to restore 70% of the vegetation type).	**Low**

7.11 SURFACE WATER

7.11.1 Quaternary Catchment and Water Management Area

The study area falls within quaternary catchments R30A and S70F within Water Management Area 7 (Mzimvubu to Tsitsikamma).

7.11.2 Ecoregion

South Africa is a geologically, geomorphologically, climatically and ecologically complex country, and this has resulted in a diverse range of ecosystems, including rivers. River ecoregional classification or typing allows the grouping of rivers according to similarities based on a top-down nested hierarchy. The principle of river typing is that rivers grouped together at a particular level of the typing hierarchy will be more similar to one another than rivers in other groups. Ecological regions are regions within which there is relative similarity in the mosaic of ecosystems and ecosystem components (biotic and abiotic, aquatic and terrestrial).

According to Department of Water Affairs and Forestry (2005) Level 2 River Ecoregional classification System, the project site falls within Level 2 Eastern Coastal Belt aquatic Ecoregion 31.01 and 31.02 (Table 7-7).

Table 7-7: Attributes of the Level 2 Ecoregion Eastern Coastal Belt aquatic Ecoregion 31.01 and 31.02

Main Attributes		
Terrain Morphology	Closed Hills, Mountains; moderate and high relief. Low Mountains	Closed Hills, Mountains; moderate and high relief. Highly Dissected Hills
Vegetation types (dominant types in bold) (Primary)	Coastal Grassland, Coastal Bushveld/Grassland, Afromontane forest, Coastal Forest, Dune Thicket, Eastern Thorn Bushveld, Moist Upland Grassland	Coastal Bushveld/Grassland, Valley Thicket, Afromontane forest, Coastal Forest, Coastal Grassland, Dune Thicket
Altitude (m a.m.s.l.)	0-700	0-700
MAP (mm)	500 - 1000	400 - 1000
Coefficient of variation (% of annual precipitation)	<20 to 35	<20 to 30

Main Attributes		
Rainfall concentration index	15 - 45	<15 - 45
Rainfall seasonality	Early Summer, Mid-Summer	Early Summer
Mean annual temp (°C)	16-20	18-20
Winter temperature (July)	6 – 22 °C	8 – 22 °C
Summer temperature (Feb)	14 – 26 °C	16 – 26 °C
Median annual simulated runoff (mm) for quaternary catchment	20 to > 250	20 to > 250

7.11.3 Rivers and Wetlands

The Quko River traverses the central portion of the area, while the headwaters of the Mtendwe, Haga-Haga and Nyarha Rivers are located within the southern portion of the area. All of these Rivers are considered to be in an unmodified, natural or largely natural with few modifications (RIVCON AB) ecological condition.

Table 7-8 Summary of results of the ecological condition of the watercourse associated with the proposed access roads requiring upgrades, as extrapolated per SAS (2020).

Watercourse	Present Ecological State (PES)	Ecoservices	Ecological Importance and Sensitivity (EIS)	Recommended Ecological Category (REC), Recommended Management Objective (RMO) and Best Attainable State (BAS)
Riparian non-perennial watercourses	Category C (Moderately modified)	1,8 to 1,5 (Intermediate)	Category C (Moderate)	REC Category: D (Largely modified) RMO Category: C (Maintain) BAS: C (Moderately modified)
Overview of watercourse characteristics: Due to various existing anthropogenic activities within the local catchment of these watercourses, such as road infrastructure and agricultural activities, these watercourses have been impacted upon to some degree. This corresponds to the impacts identified for the watercourses within the Haga Haga WEF area of interest, and as such, the ecological conditions of the Haga Haga WEF assessed watercourses can be utilised to inform the ecological condition of the watercourses associated with the proposed road upgrade activities. Please refer to the SAS (2020) report for further detailed explanations.				

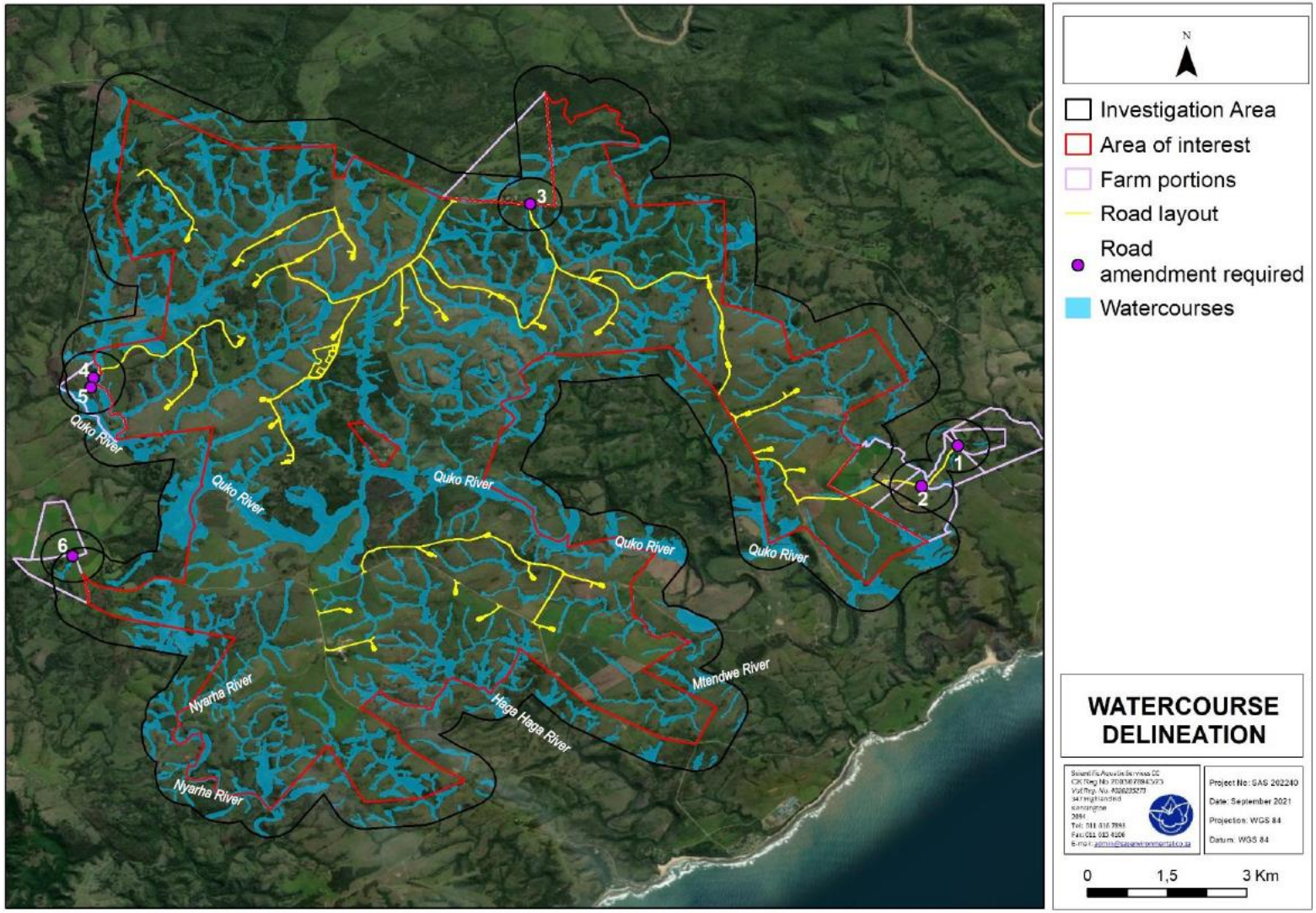


Figure 7-15: Overview map presenting the six areas (numbered 1 to 6), located outside the authorised 'area of interest' associated with the Haga Haga WEF, requiring upgrading relative to the delineated watercourses associated with the larger Haga Haga WEF area (SAS, 2021).

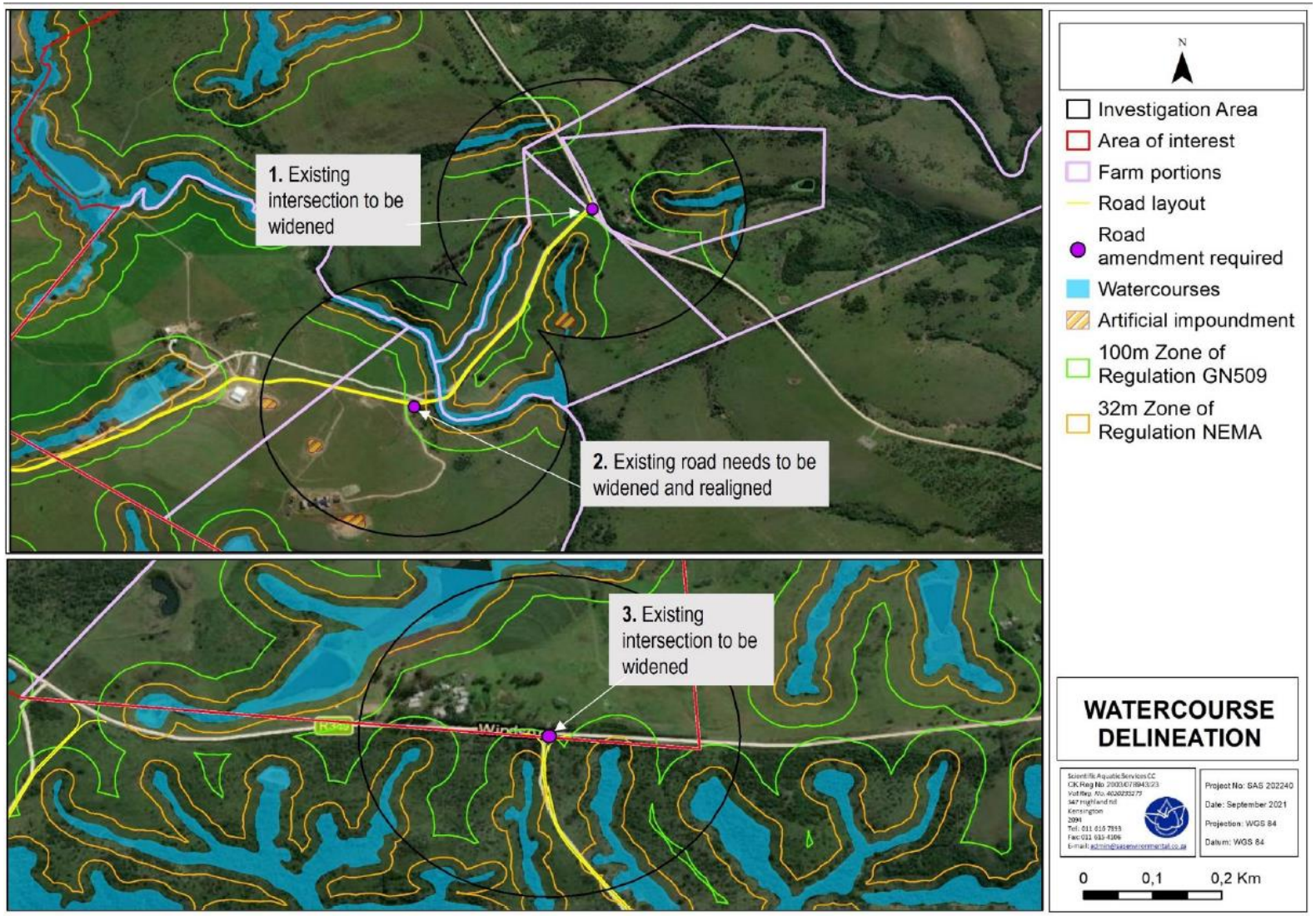


Figure 7-16 Access sites 1, 2, and 3 requiring upgrades relative to the desktop delineated watercourses and their respective 32 m Zone of Regulation as per NEMA and the 100 m Zone of Regulation in accordance with NWA.

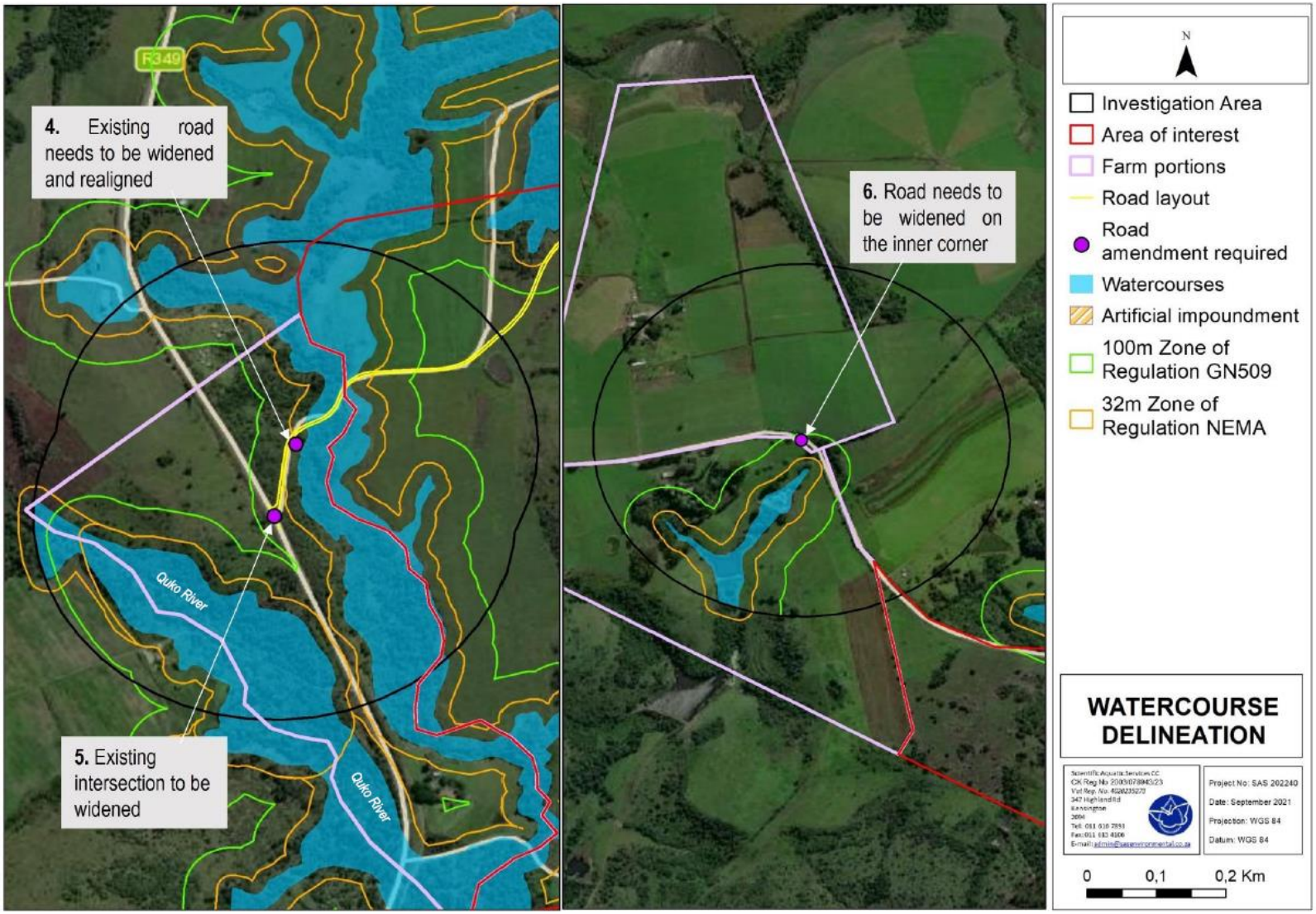


Figure 7-17: Access sites 4, 5 and 6 requiring upgrades relative to the desktop delineated watercourses and their respective 32 m Zone of Regulation as per NEMA and the 100 m Zone of Regulation in accordance with NWA.

