KAOKO GREEN ENERGY SOLUTIONS (PTY) LTD

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT REPORT

The Subdivision of Wlotzkasbaken Townlands No. 221 into 5 Portions (20 Ha) and the Remainder and Subsequent Rezoning of 5 Portions from “Undeveloped” to Industrial” and Right of Way Servitude

Wlotzkasbaken Settlement, Erongo Region, Namibia

February 2024

Prepared by:

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Prepared for:

Kaoko GREEN ENERGY SOLUTIONS

DOCUMENT CONTROL	
REPORT TITLE	EIA FOR THE THE SUBDIVISION OF WLOTZKASBAKEN TOWNLANDS NO. 221 INTO 5 PORTIONS (20 HA) AND THE REMAINDER AND SUBSEQUENT REZONING OF 5 PORTIONS FROM "UNDEVELOPED" TO INDUSTRIAL" AND RIGHT OF WAY SERVITUDE
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CURRENT REVISION	FINAL

CONSULTANT'S EXPERTISE

I.N.K Enviro Consultants cc is the independent firm of environmental consultants that has been appointed by Kaoko Green Energy Solutions (Pty) Ltd to conduct the ESIA process.

Immanuel N. Katali, the Environmental Assessment Practitioner holds a B. Arts (Honours) Geography, Environmental Studies and Sociology and has over seven years of relevant experience in conducting/managing Environmental and Social Impact Assessments (ESIAs), and Environmental Compliance/Monitoring Audits in Namibia. Immanuel is certified as an Environmental Assessment Practitioner under the Environmental Assessment Professionals Association of Namibia (EAPAN).

DECLARATION OF INDEPENDENCE AND DISCLAIMER

I.N.K Enviro Consultants cc herewith declare that this report represents an independent assessment of the proposed subdivision activities, on the request of Kaoko Green Energy Solutions (Pty) Ltd.

The Environmental Consultant has prepared this report based on an agreed scope of work and acts in all professional manner as an Independent Environmental Consultant to Kaoko Green Energy Solutions (Pty) Ltd and exercises all reasonable skill and care in the provision of its environmental professional services in a manner consistent with the level of expertise exercised by members of the environmental profession.

The information, statements and commentary contained in this report have been prepared by I.N.K Enviro Consultants cc from information provided by Kaoko Green Energy Solutions (Pty) Ltd and the Public Participation Process. I.N.K Enviro Consultants cc does not express an opinion as to the accuracy or completeness of the information provided, the assumptions made by the party that provided the information or any conclusions reached. I.N.K Enviro Consultants cc has based this report on information received or obtained, on the basis that such information is accurate and, where it is represented to I.N.K Enviro Consultants cc as such, complete.

I.N.K Enviro Consultants cc is not responsible and will not be held liable to any other person or organization for any loss or damage suffered by any other person or organization arising from matters dealt with or conclusions expressed in this report.

This report is the sole property of Kaoko Green Energy Solutions (Pty) Ltd and must not be altered or added to without the prior written consent of Kaoko Green Energy Solutions (Pty) Ltd.

EXECUTIVE SUMMARY

Project Background

Kaoko Green Energy Solutions (Pty) Ltd (hereinafter referred to as "Kaoko") intends to apply for an Environmental Clearance Certificate (ECC) for the Subdivision of Wlotzkasbaken Townlands No. 221 into 5 Portions (20 Ha) and the Remainder and Subsequent Rezoning of 5 Portions from "Undeveloped" to Industrial" and Right of Way Servitude with the aim of developing the associated activities relating to the proposed WaveRoller Pilot Project. The proposed project is located on a piece of land earmarked for industrial development, within the Wlotzkasbaken town boundary in Erongo Region, Namibia.

Project Need and Desirability

In order for Kaoko to develop on the proposed land, certain land registration procedures and processes are required with the Erongo Regional Council and the Ministry of Urban and Rural Development (MURD), which has the role to coordinate and spearhead the decentralization process, to promote development, establish an effective, decentralised regional and local government system, housing and physical planning. This line ministry has certain requirements i.e. ECC for the subdivision prior to approval.

The overall project has the potential to create significant socio-economic benefits through employment creation and economic contributions.

Scoping

The main purpose of scoping is to indicate which environmental aspects relating to the proposed project might have an impact on the environment, to assess them and provide management and mitigation measures to avoid or minimise these impacts.