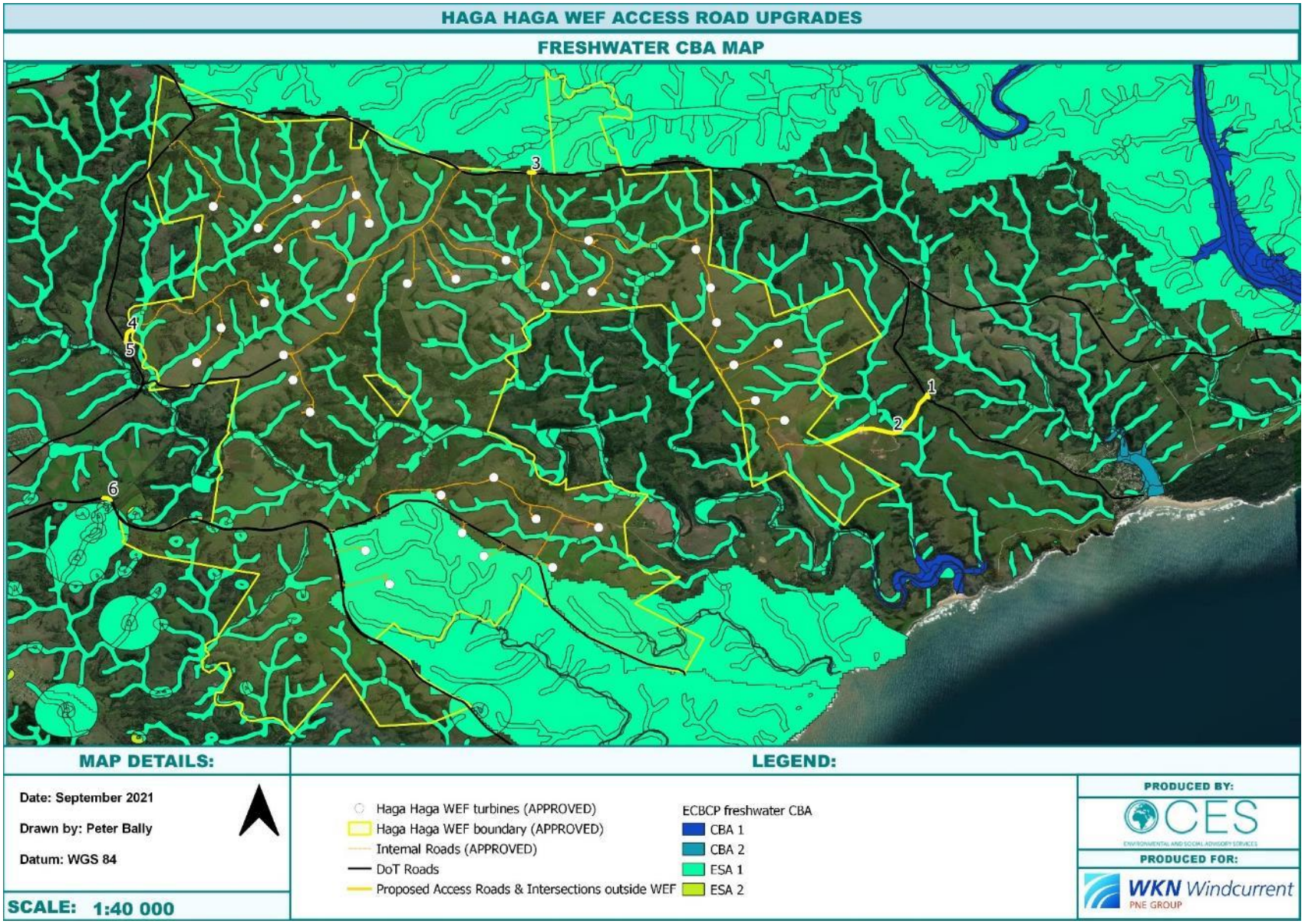


Figure 7-18: ECBCP (2019) Aquatic CBA Map of the project area.

7.11.4 Threatened Ecosystems

The National Environmental Management: Biodiversity Act, (Act No. 10 OF 2004) (NEM:BA) provides a National List of Ecosystems that are threatened and in need of protection – GN 1002 of 2011. There are no threatened ecosystems within or surrounding the project area. The nearest threatened ecosystem is situated approximately 30 km north of the project area.

7.11.5 Protected areas

The National Protected Areas Expansion Strategy (NPAES, 2008) was developed to "*achieve cost-effective protected area expansion for ecological sustainability and increased resilience to climate change*." The NPAES originated as Government recognised the importance of protected areas in maintaining biodiversity and critical ecological process. The NPAES sets targets for expanding South Africa's protected area network, placing emphasis on those ecosystems that are least protected.

Section 1 and 2 of the road upgrades are located within the NPAES focus area (Figure 7-19). A list of the nearest NPAES focus areas and protected areas surrounding the project area is tabulated in Table 7-9 below.

In addition, the closest Important Bird Area (SA092 Amatole Forest Complex) is situated approximately 50 kilometres west of the proposed site and is unlikely to have any influence on this project.

Table 7-9: Distance from site to the nearest NPAES Focus Areas and Protected Areas.

NAME OF PROTECTED AREA	DISTANCE FROM SITE
Bisho Kei NPAES Focus Area	0 km
Amathole Marine Protected Area	3 km south east
East London Coast Reserve	3 km south east
Cape Henderson Nature Reserve	9 km south
Dunneden Private Nature Reserve	10 km west
SA092 Amatole Forest Complex IBA	50 km west

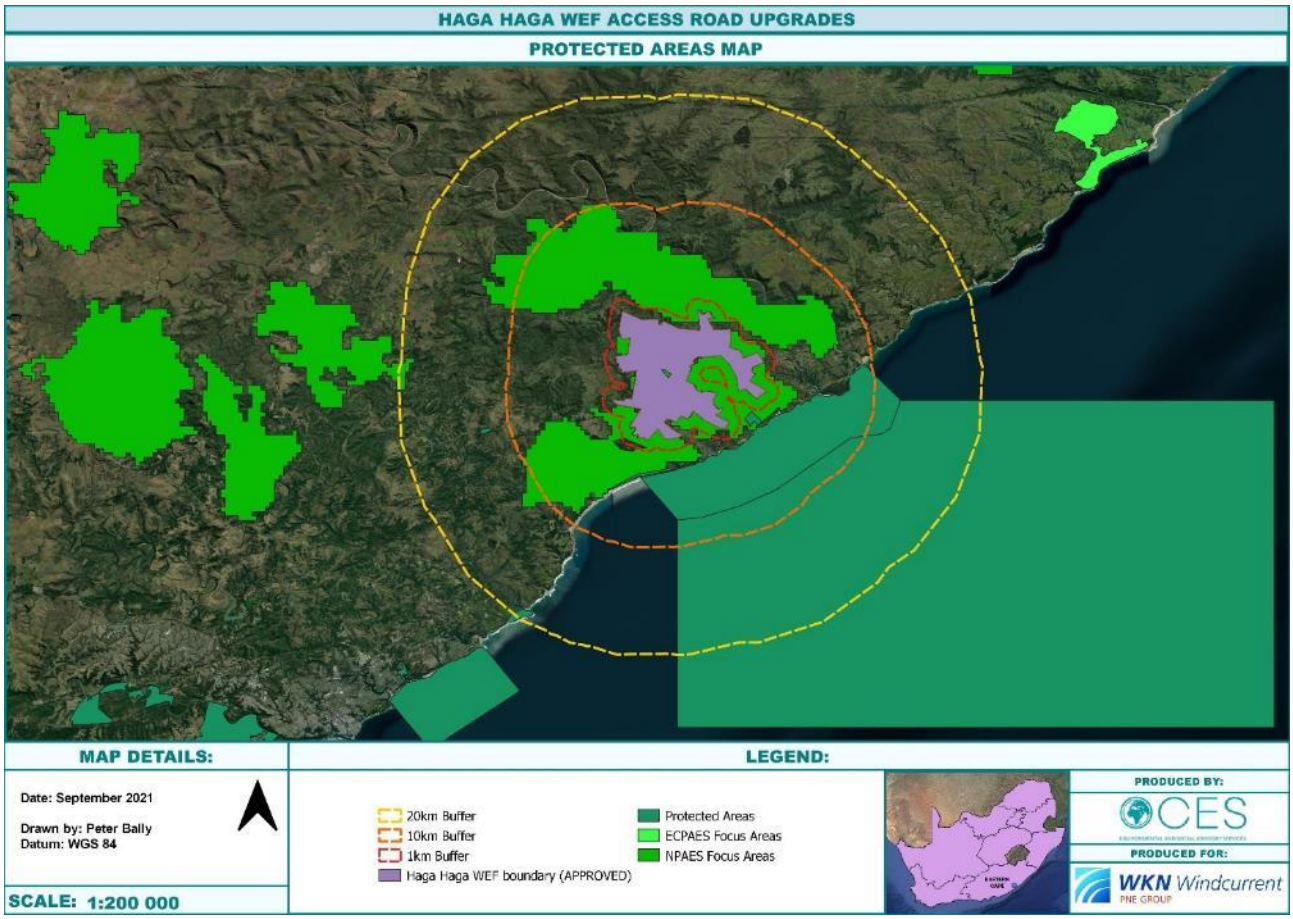


Figure 7-19: Protected areas and NPAES focus areas surrounding the project site.

7.12 ARCHAEOLOGICAL AND PALAEONTOLOGICAL SENSITIVITY

An Archaeological investigation was undertaken by ACO and Associates in October 2017 as part of the Haga Haga WEF EIA. The assessment comprised studies of the Archaeology and Palaeontology and more general heritage resources of the area. The comments of the Visual Impact assessment have been considered in coming to an integrated conclusion. A site visit was conducted on 6 to 9 February 2017 to evaluate the potential archaeological and palaeontological resources, and the nature of the built environment.
Previous unpublished heritage related projects conducted in the vicinity of the study area were sourced from the SAHRIS database the layouts of the WEF infrastructure was tested against these mapped constraints and opportunities zones. Historical aerial photographs of the site from 1938 were examined to determine if any built environment heritage resources are identifiable at that time (kraals, structures etc.) Aerial photos were also analysed to assess the presence of “Heritage indicators” (water sources, geological formations that may form caves, etc.). This also served to assess the level of site disturbance due to natural and man-made activities. These factors were encapsulated in a Heritage “constraints and opportunities” map which when combined with similar mapping exercises by other specialists identifies which parts of the site could be optimally developed.

The assessment did not identify any significant constraints on the site or “red flag” issues. There is a low probability of significant impacts on scientifically important fossil palaeontological resources during the course of bedrock excavations and surface clearance. The impact on archaeological resources is considered to be negligible and acceptable given the low numbers and significance of the identified resources.

Subsequent letter statements, following the heritage analysis (2021) of the additional road upgrades, were provided by Eastern Cape Heritage Consultants (archaeological) and Natura Viva (palaeontological) indicating that the impacts associated with the access road upgrades were acceptable.

Should any archaeological material be exposed during construction, all work must cease in the immediate area and it must be reported to the Albany Museum (Tel: 046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel: 043 7450888), so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to remove/collect such material.

8 IMPACT ASSESSMENT

8.1 CES ASSESSMENT METHODOLOGY

To ensure a balanced and objective approach to assessing the significance of potential impacts, a standardised rating scale was adopted which allows for the direct comparison of specialist studies. This rating scale has been developed in accordance with the requirements outlined in Appendix 2 and 3 of the EIA Regulations (2014, as amended).

Impact significance pre-mitigation

This rating scale adopts six key factors to determine the overall significance of the impact prior to mitigation:

1. **Nature of impact:** Defines whether the impact has a negative or positive effect on the receiving environment.
2. **Type of impact:** Defines whether the impact has a direct, indirect or cumulative effect on the environment.
3. **Duration:** defines the relationship of the impact to temporal scales. The temporal scale defines the significance of the impact at various time scales as an indication of the duration of the impact. This may extend from the short-term (less than 5 years, equivalent to the construction phase) to permanent. Generally, the longer the impact occurs the greater the significance of any given impact.
4. **Extent:** describes the relationship of the impact to spatial scales i.e. the physical extent of the impact. This may extend from the local area to an impact that crosses international boundaries. The wider the spatial scale the impact extends, the more significant the impact is considered to be.
5. **Probability:** refers to the likelihood (risk or chance) of the impact occurring. While many impacts generally do occur, there is considerable uncertainty in terms of others. The scale varies from unlikely to definite, with the overall impact significance increasing as the likelihood increases.
6. **Severity or benefits:** the severity/beneficial scale is used in order to scientifically evaluate how severe negative impacts would be, or how beneficial positive impacts would be on the receiving environment. The severity of an impact can be evaluated prior and post mitigation to demonstrate the seriousness of the impact if it is not mitigated, as well as the effectiveness of the mitigation measures. The word 'mitigation' does not only refer to 'compensation', but also includes concepts of containment and remedy. For beneficial impacts, optimization refers to any measure that can enhance the benefits. Mitigation or optimisation should be practical, technically feasible and economically viable.

For each impact, the duration, extent and probability are ranked and assigned a score. These scores are combined and used to determine the overall impact significance prior to mitigation. They must then be considered against the severity rating to determine the overall significance of an activity. This is because the severity of the impact is far more important than the other three criteria. The overall significance is either negative or positive (Criterion 1) and direct, indirect or cumulative (Criterion 2).

Table 8-1: Evaluation Criteria.

Duration (Temporal Scale)	
Short term	*Less than 5 years*
Medium term	*Between 5-20 years*
Long term	*Between 20 and 40 years (a generation) and from a human perspective also permanent*
Permanent	*Over 40 years and resulting in a permanent and lasting change that will always be there*
Extent (Spatial Scale)	
Localised	*At localised scale and a few hectares in extent*

Study Area	*The proposed site and its immediate environs*	
Regional	*District and Provincial level*	
National	*Country*	
International	*Internationally*	
Probability (Likelihood)		
Unlikely	*The likelihood of these impacts occurring is slight*	
May Occur	*The likelihood of these impacts occurring is possible*	
Probable	*The likelihood of these impacts occurring is probable*	
Definite	*The likelihood is that this impact will definitely occur*	
Severity Scale	*Severity*	*Benefit*
Very Severe/ Beneficial	An irreversible and permanent change to the affected system(s) or party(ies) which cannot be mitigated.	A permanent and very substantial benefit to the affected system(s) or party(ies), with no real alternative to achieving this benefit.
Severe/ Beneficial	Long term impacts on the affected system(s) or party(ies) that could be mitigated. However, this mitigation would be difficult, expensive or time consuming, or some combination of these.	A long-term impact and substantial benefit to the affected system(s) or party(ies). Alternative ways of achieving this benefit would be difficult, expensive or time consuming, or some combination of these.
Moderately severe/Beneficial	Medium to long term impacts on the affected system(s) or party (ies), which could be mitigated.	A medium to long term impact of real benefit to the affected system(s) or party(ies). Other ways of optimising the beneficial effects are equally difficult, expensive and time consuming (or some combination of these), as achieving them in this way.
Slight	Medium- or short-term impacts on the affected system(s) or party(ies). Mitigation is very easy, cheap, less time consuming or not necessary.	A short to medium term impact and negligible benefit to the affected system(s) or party(ies). Other ways of optimising the beneficial effects are easier, cheaper and quicker, or some combination of these.
No effect/don't or can't know	The system(s) or party(ies) is not affected by the proposed development.	In certain cases, it may not be possible to determine the severity of an impact.

** In certain cases, it may not be possible to determine the severity of an impact thus it may be determined: Don't know/Can't know.*

Table 8-2: Description of Overall Significance Rating.

Significance Rate	***Description***
Don't Know	*In certain cases, it may not be possible to determine the significance of an impact. For example, the primary or secondary impacts on the social or natural environment given the available information.*
NO SIGNIFICANCE	*There are no primary or secondary effects at all that are important to scientists or the public.*

Significance Rate		Description
LOW NEGATIVE	***LOW POSITIVE***	*Impacts of low significance are typically acceptable impacts for which mitigation is desirable but not essential. The impact by itself is insufficient, even in combination with other low impacts, to prevent the development being approved. These impacts will result in negative medium to short term effects on the natural environment or on social systems.*
MODERATE NEGATIVE	**MODERATE POSITIVE**	*Impacts of moderate significance are impacts that require mitigation. The impact is insufficient by itself to prevent the implementation of the project but in conjunction with other impacts may prevent its implementation. These impacts will usually result in a negative medium to long-term effect on the natural environment or on social systems.*
HIGH NEGATIVE	***HIGH POSITIVE***	*Impacts that are rated as being high are serious impacts and may prevent the implementation of the project if no mitigation measures are implemented, or the impact is very difficult to mitigate. These impacts would be considered by society as constituting a major and usually long-term change to the environment or social systems and result in severe effects.*
VERY HIGH NEGATIVE	***VERY HIGH POSITIVE***	*Impacts that are rated as very high are very serious impact which may be sufficient by itself to prevent the implementation of the project. The impact may result in permanent change. Very often these impacts are unmitigable and usually result in very severe effects or very beneficial effects.*

Impact significance post-mitigation

Once mitigation measures are proposed, the following three factors are then considered to determine the overall significance of the impact after mitigation.

1. **Reversibility Scale**: This scale defines the degree to which an environment can be returned to its original/partially original state.
2. **Irreplaceable loss Scale:** This scale defines the degree of loss which an impact may cause.
3. **Mitigation potential Scale:** This scale defines the degree of difficulty of reversing and/or mitigating the various impacts ranges from very difficult to easily achievable. Both the practical feasibility of the measure, the potential cost and the potential effectiveness is taken into consideration when determining the appropriate degree of difficulty.

Table 8-3: Post-mitigation Evaluation Criteria

Reversibility	
Reversible	*The activity will lead to an impact that can be reversed provided appropriate mitigation measures are implemented.*
Irreversible	*The activity will lead to an impact that is permanent regardless of the implementation of mitigation measures.*
Irreplaceable loss	
Resource will not be lost	*The resource will not be lost/destroyed provided mitigation measures are implemented.*
Resource will be partly lost	*The resource will be partially destroyed even though mitigation measures are implemented.*
Resource will be lost	*The resource will be lost despite the implementation of mitigation measures.*

Mitigation potential	
Easily achievable	*The impact can be easily, effectively and cost effectively mitigated/reversed.*
Achievable	*The impact can be effectively mitigated/reversed without much difficulty or cost.*
Difficult	*The impact could be mitigated/reversed but there will be some difficultly in ensuring effectiveness and/or implementation, and significant costs.*
Very Difficult	*The impact could be mitigated/reversed but it would be very difficult to ensure effectiveness, technically very challenging and financially very costly.*

The following assumptions and limitations are inherent in the rating methodology:

- Value Judgements: Although this scale attempts to provide a balance and rigor to assessing the significance of impacts, the evaluation relies heavily on the values of the person making the judgment.
- Cumulative Impacts: These affect the significance ranking of an impact because it considers the impact in terms of both on-site and off-site sources. This is particularly problematic in terms of impacts beyond the scope of the proposed development. For this reason, it is important to consider impacts in terms of their cumulative nature.
- Seasonality: Certain impacts will vary in significance based on seasonal change. Thus, it is difficult to provide a static assessment. Seasonality will need to be implicit in the temporal scale, with management measures being imposed accordingly (e.g. dust suppression measures being implemented during the dry season).

8.2 IMPACT ASSESSMENT

The overall impacts associated with the current layout of the proposed Haga Haga WEF access road upgrades as well as the "no-go alternative" will be assessed to evaluate the significance of the "as predicted" impacts (prior to mitigation) and the "residual" impacts (that remain after mitigation measures have been implemented).

1.IMPACTS RESULTING FROM THE PLANNING & DESIGN PHASE

IMPACT 1.1: LEGISLATION AND POLICY COMPLIANCE

Cause and Comment: Non-compliance with the relevant legislation and policies of South Africa, as they pertain to the environment, could lead to damage to the environment, unnecessary delays in planned construction activities, and could potentially result in criminal cases, based on the severity of the non-compliance, being brought against the Developer and their Contractors.

Mitigation Measures:

- All necessary permitting and authorisations must be obtained prior to the commencement of any construction activities.
- A suitably qualified Environmental Control Officer (ECO) must be appointed prior to the commencement of the construction phase.

Significance Assessment:

IMPACT 1.1: LEGISLATION AND POLICY COMPLIANCE			
Nature	*Direct*		
Type	Negative		
Impact	**Effect**	**Likelihood**	

	Temporal Scale	Spatial Scale	Severity of Impact		Overall Significance
Without Mitigation	Long term	Regional	Severe/ Beneficial	Probable	HIGH NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will not be lost	Easily achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

2. IMPACTS RESULTING FROM THE CONSTRUCTION PHASE

IMPACT 2.1: INCREASE IN AIR EMISSIONS

Cause and Comment: Dust and vehicle emissions created as a result of the construction activities, such as vegetation clearance, grading and levelling of the exposed land and the transport of construction materials could be a nuisance during the construction phase.

Mitigation Measures:

- Exhaust emissions from construction vehicles must be minimised by ensuring that all vehicles are properly equipped and serviced.
- Vegetation clearance must be limited to approved and demarcated development footprints.
- If fine building materials, such as sand, are to be transported on the back of trucks, they must be adequately covered.
- Excavations and other clearing activities must only be done during the agreed-upon working hours and days.
- A speed limit of 40km/h must not be exceeded on gravel roads.

Significance Assessment:

IMPACT 2.1: INCREASE IN AIR EMISSIONS					
Nature	*Direct*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Short term	Localised	Moderate	Probable	LOW NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will not be lost	Easily achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.2: INCREASE IN NOISE LEVELS

Cause and Comment: Noise will be created on the site during the construction phase due to the operation of construction equipment, noise generated by construction vehicles both on-site and during travel to and from the site as well as noise generated by the construction workers which are all likely to result in an increase in noise levels and potentially be a nuisance to individuals in proximity to the site.

Mitigation Measures:

- All construction vehicles must be in sound working order and meet the necessary noise level requirements.
- All relevant municipal by-laws, with regards to noise control, must apply.
- Construction workers must not make use of portable radios, vehicle radios, whistles, etc., which generate excessive noise, while they are on the construction site.

Significance Assessment:

IMPACT 2.2: INCREASE IN NOISE LEVELS					
Nature	*Direct*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Short term	Localised	Slight	Probable	LOW NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will not be lost	Easily achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.3: STORMWATER MANAGEMENT

Cause and Comment: Sediment is likely to be created during the upgrading of the access roads. This could be carried into nearby watercourses during rainfall events due to runoff. In addition, inadequate stormwater management could result in increased soil erosion within the proposed site and surrounds.

Mitigation Measures:

- A Stormwater Management Plan must be compiled and implemented during the construction phase.
- Vegetation must be retained, where possible, to avoid soil erosion.
- If slopes are cleared during construction, they must be rehabilitated as soon as possible to minimise soil erosion losses.
- Construction activities must be demarcated and vegetation clearing and topsoil removal (if required) limited to these areas.
- Stockpiled materials must not be stored within 100 m of a watercourse.
- Stockpile areas must be suitably bunded to prevent waterborne erosion of exposed soils where there is a likelihood that the soils will be washed into nearby watercourses.

Significance Assessment:

IMPACT 2.3: STORMWATER MANAGEMENT

Nature	*Direct & Indirect*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Short term	Localised	Low	May Occur	LOW NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will not be lost	Easily achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.4: SOIL AND WATER CONTAMINATION (WATER QUALITY)

Cause and Comment: During the construction phase, accidental spillages of chemical/hazardous substances, particularly in the vicinity of watercourses, may result in soil and water (surface and groundwater) contamination. Contamination could also result in the loss of fertile soils as well as livestock deaths.

Mitigation Measures:

- The Hazardous Chemical Substances Regulations, promulgated in terms of the Occupational Health and Safety Act (Act No. 85 of 1993), must be adhered to. This is applicable to solvents and any other chemicals that are to be used as part of the construction phase.
- No machinery must be parked overnight within 50 m of the rivers/wetlands.
- All stationary machinery must be equipped with a drip tray to retain any oil leaks.
- Chemicals used must be stored safely on bunded surfaces in the site camp.
- Cement mixing must take place on a contained and impermeable surface, should it be undertaken on site.
- Emergency plans, and spill kits, must be in place in case of accidental spillages on site.
- No ablution facilities should be located within 50 m of any river or wetland system.
- Chemical toilets must be regularly maintained/ serviced to prevent ground or surface water pollution.
- Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it.
- All general waste temporarily stored on site must be done so in windproof/sealable containers before being disposed of at a registered landfill site.

Significance Assessment:

IMPACT 2.4: SOIL AND WATER CONTAMINATION (WATER QUALITY)					
Nature	*Direct & Indirect*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Short term	Localised	Moderate	Possible	LOW NEGATIVE

Impact		Reversibility	Irreplaceable Loss	Mitigation Potential	Overall Significance
With Mitigation		Reversible	Resource will not be lost	Easily achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.5: SOIL EROSION, COMPACTION AND DOWNSTREAM SEDIMENTATION

Cause and Comment: During the construction phase, the clearance of vegetation for the road upgrades will result in increased soil exposure which could lead to erosion and subsequent loss of topsoil within the development site and surrounds. soil is likely to be compacted by construction vehicles and activities. Compacted soil reduces the ability of plant growth and water absorption, which is likely to contribute to increase in runoff and soil erosion, as well as a reduced grazing capacity. Erosion can also impact on aquatic systems through the possible increase in surface water runoff on downstream sedimentation and erosion.

Mitigation Measures:

- An Erosion Management Plan or method statement must be compiled (pre-construction) indicating what measures will be implemented during the Construction Phase;
- Vegetation clearance must be kept to a minimum and retained where possible to avoid soil erosion;
- Temporary disturbed areas must be rehabilitated as soon as practically possible;
- Where possible, construction vehicles should only make use of the designated access routes and construction activities must be limited to the development footprint to avoid the compaction of the surrounding areas.
- The appointed ECO must monitor soil compaction and erosion during the construction phase. Remedial action must be taken at the first signs of erosion.
- Compacted areas should be ripped to loosen the soil structure.
- Topsoil stockpiles must not be compacted.
- Erosion controls and sediment trapping measures must be put in place, where necessary.

Significance Assessment:

IMPACT 2.5: SOIL EROSION, COMPACTION AND DOWNSTREAM SEDIMENTATION					
Nature	*Direct & Indirect*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Short term	Study area	Low	Possible	LOW NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will not be lost	Achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.6: LOSS OF TOPSOIL

Cause and Comment: During site clearing, which includes removal of vegetation and soil disturbance, the inadequate management of topsoil could result in the loss of topsoil which will have a significant impact on the success of rehabilitation and re-vegetation of the site and could also cause permanent damage to the agricultural potential of the landscape, if left unmitigated. If topsoil is mixed with clayey subsoil, the usefulness of the topsoil for the rehabilitation of the site will be lost.

Mitigation Measures:

- The stripping of topsoil must be undertaken in such a manner as to minimise erosion by wind or runoff.
- All foreign materials, which could reduce the quality of the topsoil, such as construction rubble, litter and alien vegetation, must be stored separately from the topsoil.
- Topsoil and subsoil must not be mixed during the excavation, stripping, storage and restoration of the topsoil.
- The appointed ECO must approve the stockpiling location prior to the stockpiling of any topsoil within the project site.
- Stockpiled topsoil must not be compacted.
- Any excess topsoil, which is not used for rehabilitation, must be reused for other areas in need or removed from the site.

Significance Assessment:

IMPACT 2.6: LOSS OF TOP SOIL					
Nature	*Direct & Indirect*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Long term	Study area	Moderate	Probably	MODERATE NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will be partly lost	Achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.7: MATERIAL STOCKPILING

Cause and Comment: During the construction phase, stockpiling of materials in close proximity to aquatic areas identified on site could result in mobilisation of the materials into the nearby wetlands and watercourses, resulting in sedimentation and a decrease in water quality and aquatic habitat.

Mitigation Measures:

- No stockpiles must be stored within 50m of any aquatic feature, i.e. farms dam and natural wetlands.
- Stockpiles must be monitored for erosion and mobilisation of materials towards wetlands/watercourses. If this is noted by an ECO, suitable cut-off drains, or berms must be placed between the stockpile area and the nearest wetland/watercourse.
- Stockpiles should not exceed 1.5 m in height.
- Stockpiles should be covered during windy periods.

Significance Assessment:

IMPACT 2.7 MATERIAL STOCKPILING					
Nature	*Direct & Indirect*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Medium term	Study area	Low	Possible	LOW NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will not be lost	Achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.8: LOSS OF RIPARIAN SYSTEMS

Cause and Comment: During the construction phase, indiscriminate removal of vegetation or unnecessary encroachment into riparian and wetland vegetation may lead to disturbance of the aquatic ecosystem. That being said, all the important aquatic zones have been avoided or contain high levels of alien tree cover, as such the impact has been rated as low.

Mitigation Measures:

- No removal of vegetation must take place within 50m of any artificial or natural wetland, outside of the road works footprint, except for the control of alien vegetation.
- Construction vehicles and machinery must not encroach into identified 'no-go' areas or areas outside the project footprint.
- Activities within 500m of wetland must obtain the necessary Water Use License prior to the commencement of such activities.

Significance Assessment:

IMPACT 2.8: LOSS OF RIPARIAN SYSTEMS					
Nature	*Direct & Cumulative*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Short term	Study area	Low	Probable	LOW NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will not be lost	Achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.9: FIRE RISK

Cause and Comment: The proposed upgrading of the access roads could increase the risk of fires, which could potentially result in the loss of grazing and livestock during the construction phase. The risk of fires, particularly during the drier months still exists in the absence of the proposed road upgrades.

Mitigation Measures:

- Open fires must not be permitted within the proposed site during the construction phase.
- Smoking must be restricted to designated smoking areas which have easy access to fire-fighting equipment.
- The Contractor, or the appointed fire marshal, must take all responsible steps to prevent the accidental occurrence and the spreading of fires.
- The Contractor and/or the appointed fire marshal must ensure that there is always fire-fighting equipment available on-site during the construction phase.
- The Contractor and/or the appointed fire marshal must ensure that all site personnel are aware of the risk of fires, the procedure to be followed in the event of a fire and that all site personnel have access to the relevant contact details of the nearest Fire and Emergency Services.

Significance Assessment:

IMPACT 2.9: FIRE RISK					
Nature	*Direct & Indirect*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Long term	Study area	Severe	Probable	HIGH NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will not be lost	Easily achievable	LOW NEGATIVE
No-Go Alternative	Long term	Study area	Moderate	May Occur	LOW NEGATIVE

IMPACT 2.10: LOSS OF NATURAL VEGETATION

Cause and Comment: The widening of the roads and intersections will result in the loss of some natural vegetation. The vegetation that will be impacted has already been impacted by the existing road and associated edge effects and as such the impacts will be of low significance.

Portions of this vegetation type will be lost as a result of the construction of the WEF. Given the small footprint of the road upgrades compared to the WEF, the additional loss of vegetation will have a low cumulative impact.

Mitigation Measures:

- Construction vehicles and machinery must not encroach into areas outside the project footprint.
- Topsoil (20 cm, where possible) must be collected and stored in an area of low sensitivity and used to rehabilitate impacted areas that are no longer required during the operational phase (e.g. laydown areas).

- Only indigenous species must be used for rehabilitation.
- Employees must be prohibited from making open fires during the construction phase.
- A Search and Rescue for fauna and flora should be conducted prior to vegetation clearance.
- Plant translocation to adjacent suitable habitat may only be done for species that are not range restricted and for populations that have not been quantified as regionally significant.
- Bridge widening at site 1&2 should preferably be extended downstream, where there will be less need to disturb forest trees. Permit for pruning of trees will be required.
- Bridge widening at site 4&5 must occur downstream from the existing water crossing in both cases. Permit for pruning of trees will be required.

It is difficult to implement mitigation measures specific to the cumulative impacts as the applicant only has jurisdiction over their development and not over other developments or farming activities in the area.

Significance Assessment:

IMPACT 2.10: LOSS OF NATURAL VEGETATION					
Nature	*Direct & Cumulative*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Permanent	Localised	Slight	Definite	LOW NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation	Permanent	Irreversible	Resource could be partially lost	Difficult	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.11: DISTURBANCE TO FAUNAL SPECIES AND POTENTIAL REDUCTION IN ABUNDANCE AND MORTALITY OF FAUNAL SPECIES

Cause and Comment: Habitat clearing for the construction of the widened road would create a disturbance (noise, dust, activity) to faunal species using the site for foraging, shelter and breeding.

Portions of habitat will be lost as a result of the construction of widening the roads. Given the small footprint of the road upgrades compared to the WEF, the additional loss of habitat will have a low cumulative impact.

Mitigation Measures:

- Vehicles and machinery must meet best practice standards.
- Staff and contractors' vehicles must comply with speed limits of 40km/hr
- Project must start and be completed within the minimum timeframe. i.e. may not be started and left incomplete.
- The ECO must walk ahead of clearing construction machinery and move slow moving species e.g. tortoises out of harms way and into suitable neighbouring habitat.
- Any faunal species that may die as a result of construction must be recorded (photographed, gps co-ord) and if somewhat intact preserved and donated to SANBI.
- Any faunal species observed onsite must be recorded (photographed, gps co-ord) and loaded onto iNaturalist.
- Staff and contractors are not permitted to capture, collect or eat any faunal species onsite.

It is difficult to implement mitigation measures specific to the cumulative impacts as the applicant only has jurisdiction over their development and not over other developments or farming activities in the area.

Significance Assessment:

IMPACT 2.11: DISTURBANCE TO FAUNAL SPECIES AND POTENTIAL REDUCTION IN ABUNDANCE AND MORTALITY OF FAUNAL SPECIES					
Nature	*Direct & Cumulative*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Permanent	Study Area	Moderate	Definite	LOW NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Irreversible (*Direct*) Reversible (*Cumulative*	Resource could be partially lost	Difficult	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.12: IMPACT ON FAUNAL SPECIES OF CONSERVATION CONCERN

Cause and Comment: SCC based on the presence of habitat at SITE 1, 2, 3, 4, 5, 6. Habitat with little disturbance provides important hunting and foraging ground for raptors and large ground birds including Denham's Bustard and Southern Ground Hornbill.

Minor portions of habitat will be lost as a result of the construction of widening the roads. Given the small footprint of the road upgrades compared to the WEF, the additional loss of habitat will have a low cumulative impact.

Mitigation Measures:

- The workers must be explicitly made aware through Toolbox talks to stay in the work areas only and not venture in the bush for any reason.
- A clause must be included in contracts stating that: "no wild animals will be hunted, killed, poisoned or captured. No wild animals will be imported into, exported from or transported in or through the Province. No wild animals will be sold, bought, donated and no person associated with the development will be in possession of any live wild animal, carcass or anything manufactured from the carcass."
- A clause relating to fines, possible dismissal and legal prosecution must be included should any of the above transgressions occur.

It is difficult to implement mitigation measures specific to the cumulative impacts as the applicant only has jurisdiction over their development and not over other developments or farming activities in the area.

Significance Assessment:

IMPACT 2.12: IMPACT ON FAUNAL SPECIES OF CONSERVATION CONCERN	
Nature	*Direct & Cumulative*
Type	Negative

Impact	Effect			Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Without Mitigation	Permanent	Localised	Slight	Definite	LOW NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Irreversible	Resource could be partially lost	Difficult	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.13: DISRUPTION OF ECOSYSTEM FUNCTION AND PROCESS

Cause and Comment: Fragmentation is one of the most important impacts on vegetation as it creates breaks in previously continuous vegetation, causing a reduction in the gene pool and a decrease in species richness and diversity. It also impacts on fauna as it separates habitats and necessitates fauna having to move across exposed areas like roads to get to another section of their habitat or territory. This impact occurs when more and more areas are cleared, resulting in the isolation of functional ecosystems, which results in reduced biodiversity and reduced movement due to the absence of ecological corridors.

Given that the roads already exist, habitat fragmentation has already occurred, and the impact associated with widening the roads is therefore negligible.

Under the no go alternative, habitat fragmentation has already occurred and will continue to do so while the roads are in use.

Mitigation Measures:

- Laydown areas must be rehabilitated.
- Existing access roads should be used and upgraded where necessary.

Significance Assessment:

IMPACT 2.13: DISRUPTION OF ECOSYSTEM FUNCTION AND PROCESS					
Nature	*Direct*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	N/A				NEGLIGIBLE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation					N/A
No-Go Alternative					

Nature	*Direct*				
Type	*Negative*				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Permanent	Localised	Slight	Definite	LOW NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation					N/A

IMPACT 2.14: ESTABLISHMENT OF ALIEN PLANT SPECIES

Cause and Comment: A number of alien plant species were identified during the field survey and there are likely to be more. Construction activities disturb the soil and provide an opportunity for alien species to spread. Once established, alien invasive plants are very difficult to eradicate and may then invade surrounding undisturbed areas, posing a threat to the neighbouring ecosystem. This impact is likely to be exacerbated if constant rehabilitation and alien invasive plant eradication is not implemented during construction.
Within the context of the sections of the existing road and intersection expansions, the cumulative impact of the spread of alien plant species is not significant.

Alien plant species are already present and established in areas close to the road and intersection expansions.

Mitigation Measures:

- The Alien Invasive Plant Monitoring and Eradication programme designed for the Haga Haga WEF and associated infrastructure must be implemented as part of the widening of the roads and intersections during construction.

Significance Assessment:

IMPACT 2.14: INVASION OF ALIEN VEGETATION					
Nature	*Direct*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Long-term	Study area	Moderate	Definite	HIGH NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Alien plant species are already present and established in areas close to the road and	Achievable	LOW NEGATIVE

			intersection expansions.		
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.15: LOSS OF GRAZING LAND

Cause and Comment: During the construction phase, the development will result in the permanent loss of a of grazing land, which comprises 0.3 % of the affected properties.

Mitigation Measures:

- Vegetation clearance must be restricted to the demarcated development footprint.
- The layout of the facility must be developed in a manner that requires the smallest footprint, where possible, to minimise the loss of grazing land.
- Soil erosion and soil compaction near the demarcated development footprints must be monitored and managed during construction to prevent the loss of additional grazing land due to degradation.
- Stocking rates of livestock, in this case cattle, may need to be reconsidered based on the remaining hectares available for grazing needed in order to prevent the possibility of overgrazing.

Significance Assessment:

IMPACT 2.15: LOSS OF GRAZING LAND					
Nature	*Direct & Cumulative*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Long-term	Study site	Negligible	Unlikely	NEGLIGIBLE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation	N/A				
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.16: INCREASE IN STOCK THEFT AND POACHING

Cause and Comment: During the construction phase the increase in individuals accessing the project area could lead to the increase in stock theft and poaching, which is an existing risk in the area.

Stock theft and wildlife poaching are ongoing issues in the Eastern Cape, as well as in other provinces in South Africa. The risk/likelihood of stock theft and poaching occurring exists in the absence of the proposed development but could increase due to the increase in activity in the area, such as the influx of labourers.

Mitigation Measures:

- Controlled access must be implemented to monitor access to the project site during the construction phase.
- No unauthorised individuals must be allowed to access the project site without permission from the landowners and/or the developers during the construction phase.

- Construction workers must not handle or remove any livestock or wildlife from the project area and the surrounding properties.
- Severe penalties should be in place and legal action should be taken against any construction workers that handle or remove any livestock or wildlife from the project area and/or surrounding areas.

Significance Assessment:

IMPACT 2.16: INCREASE IN STOCK THEFT AND POACHING					
Nature	*Indirect*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Short-term	Study site	Severe	May Occur	HIGH NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Irreversible	Resource will be lost	Difficult	MODERATE NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.17: WASTE MANAGEMENT

Cause and Comment: During the construction phase, litter on site may attract vermin, detract from the visual appeal of the area, and pollute the surrounding areas. Construction rubble left onsite could pollute the area and encourage the growth of opportunistic alien vegetation.

Mitigation Measures:

- The conditions set out in the Waste Management Plan must be implemented and adhered to.
- Construction rubble must be disposed of in predetermined, demarcated spoil dumps.
- The ECO must monitor the Contractor campsite for litter and waste.
- All waste must be stored on site in closed bins and removed from the site and transported to the closest licensed landfill site.

Significance Assessment:

IMPACT 2.17: WASTE MANAGEMENT					
Nature	*Direct*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Permanent	Study site	Moderate	Probable	HIGH NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will not be lost	Achievable	LOW NEGATIVE

No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***

IMPACT 2.18: VISUAL IMPACTS

Cause and Comment: Construction activities may impact on the aesthetic appearance of the project area. However, the roads are existing and activities are not expected to alter the visual nature of the area significantly.

Mitigation Measures:

- The site camp must be placed in an area that is not visually obtrusive to the neighbouring properties or local communities.
- The site camp and temporary structures must be decommissioned, and the area rehabilitated once construction has been completed.
- All waste, materials and equipment must be removed from site.
- The project area must be kept tidy and free of litter, where possible.

Significance Assessment:

IMPACT 2.18: VISUAL IMPACTS					
Nature	*Direct*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Short-term	Study site	Low	Probable	LOW NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will not be lost	Achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.19: SENSITIVE HERITAGE RESOURCES

Cause and Comment: The Archaeological Specialist did not observe any sensitive heritage resources during his field investigation and indicated that it is unlikely that these would be found later on. He indicated, however, that there is always a possibility that human remains and/or other archaeological and historical material may be uncovered during the development.

Mitigation Measures:

- Should any material be exposed then work must cease in the immediate area and it must be reported to the Albany Museum (Tel: 046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel: 043 7450888), so that a systematic and professional investigation can be undertaken.
- Sufficient time should be allowed to remove/collect such material (See Appendix B of the appended Heritage Letters of Recommendation for a list of possible archaeological sites that maybe found in the area).

Significance Assessment:

IMPACT 2.19: SENSITIVE HERITAGE RESOURCES					
Nature	*Direct*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Short-term	Study site	Moderate	Unlikely	MODERATE NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Irreversible	Resource will be lost	Achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.20: TRAFFIC IMPACTS

Cause and Comment: The Construction Phase will result in an influx of construction vehicles resulting in traffic congestion and potential safety issues. The road upgrades will be constructed before the turbine foundations are constructed and some of the material excavated for the foundations can be used for road construction purposes. Road construction material can also be sourced commercial sources in the area and the internal road upgrades will result in an increase in construction truck traffic during the construction phase. However, the increase in traffic volumes as a result of the road upgrade construction traffic will be well within the function and the capacity of the surrounding public road network. The road construction activities along the public road network will occur in a controlled environment with traffic accommodation measures to ensure road safety for road users during the construction period.

Mitigation Measures:

- All deliveries with abnormal loads must operate under an approved transportation plan with the necessary traffic routes and traffic accommodation plans in place.

Significance Assessment:

IMPACT 2.20: TRAFFIC IMPACTS					
Nature	*Direct*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Short-term	Study site	Slight	Unlikely	LOW
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will not be lost	Achievable	NEGLIGIBLE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 2.21: SOCIO-ECONOMIC BENEFITS

Cause and Comment: During the construction phase, the proposed Haga Haga WEF access road upgrades development will result in the creation of short-terms jobs. Jobs will contribute to skills development of the labour force.

Measures to Enhance Benefits:

- The employment of local labour for the non-technical works should be promoted.

Significance Assessment:

IMPACT 2.21: SOCIO-ECONOMIC BENEFITS					
Nature	*Direct*				
Type	Positive				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Short-term	Study site	Moderate	Probable	MODERATE POSITIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		N/A	N/A	N/A	MODERATE POSITIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

3. IMPACTS RESULTING FROM THE OPERATIONAL PHASE

IMPACT 3.1: INFESTATION OF ALIEN PLANT SPECIES

Cause and Comment: Poor rehabilitation and the lack of implementation of an alien invasive plant eradication during the operation phase will favour the establishment and spread of alien invasive plant species.

Within the context of the sections of the existing road and intersection expansions, the cumulative impact of the spread of alien plant species is not significant.

Alien plant species are already present and established in areas close to the road and intersection expansions.

Mitigation Measures:

- The Alien Invasive Plant Monitoring and Eradication programme designed for the Haga Haga WEF and associated infrastructure must be implemented as part of the widening of the roads and intersections during the operation phase of the project.

Significance Assessment:

IMPACT 3.1: INFESTATION OF ALIEN PLANT SPECIES					
Nature	*Direct*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		

Without Mitigation	Long-term	Study Area	Moderate	Definite	HIGH NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Alien plant species are already present and established in areas close to the road and intersection expansions.	Achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 3.2: INADEQUATE REHABILITATION AND MAINTENANCE OF DISTURBED AREAS

Cause and Comment: During the operational phase, failure to remove and manage alien vegetation could result in the permanent establishment and spread of alien vegetation in the study area. In addition, the poor rehabilitation of disturbed areas may lead to the permanent degradation of ecosystems which will permit alien vegetation species to establish and spread.

Mitigation Measures:

- A Rehabilitation and Maintenance Plan (compiled pre-construction), must be implemented to ensure all previously disturbed areas are rehabilitated to the satisfaction of an appointed ECO.
- No-go areas must be avoided during operation and maintenance activities.

Significance Assessment:

IMPACT 3.2: INADEQUATE REHABILITATION AND MAINTENANCE OF DISTURBED AREAS					
Nature	*Direct*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Permanent	Study site	Severe	Unlikely	HIGH NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will be lost	Achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 3.3: STORMWATER MANAGEMENT

Cause and Comment: During the operation phase, accidental hydrocarbon or chemical spillages on site could result in ground and surface water pollution.

Mitigation Measures:

- No machinery must be parked overnight within 50 m of the rivers/wetlands.

- All stationary machinery must be equipped with a drip tray to retain any oil leaks.
- All chemicals used must be stored safely on bunded surfaces in the site camp.
- Emergency plans, and spill kits, must be in place in case of accidental spillages on site when required during maintenance activities.
- Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it.
- All general and hazardous waste must be removed from site and disposed of at a registered landfill site.

Significance Assessment:

IMPACT 3.3: STORMWATER MANAGEMENT					
Nature	*Direct*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Long-term	Study site	Low	Possible	LOW NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will not be lost	Achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 3.4: SOIL EROSION, COMPACTION AND DOWNSTREAM SEDIMENTATION

Cause and Comment: During the operation phase, soil could be compacted by maintenance equipment and vehicles during the operational phase of the development. Compacted soil reduces the ability of plant growth and water absorption and is likely to contribute to an increase in runoff resulting in soil erosion and reduced grazing capacity. The project area is particularly susceptible to erosion.

Mitigation Measures:

- All maintenance equipment and vehicles must only make use of the designated access routes and roads to avoid soil compaction. Maintenance vehicles are not allowed to drive off-road/off the designated tracks.
- Soil compaction and erosion must be monitored during the operational phase and remedial action must be taken at the first signs of soil compaction and increased soil erosion.

Significance Assessment:

IMPACT 3.4: SOIL EROSION, COMPACTION AND DOWNSTREAM SEDIMENTATION					
Nature	*Direct & Indirect*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		

Without Mitigation	Long-term	Study site	Slight	May Occur	LOW NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will be partially lost	Achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 3.5: SOIL AND GROUND/SURFACE WATER CONTAMINATION

Cause and Comment: During the operation phase, accidental hydrocarbon or chemical spillages on site could result in ground and surface water pollution.

Mitigation Measures:

- No machinery must be parked overnight within 50 m of the rivers/wetlands.
- All stationary machinery must be equipped with a drip tray to retain any oil leaks.
- Chemicals used must be stored safely on bunded surfaces in the site camp.
- Emergency plans, and spill kits, must be in place in case of accidental spillages on site when required during maintenance activities.
- Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it.
- All general and hazardous waste must be removed from site and disposed of at a registered landfill site.

Significance Assessment:

IMPACT 3.5: SOIL AND GROUND/SURFACE WATER CONTAMINATION					
Nature	*Direct*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Long-term	Study site	Slight	Possible	LOW NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will not be lost	Achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 3.6: WASTE MANAGEMENT

Cause and Comment: During the operation phase, inappropriate handling and disposal of solid waste generated by the facility may have detrimental impacts on the surrounding environment.

Mitigation Measures:

- No waste must be disposed of on site.

- Waste must be removed from site regularly and disposed of at the nearest licensed waste facility.
- Where possible, provisions for waste recycling must be made available.
- All general and hazardous waste must be removed from site and disposed of at a registered landfill site.

Significance Assessment:

IMPACT 3.6: WASTE MANAGEMENT					
Nature	*Direct*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Long-term	Study site	Severe	Possible	HIGH NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Reversible	Resource will not be lost	Achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 3.7: TRAFFIC IMPACTS

Cause and Comment: The Operational Phase refers to the Construction and Operation Phase of the Haga Haga WEF. The construction phase of the WEF will result in an influx of construction vehicles resulting in traffic congestion and potential safety issues. The operation of the WEF will involve the use of the roads by service vehicles having minimal impacts. The significance assessment below, therefore refers to the construction phase of the Haga Haga WEF itself.

No significant road safety issues are expected in terms of possible vehicle and pedestrian conflicts. Most of the equipment and construction material will be delivered to the site with heavy vehicles. The turbine components will be transported by abnormal load vehicles. It is expected that the delivery of the equipment will occur over a 12-month period and the impact of the delivery vehicles on the existing traffic along the road network in the site vicinity will be acceptable.

Mitigation Measures:

- All deliveries with abnormal loads must operate under an approved transportation plan with the necessary traffic routes and traffic accommodation plans in place.

Significance Assessment:

IMPACT 3.7: TRAFFIC IMPACTS					
Nature	*Direct*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Short-term	Study site	Low	May Occur	LOW NEGATIVE

Impact		Reversibility	Irreplaceable Loss	Mitigation Potential	Overall Significance
With Mitigation		Reversible	Resource will not be lost	Achievable	LOW NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 3.8: INCREASE IN STOCK THEFT AND POACHING

Cause and Comment: During the operation phase the increase in individuals accessing the project area could lead to the increase in stock theft and poaching, which is an existing risk in the area. Stock theft and wildlife poaching are ongoing issues in the Eastern Cape, as well as in other provinces in South Africa. The risk/likelihood of stock theft and poaching occurring exists in the absence of the proposed development but could increase due to the increase in activity in the area, such as the influx of labourers for maintenance purposes.

Mitigation Measures:

- No unauthorized individuals must be allowed to access the project site without permission from the landowners and/or the developers during the operational phase.
- The Haga Haga WEF construction workers must not handle or remove any livestock or wildlife from the project site or the surrounding properties.
- Severe penalties should be in place and legal action should be taken against any construction workers that handle or remove any livestock or wildlife from the project site and/or surrounding areas.

Significance Assessment:

IMPACT 3.8: INCREASE IN STOCK THEFT AND POACHING					
Nature	*Indirect*				
Type	Negative				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Long-term	Study site	Moderate	May Occur	HIGH NEGATIVE
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		Irreversible	Resource will be lost	Difficult	MODERATE NEGATIVE
No-Go Alternative	***NOT APPLICABLE, STATUS QUO REMAINS***				

IMPACT 3.9: SUPPORT OF RENEWABLE ENERGY INFRASTRUCTURE FUNCTIONING

Cause and Comment: Without the access roads, construction of the Haga Haga WEF will not be possible. The road thus supports the functioning of renewable energy infrastructure.

Mitigation Measures:

- None

Significance Assessment:

IMPACT 3.9: SUPPORT OF RENEWABLE ENERGY INFRASTRUCTURE FUNCTIONING					
Nature	*Direct, Indirect & Cumulative*				
Type	Positive				
Impact	**Effect**			**Likelihood**	**Overall Significance**
	Temporal Scale	**Spatial Scale**	**Severity of Impact**		
Without Mitigation	Permanent	Study site	High	Definite	**HIGH POSITIVE**
Impact		**Reversibility**	**Irreplaceable Loss**	**Mitigation Potential**	**Overall Significance**
With Mitigation		N/A	N/A	N/A	**HIGH POSITIVE**
No-Go Alternative	Long-term	Study site & Regional	Severe	Definite	**HIGH NEGATIVE**

4. IMPACTS RESULTING FROM THE DECOMMISSIONING PHASE

As per the temporal scales indicated in the significance statement for the operational phase in the section above, the proposed Haga Haga WEF access roads are likely to be used over an extensive period of time, and decommissioning is not foreseen in the near future. The roads are existing roads used by the landowners/ farmers on the properties. However, should the infrastructure be decommissioned in the long term then the impacts associated with the decommissioning phase will be similar to those for the construction phase and the mitigation measures stipulated for the construction phase will, therefore, be relevant. However, it is recommended that the final construction phase EMPr be updated, based on the environmental conditions and relevant legislation at the time, and implemented during the decommissioning of the Haga Haga WEF should the roads be decommissioned at the same time as the WEF.

9 RECOMMENDATIONS & CONCLUSION

9.1 RECOMMENDATIONS

It is recommended that the following general and specialist mitigation and enhancement (in the case of positive impacts) measures are included in the EMPr for each of the phases of the Haga Haga WEF access road upgrades.

IMPACTS RESULTING FROM THE PLANNING & DESIGN PHASE

Negative Impacts

- All necessary permitting and authorisations must be obtained prior to the commencement of any construction activities.
- A suitably qualified Environmental Control Officer (ECO) must be appointed prior to the commencement of the construction phase.

IMPACTS RESULTING FROM THE CONSTRUCTION PHASE

Negative Impacts

- Exhaust emissions from construction vehicles must be minimised by ensuring that all vehicles are properly equipped and serviced.
- Vegetation clearance must be limited to approved and demarcated infrastructure development footprints.
- If fine building materials, such as sand, are to be transported on the back of trucks, they must be adequately covered.
- Excavations and other clearing activities must only be done during the agreed-upon working hours and days.
- A speed limit of 40km/h must not be exceeded on gravel roads.
- All construction vehicles must be in sound working order and meet the necessary noise level requirements.
- All relevant municipal by-laws, with regards to noise control, must apply.
- Construction workers must not make use of portable radios, vehicle radios, whistles, etc., which generate excessive noise, while they are on the construction site.
- A Stormwater Management Plan must be compiled and implemented during the construction phase.
- Vegetation must be retained, where possible, to avoid soil erosion.
- If slopes are cleared during construction, they must be rehabilitated as soon as possible to minimise soil erosion losses.
- Construction activities must be demarcated and vegetation clearing and topsoil removal (if required) limited to these areas.
- Stockpiled materials must not be stored within 100 m of a watercourse.
- Stockpile areas must be suitably bunded to prevent waterborne erosion of exposed soils where there is a likelihood that the soils will be washed into nearby watercourses.
- No machinery must be parked overnight within 50 m of the rivers/wetlands.
- All stationary machinery must be equipped with a drip tray to retain any oil leaks.
- Chemicals used must be stored safely on bunded surfaces in the site camp.

- The Hazardous Chemical Substances Regulations, promulgated in terms of the Occupational Health and Safety Act (Act No. 85 of 1993), must be adhered to. This is applicable to solvents and any other chemicals that are to be used as part of the construction phase.
- Cement mixing must take place on a contained and impermeable surface, should it be undertaken on site.
- Emergency plans, and spill kits, must be in place in case of accidental spillages on site.
- No ablution facilities should be located within 50 m of any river or wetland system.
- Chemical toilets must be regularly maintained/ serviced to prevent ground or surface water pollution.
- Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it.
- All general waste temporarily stored on site must be done so in windproof/sealable containers before being disposed of at a registered landfill site.
- An Erosion Management Plan or method statement must be compiled (pre-construction) indicating what measures will be implemented during the Construction Phase;
- Where possible, construction vehicles should only make use of the designated access routes and construction activities must be limited to the development footprint to avoid the compaction of the surrounding areas.
- The appointed ECO must monitor soil compaction and erosion during the construction phase. Remedial action must be taken at the first signs of erosion.
- Compacted areas should be ripped to loosen the soil structure.
- Topsoil stockpiles must not be compacted.
- Erosion controls and sediment trapping measures must be put in place, where necessary.
- No stockpiles must be stored within 50m of any aquatic feature, i.e. farms dam and natural wetlands.
- Stockpiles must be monitored for erosion and mobilisation of materials towards wetlands/watercourses. If this is noted by an ECO, suitable cut-off drains, or berms must be placed between the stockpile area and the nearest wetland/watercourse.
- Stockpiles should not exceed 1.5 m in height.
- Stockpiles should be covered during windy periods.
- No removal of vegetation is to take place within 50m of any artificial or natural wetland, except for the control of alien vegetation.
- Construction vehicles and machinery must not encroach into identified ‘no-go’ areas or areas outside the project footprint.
- Activities within 500m of wetland must obtain the necessary Water Use License prior to the commencement of such activities.
- Smoking must be restricted to designated smoking areas which have easy access to fire-fighting equipment.
- The Contractor, or the appointed fire marshal, must take all responsible steps to prevent the accidental occurrence and the spreading of fires.
- The Contractor and/or the appointed fire marshal must ensure that there is always fire-fighting equipment available on-site during the construction phase.
- The Contractor and/or the appointed fire marshal must ensure that all site personnel are aware of the risk of fires, the procedure to be followed in the event of a fire and that all site personnel have access to the relevant contact details of the nearest Fire and Emergency Services.
- No vegetation clearance, outside of the immediate project footprint, must occur within dense woody vegetation (bush clumps) or riparian areas, and within 50m of any artificial or natural wetland.
- Protected tree species identified on site must be avoided.
- Employees must be prohibited from making fires and harvesting plants.
- As far as practically possible, existing roads or tracks should be utilised.

- A comprehensive Plant and Faunal Search and Rescue must be conducted by an appropriately qualified individual prior to vegetation clearance.
- Any SCC should be translocated to the nearest appropriate habitat by an appropriately qualified individual.
- Permits for protected or threatened species must be acquired prior to vegetation clearance, should they be affected.
- Where reasonable and feasible, construction activities must be restricted to daylight hours.
- Construction must be undertaken in the shortest time practical.
- A speed limit of 40km/h must not be exceeded on gravel roads.
- An Alien Vegetation Management Plan must be developed and implemented to prevent the establishment and spread of undesirable alien plant species during all phases of development.
- Any alien vegetation which establishes during the construction phase must be removed from site and disposed of accordingly.
- Continuous monitoring for alien plant seedlings must take place throughout the construction phase.
- Areas classified as 'high sensitivity', such as dense woody and riparian vegetation, natural and artificial wetlands must be avoided.
- Construction and operational activities must be limited to within the site boundary only, and the surrounding riparian and dense woody vegetated areas must remain intact and undisturbed by the development.
- Stocking rates of livestock, in this case cattle, may need to be reconsidered based on the remaining hectares available for grazing needed in order to prevent the possibility of overgrazing.
- Controlled access must be implemented to monitor access to the project site during the construction phase.
- No unauthorised individuals should be allowed to access the project site without permission from the landowners and/or the developers during the construction phase.
- Construction workers must not handle or remove any livestock or wildlife from the project area and the surrounding properties.
- Severe penalties should be in place and legal action should be taken against any construction workers that handle or remove any livestock or wildlife from the project area and/or surrounding areas.
- The conditions set out in the Waste Management Plan must be implemented and adhered to.
- Construction rubble must be disposed of in predetermined, demarcated spoil dumps.
- The ECO must monitor the Contractor campsite for litter and waste.
- All waste must be stored on site in closed bins and removed from the site and transported to the closest licensed landfill site.
- The site camp must be placed in an area that is not visually obtrusive to the neighbouring properties or local communities.
- The site camp and temporary structures must be decommissioned, and the area rehabilitated once construction has been completed.
- All waste, materials and equipment must be removed from site.
- The project area is to be kept tidy and free of litter, where possible.
- Should any material be exposed then work must cease in the immediate area and it must be reported to the Albany Museum (Tel: 046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel: 043 7450888), so that a systematic and professional investigation can be undertaken.
- Sufficient time should be allowed to remove/collect such material (See Appendix B of the appended Archaeological Letter of Recommendation for a list of possible archaeological sites that maybe found in the area).

Positive Impacts

- Employment of local labour for the non-technical works

IMPACTS RESULTING FROM THE OPERATIONAL PHASE

Negative Impacts

- An Alien Vegetation Management Plan must be implemented to prevent the establishment and prevent the spread of undesirable alien plant species during the operational phase; and
- Monitoring of the establishment of alien plant seedlings should continue throughout the operational phase. Any alien seedlings should be removed and disposed of at a registered landfill or treated with an appropriate herbicide.
- A Rehabilitation and Maintenance Plan (complied pre-construction), must be implemented to ensure all previously disturbed areas are rehabilitated to the satisfaction of an appointed ECO.
- No-go areas must be avoided during operation and maintenance activities.
- No machinery must be parked overnight within 50 m of the rivers/wetlands.
- All stationary machinery must be equipped with a drip tray to retain any oil leaks.
- Chemicals used must be stored safely on bunded surfaces in the site camp.
- Emergency plans, and spill kits, must be in place in case of accidental spillages on site when required during maintenance activities.
- Any hazardous substances/waste must be stored in impermeable bunded areas or secondary containers 110% the volume of the contents within it.
- All general and hazardous waste must be removed from site and disposed of at a registered landfill site.
- No waste must be disposed of on site.
- Waste must be removed from site regularly and disposed of at the nearest licensed waste facility.
- Where possible, provisions for waste recycling must be made available.
- All general and hazardous waste must be removed from site and disposed of at a registered landfill site.
- The facility must be kept neat and clean. All waste, and unnecessary materials and equipment must be removed from site.
- No unauthorized individuals should be allowed to access the Haga Haga WEF access road upgrades without permission from the landowners and/or the developers during the operational phase.
- Maintenance workers must not handle or remove any livestock or wildlife from the project site or the surrounding properties.
- Severe penalties should be in place and legal action should be taken against any employees or sub-contractors of the facility that handle or remove any livestock or wildlife from the project site and/or surrounding areas

Positive Impacts

- Employment and skills development of local residents.

IMPACTS RESULTING FROM THE DECOMMISSIONING PHASE

As per the temporal scales indicated in the significance statement for the operational phase in the section above, the proposed Haga Haga WEF access road upgrades is likely to be used over an extensive period of time, and decommissioning is not foreseen in the near future. Should the infrastructure be decommissioned in the long term, the impacts associated with the decommissioning phase will be similar to those for the construction phase and the mitigation measures stipulated for the construction phase will, therefore, be relevant. However, it is recommended that the final construction phase EMPr be updated, based on the

environmental conditions and relevant legislation at the time, and implemented during the decommissioning of any of the Haga Haga WEF access road upgrades.

9.2 CONCLUSIONS

Table 9-1 below consists of a summary of the potential impacts associated with the proposed Haga Haga WEF access road upgrades.

Table 9-1: Summary of the Potential Impacts.

IMPACT	DEVELOPMENT ALTERNATIVE		NO-GO ALTERNATIVE
	WITHOUT MITIGATION	WITH MITIGATION	
PLANNING & DESIGN PHASE			
1.1. Legislation and Policy Compliance	HIGH (-)	LOW (-)	N/A
CONSTRUCTION PHASE			
2.1. Increase in Air Emissions	LOW (-)	LOW (-)	N/A
2.2. Increase in Noise Levels	LOW (-)	LOW (-)	N/A
2.3. Stormwater Management	LOW (-)	LOW (-)	N/A
2.4. Soil and Water Contamination (Water Quality)	LOW (-)	LOW (-)	N/A
2.5. Soil Erosion, Compaction and Downstream Sedimentation	LOW (-)	LOW (-)	N/A
2.6 Loss of Topsoil	MODERATE (-)	LOW (-)	N/A
2.7. Material Stockpiling	LOW (-)	LOW (-)	N/A
2.8. Loss of Riparian Systems	LOW (-)	LOW (-)	N/A
2.9. Fire Risk	HIGH (-)	LOW (-)	LOW (-)
2.10. Loss of Natural Vegetation	LOW (-)	LOW (-)	N/A
2.11. Disturbance to Faunal Species and Potential Reduction in Abundance and Mortality of Faunal Species	LOW (-)	LOW (-)	N/A
2.12. Impact on Faunal Species of Conservation Concern	LOW (-)	LOW (-)	N/A
2.13. Disruption of Ecosystem Function and Process	NEGLIGIBLE	N/A	LOW (-)
2.14. Establishment of Alien Plant Species	HIGH (-)	LOW (-)	N/A
2.15. Loss of Grazing Land	NEGLIGIBLE	N/A	N/A
2.16 Increase in Stock Theft and Poaching	HIGH (-)	MODERATE (-)	N/A
2.17. Waste Management	HIGH (-)	LOW (-)	N/A
2.18. Visual Impacts	MODERATE (-)	LOW (-)	N/A
2.19. Sensitive Heritage Resources	MODERATE (-)	LOW (-)	N/A
2.20. Traffic Impacts	LOW (-)	N/A	N/A
2.20. Socio-Economic Benefits	MODERATE (+)	MODERATE (+)	
OPERATIONAL PHASE			
3.1. Infestation of Alien Vegetation	HIGH (-)	LOW (-)	N/A
3.2. Inadequate Rehabilitation and Maintenance of Disturbed Areas	HIGH (-)	LOW (-)	N/A
3.3. Stormwater Management	MODERATE (-)	LOW (-)	N/A
3.4. Soil Erosion and Compaction	MODERATE (-)	LOW (-)	N/A
3.5. Soil and Ground/Surface Water Contamination	LOW (-)	LOW (-)	N/A
3.6. Waste Management	HIGH (-)	LOW (-)	N/A

IMPACT	DEVELOPMENT ALTERNATIVE		NO-GO ALTERNATIVE
	WITHOUT MITIGATION	WITH MITIGATION	
3.7. Traffic Impacts	LOW (-)	LOW (-)	N/A
3.8. Increase in Stock Theft and Poaching	HIGH (-)	MODERATE (-)	N/A
3.9. Support of Renewable Energy Infrastructure Functioning	HIGH (+)	HIGH (+)	HIGH (-)
DECOMMISSIONING PHASE			
The proposed Haga Haga WEF access roads are likely to be used over an extensive period of time, and decommissioning is not foreseen in the near future. The roads are existing roads used by the landowners/ farmers on the properties. However should the infrastructure be decommissioned in the long term then the impacts associated with the decommissioning phase will be similar to those for the construction phase and the mitigation measures stipulated for the construction phase will, therefore, be relevant. However, it is recommended that the final construction phase EMPr be updated, based on the environmental conditions and relevant legislation at the time, and implemented during the decommissioning of the Haga Haga WEF should the roads be decommissioned at the same time as the WEF.			

The proposed upgrading of the Haga Haga WEF access roads has negative impacts associated with it. These impacts are primarily of low to high negative significance, as indicated in Table 9-1 above, although the majority of these impacts can be reduced to low negative significance with the implementation of mitigation measures. In addition, a few benefits are associated with the proposed road upgrades.

The careful implementation of the recommended mitigation measures is likely to significantly reduce the overall significance of the negative impacts. The location and the scale of the activity is unlikely to pose significant environmental impacts provided that the mitigation measures are adequately adhered to.

REFERENCE LIST

Agricultural Research Council (ARC) - Institute for Soil, Climate and Water (ISCW). **Agricultural Geo-Referenced Information System: AGIS**. *Online Source:* www.arc.agric.za.

Almond, J (2021) **Palaeontological heritage comment**, Basic Assessment of Access Road Upgrades for the Authorised Haga Haga Wind Energy Facility Near East London, Komga District, Eastern Cape

Deckers, J., *et al.* (2006) **World Reference Base (WRB) for Soil Resources: In a Nutshell**. European Soil Bureau – Research Report no. 7.

Department of Rural Development and Land Reform (2013). **National Geospatial Information (NGI).** *Online Source:* www.ngi.gov.za.

Driver, A., *et al*. (2011). **Implementation Manual for Freshwater Ecosystem Priority Areas**. WRC Report No. 1801/1/11, Pretoria: Water Research Commission, South Africa.

Hawley-McMaster, G., Martin, T. & Jackson, A (2021) **Ecological Report** for the Haga Haga Wind Energy Facility Access Road Upgrades, Eastern Cape Province

Laubscher and F. Ellis, 2021 **Amendment to the Agricultural Assessment** for the Haga Haga Wind Energy development EIA, East London Region, Eastern Cape Province

Laubscher, J. & Ellis, F. 2018. **Agricultural Assessment Study, Soils and soil suitability and Agricultural economic assessment,** EIA for the Haga Haga Wind Energy development: East London Region, Eastern Cape Province.

Mucina, L. and Rutherford, M. C. (2006). **The Vegetation of South Africa, Lesotho and Swaziland**. Strelitzia 19, Pretoria: South African National Biodiversity Institute.

Paton, Iain (2021) **Geotechnical comment**, Haga Haga Wind Energy Facility - Access Road Upgrades in the Great Kei Local Municipality, Eastern Cape

Reichert, K. (2021). Supplementary Archaeological Statement: Access Road Upgrades for the Haga Haga Wind Energy Facility within the Great Kei Local Municipality, Eastern Cape Province

Samadi, M., *et al.* (2000). **The Development of a World Soils and Terrain (SOTER) Digital Database for South Africa**. Agricultural Research Council (ARC) - Institute for Soil, Climate and Water (ISCW). South Africa.

SANBI (2019). **The Vegetation Map of South Africa, Lesotho and Swaziland** (shapefiles), Pretoria: South African NaTional Biodiversity Institute.

US Energy and Information Administration. *Online Source:* https://www.eia.gov/todayinenergy/detail.php?id=43775

World Weather and Climate Information. *Online Source*: www.weather-and-climate.com.

LEGISLATION, POLICIES AND GUIDELINES

- Constitution Act (Act No. 108 of 1996)
- National Environmental Management Act (NEMA, Act No. 107 of 1998 and subsequent amendments) Environmental Impact Assessment Regulations (2014 and subsequent 2017 amendments)
- National Environmental Management: Biodiversity Act (NEM:BA Act No. 10 of 2004)
- National Water Act (NWA, Act No. 36 of 1998)
- Mineral and Petroleum Resources Development Act (MPRDA, Act No. 28 of 2002)

- National Heritage Resources Act (NHRA, Act No. 25 of 1999)
- National Environmental Management: Waste Act (NEM:WA, Act No. 59 of 2008)
- National Forestry Act (NFA, Act No. 84 of 1998)
- Provincial Nature and Environmental Conservation Ordinance (No. 19 of 1974)
- Eastern Cape Biodiversity Conservation Plan (2006)
- Conservation of Agricultural Resources Act (CARA, Act No. 43 of 1983)
- Electricity Regulation Act (Act No. 4 of 2006)
- Occupational Health and Safety Act (OHSA, Act No. 85 of 1993)
- National Environmental Management: Air Quality Act (NEM:AQA, Act No. 39 of 2004)
- Relevant Municipal Documents:
    - → Great Kei Local Municipality
    - → Amathole District Municipality

APPENDIX A: CURRICULUM VITAE OF THE PROJECT TEAM

- Dr Alan Carter (CES)
- Ms Caroline Evans (CES)
- Ms Robyn Thomson (CES)

ALAN ROBERT CARTER

Curriculum Vitae

CONTACT DETAILS

Name of Company	**CES – Environmental and Social Advisory Services**
Designation	East London Branch
Profession	Executive
Years with firm	17 (Seventeen) Years
E-mail	a.carter@cesnet.co.za
Office number	+27 (0)43 7267809 / 8313
Nationality	South African
Professional Body	SACNASP: South African Council for Natural Scientific Profession EAPSA: Environmental Assessment Practitioners Southern Africa IWMSA: Institute Waste Management Southern Africa TSBPA: Texas State Board of Public Accountancy (USA)
Key areas of expertise	➢ Marine Ecology ➢ Environmental and coastal management ➢ Waste management ➢ Financial accounting and project feasibility studies ➢ Environmental management systems, auditing and due-diligence

PROFILE

Alan has extensive training and experience in both financial accounting and environmental science disciplines with international accounting firms in South Africa and the USA. He is a member of the American Institute of Certified Public Accountants (licensed in Texas) and holds a PhD in Plant Sciences. He is also a certified ISO14001 EMS auditor with the American National Standards Institute. Alan has been responsible for leading and managing numerous and varied consulting projects over the past 25 years.

ALAN ROBERT CARTER
Curriculum Vitae

CES
ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES

EMPLOYMENT EXPERIENCE

- October 2013 – Present: Executive (EOH Coastal & Environmental Services, East London, South Africa)
- January 2002 – September 2013: Director (Coastal & Environmental Services, East London, South Africa)
- January 1999 – December 2001: Manager (Arthur Andersen LLP, Public Accounting Firm, Chicago, Illinois USA)
- December 1996 – December 1998: Senior Accountant/Auditor (Ernst & Young LLP, Public Accounting Firm, Austin, Texas, USA).)
- January 1994 – December 1996: Senior Accountant/Auditor (Ernst & Young, Charteris & Barnes, Chartered Accountants, East London, South Africa)
- July 1991 – December 1994: Associate Consultant (Coastal & Environmental Services, East London, South Africa)
- March 1989 – June 1990: Data Investigator (London Stock Exchange, London, England, United Kingdom)

ACADEMIC QUALIFICATIONS

- Ph.D. Plant Science (Marine) Rhodes University 1987
- B. Compt. Hons. Accounting Science University of South Africa 1997
- B. Com. Financial Accounting Rhodes University 1995
- B.Sc. Hons. Plant Science Rhodes University 1983
- B.Sc. Plant Science & Zoology Rhodes University 1982

COURSES

- *Environmental Management Systems Lead Auditor Training Course - American National Standards Institute and British Standards Institute (2000)*
- *ISO 14001:2015 Implementing Changes - British Standards Institute (2015)*
- *Numerous other workshops and training courses*

CONSULTING EXPERIENCE

Environmental Impact Assessment, Feasibility and Pre-feasibility Assessments

- Managed numerous projects and prepared environmental impact assessment (EIA) reports in terms of relevant EIA legislation and regulations for development proposals including: Infrastructure projects: bulk water and waste water, roads, electrical, mining, ports, aquaculture, renewable energy (solar and wind), industrial processes, housing developments, golf estates and resorts, etc. (2002 – present).
- Projects have also included preparation of applications in terms of other statutory requirements, such as water-use and mining licence /permit applications.
- Managed projects to develop pre-feasibility and feasibility assessments for various projects, including various tourism developments, infrastructure projects, etc.
- Managed project for the East London Industrial Development Zone (ELIDZ) to develop a Conceptual Framework for a Mariculture Zone within the ELIDZ (2009).
- Managed pre-feasibility study to establish a Mariculture Zone within the Coega Industrial Development Zone (2014).
- Assisted City of Johannesburg in the process to proclaim four nature reserves in terms of relevant legislation (2015-2016).

- Acted as Environmental Control Officer (ECO) for numerous projects including solar and wind farms, roads, industrial processes, etc.

Strategic Environmental Assessment

- Managed Strategic Environmental Assessment (SEA) project toward the development of a Biofuel Industry in the Eastern Cape Province of South Africa (2014-2016)
- Managed Strategic Environmental Assessment (SEA) projects for two South African ports (2006 – 2007).
- Managed Strategic Environmental Assessment (SEA) projects for five (5) local municipalities in the Eastern Cape as part of the municipal Spatial Development Framework plans (2004 – 2005).
- Involved in the financial assessment of various land-use options and carbon credit potential as part of a larger Strategic Environmental Assessment (SEA) for assessing forestry potential in Water Catchment Area 12 in the Eastern Cape of South Africa (2006).

Climate change, emissions trading and renewable energy

- Provided specialist peer review services for National Department of Environmental Affairs relating to climate change impact assessments for large infrastructure projects (2017-2018).
- Conducted climate change impact assessment for a proposed coal-fired power station in Africa (2017-2018).
- Participated in the development of a web-based Monitoring & Evaluation (M&E) system for climate change Mitigation and Adaptation in South Africa for National Department of Environmental Affairs (DEA) (2015-2016.
- Managed project to develop a Climate Change Strategy for Buffalo City Metro Municipality (2013).
- Managed projects to develop climate change strategies for two district municipalities in the Eastern Cape Province (2011).
- Conducted specialist carbon stock and greenhouse gas emissions impact and life cycle assessment as part of the Environmental, Social and Health Impact Assessment for a proposed sugarcane to ethanol project in Sierra Leone (2009 - 2010) and a proposed Jatropha bio-diesel project in Mozambique (2009 - 2010).
- Managed project to develop the Eastern Cape Province Climate Change Strategy (2010).
- Managed project to develop a Transnet National Ports Authority Climate Change Risk Strategy (2009)
- Participated in a project to develop a Renewable Energy roadmap for the East London Industrial Development Zone (ELIDZ) (2013).
- Participated in a project for the East London Industrial Development Zone (ELIDZ) and Eastern Cape Government to prepare a Renewable Energy Strategy (2009).
- Contributed to the development of Arthur Andersen LLP's International Climate Change and Emissions Trading Services (2001).
- Conducted carbon credit (Clean Development Mechanism - CDM) feasibility assessment for a variety of renewable energy projects ranging from biogas to solar PV.
- Participated in the preparation of CDM applications for two solar PV projects

in the Eastern Cape.

Waste Management

- Managed project to develop Integrated Waste Management Plans for six local municipalities on behalf of the Sarah Baartman District Municipality in the Eastern Cape Province (2016).
- Managed project to develop Integrated Waste Management Plans for four local municipalities on behalf of Alfred Nzo District Municipality in the Eastern Cape Province (2015).
- Managed project to develop Integrated Waste Management Plans for eight local municipalities on behalf of Chris Hani District Municipality in the Eastern Cape Province (2011).
- Managed a project to develop a zero-waste strategy for a community development in the Eastern Cape Province (2010).
- Managed waste management status quo analysis for a District Municipality in the Eastern Cape Province (2003).
- For three consecutive years, managed elements of the evaluation of the environmental financial reserves of the three largest solid waste companies (Waste Management, Inc., Republic Services, Inc., Allied Waste, Inc.) and number of smaller waste companies in the USA as part of the annual financial audit process for SEC reporting purposes. Ensured compliance with RCRA and CERCLA environmental regulations.
- Managed elements of the evaluation of the environmental financial reserves of the largest hazardous waste company in the USA (Safety-Kleen, Inc.), as part of the audit process for SEC reporting purposes. Ensured compliance with RCRA and CERCLA environmental regulations.

Environmental Due Diligence and Business Risk

- Conducted environmental due diligence projects on behalf of the German Development Bank for a forestry pulp and paper operation in Swaziland (2010) and for a large diversified South African agricultural/agro-processing company (2011)
- Managed project for the Transnet National Ports Authority to identify the environmental risks and liabilities associated with the operations of the Port of Durban as part of a broader National initiative to assess business and financial risks relating to environmental management (2006).
- Managed project to determine the financial feasibility of various proposed tourism developments for the Kouga Development Agency in the Eastern Cape Province (2006)
- Contributed significantly to a study to determine the financial and environmental feasibility of three proposed tourism development projects at Coffee Bay on the Wild Coast (2004).
- Conducted sustainability and cost/benefit analysis of various waste water treatment options (including a marine pipeline at Hood Point) for the West Bank of East London (2004).
- Conducted analysis of permit fees and application processing costs for off-road vehicle use on the South African coastline for the Department of Environmental Affairs and Tourism, Marine & Coastal Management (2003).
- Involved in the determination of the historical cost element of environmental remediation insurance claims for a number of multinational

companies, including Dow Chemicals, Inc. and International Paper, Inc.
- Evaluated the environmental budgeting process of the US Army and provided best practice guidance for improving the process.

Policy and Guidelines
- Development of Administration / Application Fee Structure for the Reclamation of Land, Coastal Use Permits, Coastal Waters
- Discharge Permits, Dumping Of Waste at Sea, Off-Road Vehicle Regulations Promulgated in Terms of the National Environmental Management Act: Integrated Coastal Management Act (Act No. 24 Of 2008) (2017).
- Managed project to develop an Estuarine Management Plan for the Buffalo River Estuary for the National Department of Environmental Affairs (2017).
- Managed project to develop a Coastal Management Programme for Amathole District Municipality, Eastern Cape (2015 – 2016).
- Managed project to develop a sustainability diagnostic report as part of the development of the Eastern Cape Development Plan and Vision 2030 (2013).
- Managed project for the Department of Environmental Affairs and Tourism, Marine & Coastal Management to determine the cost implications associated with the implementation of the Integrated Coastal Management Act (2007).
- Managed project to develop a Conservation Plan and Municipal Open Space System (MOSS) for Buffalo City Municipality (2007)
- Managed project to develop a Sanitation Policy and Strategy for Buffalo City Municipality, Eastern Cape (2004 – 2006).
- Managed project to develop an Integrated Environmental Management Plan and Integrated Coastal Zone Management Plan for Buffalo City Municipality, Eastern Cape (2004 – 2005).
- Managed projects to develop and implement an Environmental Management System (EMS) for the Chris Hani and Joe Gqabi (formerly Ukhahlamba) District Municipalities in the Eastern Cape generally in line with ISO14001 EMS standards (2004 – 2005).
- Managed project to develop a State of the Environment Report and Environmental Implementation Plans for Amathole, Chris Hani, OR Tambo and Joe Gqabi District Municipalities in the Eastern Cape Province (2005 – 20010).
- Conducted analysis of permit fees and application processing costs for off-road vehicle use on the South African coastline for the Department of Environmental Affairs and Tourism, Marine & Coastal Management (2003).

Environmental auditing and compliance
- Conducted environmental legal compliance audit for various large Transnet Freight Rail facilities (2018).
- Managed projects to develop Environmental & Social Management Systems (ESMS) in line with IFC Performance Standards for three (3) wind farms in South Africa (2015-2018).
- Managed project to develop an Environmental & Social Management System (ESMS) in line with IFC Performance Standards for a telecoms company in Zimbabwe on behalf of the German Development Bank (2013)
- Participated in numerous ISO14001 Environmental Management System (EMS) audits for large South African corporations including SAPPI, BHP

Billiton, SAB Miller, Western Platinum Refinery, Dorbyl Group and others (2002 – present).

- Reviewed the SHE data reporting system of International Paper, Inc. (IP) for three successive years as part of the verification of the IP SHE Annual Report, which included environmental assessments of 12 IP pulp and paper mills located throughout the USA.
- Conducted Environmental Management System (EMS) reviews for a number of large US corporations, including Gulfstream Aerospace Corporation

Public financial accounting

- While with Ernst & Young LLP, (USA), functioned as lead financial auditor for various public and private companies, mostly in the technology business segment of up to $200 million in annual sales. Client experience included assistance in a $100 million debt offering, a $100 million IPO and SEC annual and quarterly reporting requirements.
- Completed three years of articles (training contract) in fulfilment of the certification requirements of the South African Institute of Chartered Accountants which included auditing, accounting and preparation of tax returns for many small to medium sized commercial entities.

PUBLICATIONS

Refereed Publications

- Carter, A.R. 1985. Reproductive morphology and phenology, and culture studies of Gelidium pristoides (Rhodophyta) from Port Alfred in South Africa. Botanica Marina 28: 303-311.
- Carter, A.R. 1993. Chromosome observations relating to bispore production in Gelidium pristoides (Gelidiales, Rhodophyta). Botanica Marina 36: 253-256.
- Carter, A.R. and R.J. Anderson. 1985. Regrowth after experimental harvesting of the agarophyte Gelidium pristoides (Gelidiales: Rhodophyta) in the eastern Cape Province. South African Journal of Marine Science 3: 111-118.
- Carter, A.R. and R.J. Anderson. 1986. Seasonal growth and agar contents in Gelidium pristoides (Gelidiales, Rhodophyta) from Port Alfred, South Africa. Botanica Marina 29: 117-123.
- Carter, A.R. and R.H. Simons.1987. Regrowth and production capacity of Gelidium pristoides (Gelidiales, Rhodophyta) under various harvesting regimes at Port Alfred, South Africa. Botanica Marina 30: 227-231.
- Carter, A.R. and R.J. Anderson. 1991. Biological and physical factors controlling the spatial distribution of the intertidal alga Gelidium pristoides in the eastern Cape Province, South Africa. Journal of the Marine Biological Association of the United Kingdom 71: 555-568.

Published reports

- Water Research Commission. 2006. Profiling Estuary Management in Integrated Development Planning in South Africa with Particular Reference to the Eastern Cape. Project No. K5/1485.
- Turpie J., N. Sihlophe, A. Carter, T, Maswime and S. Hosking. 2006. Maximising the socio-economic benefits of estuaries through integrated planning and management: A rationale and protocol for incorporating and

enhancing estuary values in planning and management. Un-published Water Research Commission Report No. K5/1485

Conference Proceedings

- Carter, A.R. 2002. Climate change and emission inventories in South Africa. Invited plenary paper at the 5th International System Auditors Convention, Pretoria. Held under the auspices of the South African Auditor & Training Certification Association Conference (SAATCA).
- Carter, A.R. 2003. Accounting for environmental closure costs and remediation liabilities in the South African mining industry. Proceedings of the Mining and Sustainable Development Conference. Chamber of Mines of South Africa, Vol. 2: 6B1-5
- Carter, A.R. and S. Fergus. 2004. Sustainability analysis of wastewater treatment options on the West Bank of East London, Buffalo City. Proceedings of the Annual National Conference of the International Association for Impact Assessment, South African Affiliate: Pages 295-301.
- Carter, A., L. Greyling, M. Parramon and K. Whittington-Jones. 2007. A methodology for assessing the risk of incurring environmental costs associated with port activities. Proceedings of the 1st Global Conference of the Environmental Management Accounting Network.
- Hawley, GL, McMaster AR and Carter AR. 2009, Carbon, carbon stock and life-cycle assessment in assessing cumulative climate change impacts in the environmental impact process. Proceedings of the Annual National Conference of the International Association for Impact Assessment, South African Affiliate.
- Hawley, GL, McMaster AR and Carter AR. 2010. The Environmental and Social Impact Assessment and associated issues and challenges. African, Caribbean and Pacific Group of States (ACP), Science and Technology Programme, Sustainable Crop Biofuels in Africa.
- Carter, A.R. 2011. A case study in the use of Life Cycle Assessment (LCA) in the assessment of greenhouse gas impacts and emissions in biofuel projects. 2nd Environmental Management Accounting Network- Africa Conference on Sustainability Accounting for Emerging Economies. Abstracts: Pages 69-70.

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

ALAN ROBERT CARTER Date: January 2019

CAROLINE ANN EVANS

Curriculum Vitae

CONTACT DETAILS

Name of Company	**CES – Environmental and Social Advisory Services**
Designation	Grahamstown Branch
Profession	Senior Environmental Consultant
Years with firm	5 Years
E-mail	c.evans@cesnet.co.za
Office number	+27 (0)46 622 2364
Nationality	South African
Professional Body	SACNASP, South African Council for Natural Scientific Profession, Professional 2017 (Pending) IAIA
Key areas of expertise	➢ Project Management ➢ Renewable Energy ➢ Wetland Assessment

PROFILE

Ms Caroline Evans

Ms Caroline Evans is a Senior Environmental Consultant based in the Grahamstown branch. She holds a BSc degree in Zoology and Environmental Science (with distinction) and a BSc Honours degree in Environmental Science (with distinction), both from Rhodes University. Caroline has completed accredited courses in environmental impact assessments and wetland assessments.

Caroline's primary focuses include Project Management, the general Environmental Impact Assessment Process, Visual Impact Assessments and Wetland Impact Assessments. Examples of fields in which Caroline was the project manager and lead report writer include Wind Energy Facilities and the associated infrastructure (including powerlines), Solar PV, Waste Water Treatment Works, Housing Developments and Agricultural Developments. Her experience with wind energy facilities and associated infrastructure includes the project management and report writing for the Umsobomvu WEF, Dassiesridge WEF, Scarlet Ibis WEF, Albany WEF, Waaihoek WEF and the Great Kei WEF.

Caroline is well versed in South African policy and legislation relating to development, particularly in the Eastern Cape Province. In addition, Caroline's project management experience has helped her gain knowledge and experience in the technical and financial management and coordination of large specialist teams, competent authority and stakeholder engagement, and client liaison.

CAROLINE ANN EVANS
Curriculum Vitae

EMPLOYMENT EXPERIENCE

EOH Coastal & Environmental Services, Senior Environmental Consultant
August 2016 - present
- Project Management
- Renewable Energy Consultant
- Wetland Specialist

EOH Coastal & Environmental Services, Environmental Consultant
November 2013 – July 2016

Rhodes University, Department of Environmental Science, Graduate Assistant
January 2010 – January 2012

ACADEMIC QUALIFICATIONS

Rhodes University, Eastern Cape, South Africa
B.Sc. Honours Environmental Science (with distinction)
2011

University Name, Location
B.Sc. Zoology & Environmental Science (with distinction)
2007-2010

COURSES

- Rhodes University, Eastern Cape
"Tools for Wetland Assessment" 2010. (with distinction)
- Rhodes University, Eastern Cape
"Urban Ecology" 2010. (with distinction)
- Rhodes University, Eastern Cape
"Post Graduate Statistics" 2010. (with distinction)
- Rhodes University, Eastern Cape
"Environmental Impact Assessment" 2013. (with distinction)

CONSULTING EXPERIENCE

ENVIRONMENTAL IMPACT ASSESSMENTS:
- Project: Albany Wind Energy Facility (Grahamstown, EC)
Role: Project Manager & Report Production
- Project: Umsobomvu Wind Energy Facility (Middelburg, EC / Noupoort, NC)
Role: Project Manager & Report Production
- Project: Waainek Wind Energy Facility Post-Construction Bird and Bat Monitoring (Grahamstown, EC)
Role: Project Manager & Report Production
- Project: Dassiesridge Wind Energy Facility (Uitenhage, EC)
Role: Project Manager & Report Production

- Project: Waaihoek Wind Energy Facility (Utrecht, KZN) Role: Project Manager & Report Production
- Project: Waaihoek Wind Energy Facility (Utrecht, KZN) Role: Project Manager & Report Production
- Project: Great Kei Wind Energy Facility (Komga, EC) Role: Assistant Project Manager & Report Production
- Project: Doorndraai Citrus Plantation (Cookhouse, EC)
  Role: Project Manager & Report Production
- Project: Fishwater Flats WWTW Biogas (Port Elizabeth, EC)
  Role: Report Production
- Project: Olivewood Golf and Residential Estate (Chintsa, EC)
  Role: Report Production
- Project: Fairewood Housing Development (Grahamstown, EC)
  Role: Report Production

BASIC ASSESSMENTS:

- Project: Albany Powerline (Grahamstown, EC)
  Role: Project Manager & Report Production
- Project: Scarlet Ibis Wind Energy Facility (Nelson Mandela Bay Metropolitan, EC)
  Role: Project Manager & Report Production
- Project: Grey Jade Waterfall Feedlot Biogas (Berlin, EC) Role: Project Manager & Report Production
- Project: Black Lite Solar 5MW PV (Berlin, EC)
  Role: Project Manager & Report Production
- Project: Simicept Loerie Quarry (Hankey, EC)
  Role: Report Production
- Project: N10 section 3 road upgrade (Cradock, EC)
  Role: Report Production
- Project: Tarkastad WWTW (Tarkastad, EC)
  Role: Report Production

SPECIALIST REPORTS:

- Project: Umsobomvu Wind Energy Facility (Middelburg, EC / Noupoort, NC)
  Role: Visual Impact Assessment

CAROLINE ANN EVANS
Curriculum Vitae

- Project: Dassiesridge Wind Energy Facility (Uitenhage, EC)
  Role: Visual Impact Assessment
- Project: Great Kei Wind Energy Facility (Komga, EC) Role: Visual Impact Assessment
- Project: Waaihoek Wind Energy Facility (Utrecht, KZN) Role: Visual Impact Assessment & Wetland Impact Assessment
- Project: Olivewood Golf and Residential Estate (Chintsa, EC)

  Role: Visual Impact Assessment
- Project: Oyster Bay Wind Energy Facility (Oyster Bay, EC)
  Role: Wetland Impact Assessment

OTHER REPORTS:

- Project: Eastern Cape Biofuels Strategic Environmental Assessment (EC)
  Role: Report Production
- Project: Coega Industrial Development Zone (EC)
  Role: Report Production

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

CAROLINE ANN EVANS Date: January 2019

ROBYN THOMSON
Curriculum Vitae

CES
ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES

CONTACT DETAILS

Name of Company	**CES – Environmental and Social Advisory Services**
Designation	Senior Environmental Consultant
Profession	Environmental Consultant
Years with firm	New Employee
E-mail	r.thomson@cesnet.co.za
Office number	+27 (0)43 726 7809
Nationality	South African
Professional Affiliations	International Association of Impact Assessment (IAIAsa) Environmental Assessment Practitioners Association of South Africa - Interim Certification Board (EAPSA)
Key areas of expertise	• Environmental Impact Assessments: Basic and Full Scoping & EIR • Environmental Management Plans • Environmental Feasibility Studies • Water Use Licensing • Public Participation and Stakeholder Engagement • Construction Compliance Monitoring • Environmental and Social Due Diligence • Auditing / Compliance Monitoring • Environmental Risk Management • Geographical Information Systems and Mapping • Rural Community Social and Skills Development

PROFILE

Ms Robyn Thomson

Robyn Thomson is a Senior Environmental Consultant and holds a BSc (Environmental Science) degree with majors in Archaeology, Environmental and Geographical Science, as well as a BSc (Hons.) in Environmental Science, with coursework in Environmental Management, Environmental Impact Assessment, Environmental Risk Assessment, Environmental Contamination Rehabilitation, Geographic Information Systems and fundamentals in Statistics. The Honours programme also entailed a research project, which looked at the effectiveness of the community awareness programme conducted by the Asbestos Interest Group (AIG) on the effects of and attitudes towards asbestos contamination in two rural communities, Heuningvlei and Ga-Mopedi respectively, in the Northern Cape Province. The research project formed part of a larger project quantifying the extent of secondary environmental asbestos contamination in South Africa. Robyn obtained her undergraduate degree at the University of Cape Town, and her Honours degree at Rhodes University. Robyn has 15 years of experience and expertise in Basic Assessments, Environmental Impact Assessments, Environmental Monitoring, Environmental Management Plans, Water Use Licencing, public participation, GIS and project coordination. Robyn has particularly strong experience in infrastructure projects for various municipal, provincial and national organisations. She is currently employed in the East London Office of CES.

ROBYN THOMSON
Curriculum Vitae

EMPLOYMENT EXPERIENCE

Senior Environmental Consultant – Coastal and Environmental Services (East London)
March 2020 – Current

- Developing EIAs
- Developing Environmental Management Plans & Programmes
- Conducting Site Assessments
- Mining License Applications
- Construction Environmental Compliance Monitoring
- Client Liaison
- Authority Consultation
- Facilitating Public Participation & Stakeholder Engagement
- Technical and Financial Project Management
- Water Use License Applications
- Geographic Information Systems

Environmental Consultant/ Director – Makhetha Environmental Consultants
September 2012 – February 2020

Environmental Scientist – SRK Consulting
October 2006 – August 2010

GIS Technician – Conservation Support Services
August 2004 – September 2006

Environmental Consultant – Greenergy
November 2003 – July 2004

ACADEMIC QUALIFICATIONS

- 2003 - B.Sc. Environmental and Geographical Science, and Archaeology (UCT)
- 2007 - B.Sc. (Hons) Environmental Science (Rhodes)

CONTINUING PROFESSIONAL DEVELOPMENT

- NOSA Occupational Health and Safety Auditors Course, 2013
- Rhodes University and Coastal and Environmental Services, Introduction to Environmental Impact Assessment, 2006.
- Rhodes University Investec Business School, Environmental Risk Assessment, 2006.
- Rhodes University, Introduction to GIS, 2005.
- Regular attendance at Environmental Quality Management Forums and Workshops conducted by the Eastern Cape Provincial Department of Economic Development, Environmental Affairs and Tourism (DEDEAT).

ROBYN THOMSON
Curriculum Vitae

PROFESSIONAL EXPERIENCE

Robyn has been involved in various roles (i.e. lead author, co-author, project manager, reviewer, GIS specialist, public participation) on the following projects:

Environmental Impact Assessments:

- Uitenhage Wood Treatment Plant, Uitenhage, Eastern Cape Province (2006);
- Straits Chemical Chlor-Alkali Plant, Coega, Eastern Cape (2007);
- St Francis Bay Beach Remediation, St Francis Bay, Eastern Cape (2007);
- Woodlands Collector Sewer Upgrade, Port Elizabeth, Eastern Cape (2007)
- Underground Storage Tank Decommissioning, Port Elizabeth, Eastern Cape (2008);
- Underground Storage Tank Decommissioning, Port Alfred, Eastern Cape (2008);
- Motherwell Waste Transfer Station, Motherwell, Eastern Cape (2008);
- Paapenkuils Bulk Sewer Augmentation, Port Elizabeth, Eastern Cape (2007);
- Seaview Bulk Water Supply, Port Elizabeth, Eastern Cape (2008)
- Churchill Pipeline Upgrade, Port Elizabeth, Eastern Cape (2008)
- Kwazakhele Collector Sewer Upgrade, Port Elizabeth, Eastern Cape (2008);
- Amanzi Reservoir and Pipeline, Port Elizabeth, Eastern Cape (2008);
- Markman Waste Water Ponds, Port Elizabeth, Eastern Cape (2009);
- Nelson Mandela Bay Municipality Kwazakhele Road Upgrade, Eastern Cape (2009);
- Nooitgedagt/ Coega Low Level Water Supply Scheme, Port Elizabeth, Eastern Cape (2009)
- Uitenhage Reclaimed Effluent System Upgrade, Port Elizabeth, Eastern Cape (2010)
- Witteklip Bulk Water Supply and Waste Water Treatment Works, Port Elizabeth, Eastern Cape (2009)
- TR15 Road Upgrade, Matatiele Local Municipality, Eastern Cape (2010);
- Fibre Optic Data Cable, Boemfontein to Graaff-Reinet, George to Port Elizabeth, Port Elizabeth to Colesberg, Aliwal North to East London, Free State, Western Cape, Northern Cape and Eastern Cape, (2011);
- R61 Section 6 Road Upgrade, Engcobo Local Municipality, Eastern Cape, (2012);
- Centane Kei River Mouth Road Upgrade, Mnquma Local Municipality, Eastern Cape, (2012);
- R61 Section 2 Road Upgrade, Inxuba Yethemba Local Municipality, Eastern Cape (2012);
- Whittlesea Borrow Pits, Lukhanji Local Municipality, Eastern Cape, (2012);
- R61 Section 8 Road Upgrade, Port St Johns Local Municipality,

Eastern Cape, (2012);
- N1 Section 14 Road Upgrade, Kapanong Local Municipality, Free State, (2012);
- DR08017 (Sections 2B and 2C) Road Upgrade, Matatiele Local Municipality, Eastern Cape (2012);
- Masbulele Trading, Fuel Transportation Environmental Management Plan, Queenstown, Eastern Cape (2013);
- R61 Section 6 Road Upgrade, Intsika Yethu Local Municipality, Eastern Cape (2014);
- Design of Dust Control System for the K24 Tunnel, Richards Bay Port, uMhlathuze Local Municipality, Kwa-Zulu Natal (2015);
- Port of Ngqura Stormwater Management Plan, Coega, Eastern Cape (2017);
- Coffee Bay Bulk Water Supply Phase 3B, Coffee Bay, King Sabata Dalindyebo Local Municipality, Eastern Cape (2019);
- Breidbach Pumpsation and Sewer Line, Breidbach, Buffalo City Metropolitan Municipality, Eastern Cape (2019); and
- Elundini Rural Drought Relief Programme, Wards, 1, 5, 6 and 7, Elundini Local Municipality, Eastern Cape (2019).

Environmental auditing, due diligence and compliance monitoring:

- Churchill Pipeline Upgrade, Port Elizabeth, Eastern Cape (2008)
- Kwazakhele Collector Sewer Upgrade, Port Elizabeth, Eastern Cape (2008);
- Amanzi Reservoir and Pipeline, Port Elizabeth, Eastern Cape (2008);
- Nelson Mandela Bay Municipality Kwazakhele Road Upgrade, Eastern Cape (2009); and
- Coffee Bay Bulk Water Supply Phase 3B, Coffee Bay, King Sabata Dalindyebo Local Municipality, Eastern Cape (2019);

Strategic Environmental Assessment:

- Afforestation Potential in Water Management Area 12, Eastern Cape (2005); and
- Environmental Management Framework for the coastal zone between Port Alfred and Kei Mouth, Eastern Cape (2009).

Environmental Contamination Assessment:

- Secondary Asbestos Contamination Survey, Northern Cape, North-West Province, Mpumalanga and Limpopo (2006).

Environmental sensitivity and feasibility assessments:

- Florida residential development, Uitenhage, Eastern Cape (2006).

ROBYN THOMSON
Curriculum Vitae

CES
ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES

Specialist Geographical Information Systems:

- Chris Hani District Municipality Rural Infrastructure Asset Register, Eastern Cape (2005).

Community Social Development:

- eShowe Bulk Water Supply, uMlalazi Local Municipality, Kwa-Zulu Natal (2014-2017); and
- Department of Education Fencing of 37 rural schools in the OR Tambo and Alfred Nzo District Municipalities, Eastern Cape (2016).

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

Robyn Thomson Date: 6 March 2020

APPENDIX B: EAP DECLARATION

APPENDIX C: SPECIALIST REPORTS

HAGA HAGA WEF ACCESS ROADS SPECIALIST REPORTS	
SPECIALIST REPORT	**NAME OF SPECIALIST**
AGRICULTURAL STATEMENT	Dr F Ellis & J Laubscher – Stellenbosch University
AQUATIC BIODIVERSITY STATEMENT	Christel du Preez – Scientific Aquatic Services
AQUATIC BIODIVERSITY PROTOCOL COMPLIANCE STATEMENT	Dr Brian Colloty - EnviroSci
ARCHAEOLOGICAL SUPPLEMENTARY STATEMENT	Kobus Reichart – Eastern Cape Heritage Consultants
GEOTECHNICAL SUPPLEMENTARY STATEMENT	Iain Paton – Outeniqua Geotechnical Services
PALAEONTOLOGICAL SUPPLEMENTARY STATEMENT	Dr John Almond – Natura Viva
TERRESTRIAL BIODIVERSITY IMPACT ASSESSMENT	Dr Greer Hawley-Mc Master, Tarryn Martin & Amber Jackson – BigThorn Environmental & Biodiversity Africa
TRAFFIC SPECIALIST SUPPLEMENTARY STATEMENT	Pieter Arangie – Innovative Transport Solutions

HAGA HAGA WEF SPECIALIST REPORTS (INITIAL EIA AND EA AMENDMENT SUPPLEMENTARY STATEMENTS)	
SPECIALIST REPORT	**NAME OF SPECIALIST**
AGRICULTURAL ASSESSMENT	Dr F Ellis & J Laubscher – Stellenbosch University
AQUATIC BIODIVERSITY ASSESSMENT	Christel du Preez – Scientific Aquatic Services
ARCHAEOLOGICAL ASSESSMENT	Kobus Reichart – Eastern Cape Heritage Consultants
BOTANICAL IMPACT ASSESSMENT	Dave McDonald – Bergwind Botanical Surveys
GEOTECHNICAL ASSESSMENT	Iain Paton – Outeniqua Geotechnical Services
PALAEONTOLOGICAL ASSESSMENT	Dr John Almond – Natura Viva
FAUNAL IMPACT ASSESSMENT	Marius Burger – NCC
TRAFFIC SPECIALIST ASSESSMENT	Pieter Arangie – Innovative Transport Solutions

APPENDIX D: SITE PHOTOGRAPHS

Plate A: Site Photographs: Section 1 & 2

Plate B: Site Photographs: Section 3

Plate C: Site Photographs: Section 4 & 5

Plate B: Site Photographs: Section 6

APPENDIX E: ENVIRONMENTAL MANAGEMENT PROGRAMME

APPENDIX F: PROOF OF PPP

INITIAL E-MAIL NOTIFICATION

TO BE INCLUDED IN THE FINAL BAR AFTER PPP

PROOF OF E-MAIL DELIVERY

TO BE INCLUDED IN THE FINAL BAR AFTER PPP

BACKGROUND INFORMATION DOCUMENT ATTACHMENT TO INITIAL E-MAIL NOTIFICATION

TO BE INCLUDED IN THE FINAL BAR AFTER PPP

PROOF OF REGISTERED MAIL

TO BE INCLUDED IN THE FINAL BAR AFTER PPP

PUBLIC REVIEW OF THE DRAFT BAR NOTIFICATION

TO BE INCLUDED IN THE FINAL BAR AFTER PPP

DFFE ACKNOWLEDGEMENT OF RECEIPT OF APPLICATION FOR ENVIRONMENTAL AUTHORISATION

TO BE INCLUDED IN THE FINAL BAR AFTER PPP

PROOF OF SUBMISSION: DEDEAT (EASTERN CAPE PROVINCE)

TO BE INCLUDED IN THE FINAL BAR AFTER PPP

PROOF OF SUBMISSION: DWS (EASTERN CAPE PROVINCE)

TO BE INCLUDED IN THE FINAL BAR AFTER PPP

PROOF OF SAHRIS SUBMISSION

TO BE INCLUDED IN THE FINAL BAR AFTER PPP

NATIONAL DFFE COMMENTS ON THE DRAFT BAR

TO BE INCLUDED IN THE FINAL BAR AFTER PPP

APPENDIX G: ISSUES & RESPONSE TRAIL (IRT)

TOPIC	COMMENT	EAP RESPONSE
	TO BE INCLUDED IN THE FINAL BAR AFTER PPP	