Public Participation Process

The public participation process for the proposed project is conducted to ensure that all persons and/or organisations that may be affected by, or interested in the proposed project, were informed of the project and could register their views and concerns. By consulting with relevant authorities and I&APs, the range of environmental issues to be considered in this Report has been given specific context and focus.

General Assumptions and Limitations

The key assumptions and limitations of this ESIA Report are detailed below.

- It is assumed that the information provided by Kaoko, relating to the project activities is accurate and that the project will be implemented and operated as described.

Identification of Potential Environmental Aspects and Potential Impacts

The scoping phase which included a consultation process with key stakeholders that included government authorities and I&APs allowed the opportunity to raise the issues associated with the project development.

Assessment Approach and Methodology

The assessment largely adopted a desktop approach, where qualitative information on the environment was collected during a site visit conducted on 01 December 2023. The extent of the impacts and assessment ratings are not quantified over the larger project area.

An assessment of the potential positive and negative impacts associated with the installation and operations phase of the proposed pilot project is provided below. As an outcome of the Scoping Phase, specialist input was requested for some of the environmental issues and has been included in this assessment.

Other potential environmental impacts resulting from the proposed project activities and facilities (also identified during the Scoping Phase of the ESIA) were assessed by I.N.K and are also presented.

Both the criteria used to assess the impacts and the Method of determining the frequency/severity of the impacts is outlined.

Environmental and Social Management Plan

The potential impacts that required further assessment include the following:

- Potential Impacts on the Lichens and Coastal Hummock Belt Species

Conclusions and Recommendations

It was concluded from the qualitative assessment by I.N.K that the development of the project could potentially have minimal or insignificant impacts on the environment.

Mitigation measures have been identified and recommended by I.N.K to promote the positive impacts of the project, as well as to avoid / minimise the negative impacts to acceptable levels. An EMP was further developed which identifies potential impacts of the project during the construction and operation phases. The EMP is a legally binding document, which the proponent and contractors onsite must adhere to.

I.N.K concludes that should the management actions and mitigation measures provided in the EIA and EMP report be implemented, the project would have an acceptably low significant impact on the surrounding biophysical and social environment.

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1 INTRODUCTION

1.1 Purpose of the Report

Kaoko Green Energy Solutions (Pty) Ltd (hereinafter referred to as "Kaoko") plans to implement the proposed "/Hao" WaveRoller Pilot Project.

Three (3) separate Environmental Clearance Certificate (ECC) Applications have been submitted to the Ministry of Environment, Forestry and Tourism (MEFT) for: a) the deployment of the WaveRoller technology, by AW-Energy (Finland) in the Atlantic Ocean, b) the installation of power transmission cables and b) subdivision of the industrial land.

This report focuses only on the proposed subdivision of the industrial land as part of the "/Hao" WaveRoller Pilot Project.

Interested and/or Affected Parties (I&APs) relating to the proposed pilot project are invited to comment on this Report.

Prior to the commencement of the project, an environmental clearance is required based on an approved Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP). This report describes the Environmental and Social Impact Assessment (ESIA) process being followed and provides an overview of the affected environment. It includes an assessment of the environmental impacts that the proposed activities are likely to have and sets out the consultants' recommendations. The proposed management and mitigation measures related to the proposed activities are documented in an Environmental and Social Management Plan (ESMP).

1.2 Project Background

Kaoko Green Energy Solutions (Pty) Ltd (hereinafter referred to as "Kaoko") intends to apply for an Environmental Clearance Certificate (ECC) for the Subdivision of Wlotzkasbaken Townlands No. 221 into 5 Portions (20 Ha) and the Remainder and Subsequent Rezoning of 5 Portions from "Undeveloped" to Industrial" and Right of Way Servitude with the aim of developing the associated activities relating to the proposed WaveRoller Pilot Project. The proposed project is located on a piece of land earmarked for industrial development, within the Wlotzkasbaken town boundary in Erongo Region, Namibia.

This EIA process is conducted on the request of the Ministry of Urban and Rural Development (MURD), as one of the requirements, prior to the decision-making of the subdivision plans for the proposed WaveRoller Pilot Project.

I.N.K Enviro Consultants cc (hereinafter referred to as I.N.K), an independent firm of environmental consultants, has been appointed to undertake the Environmental and Social Impact Assessment process for this project. For more details on the ESIA process that was followed, please refer to Section 1.4.

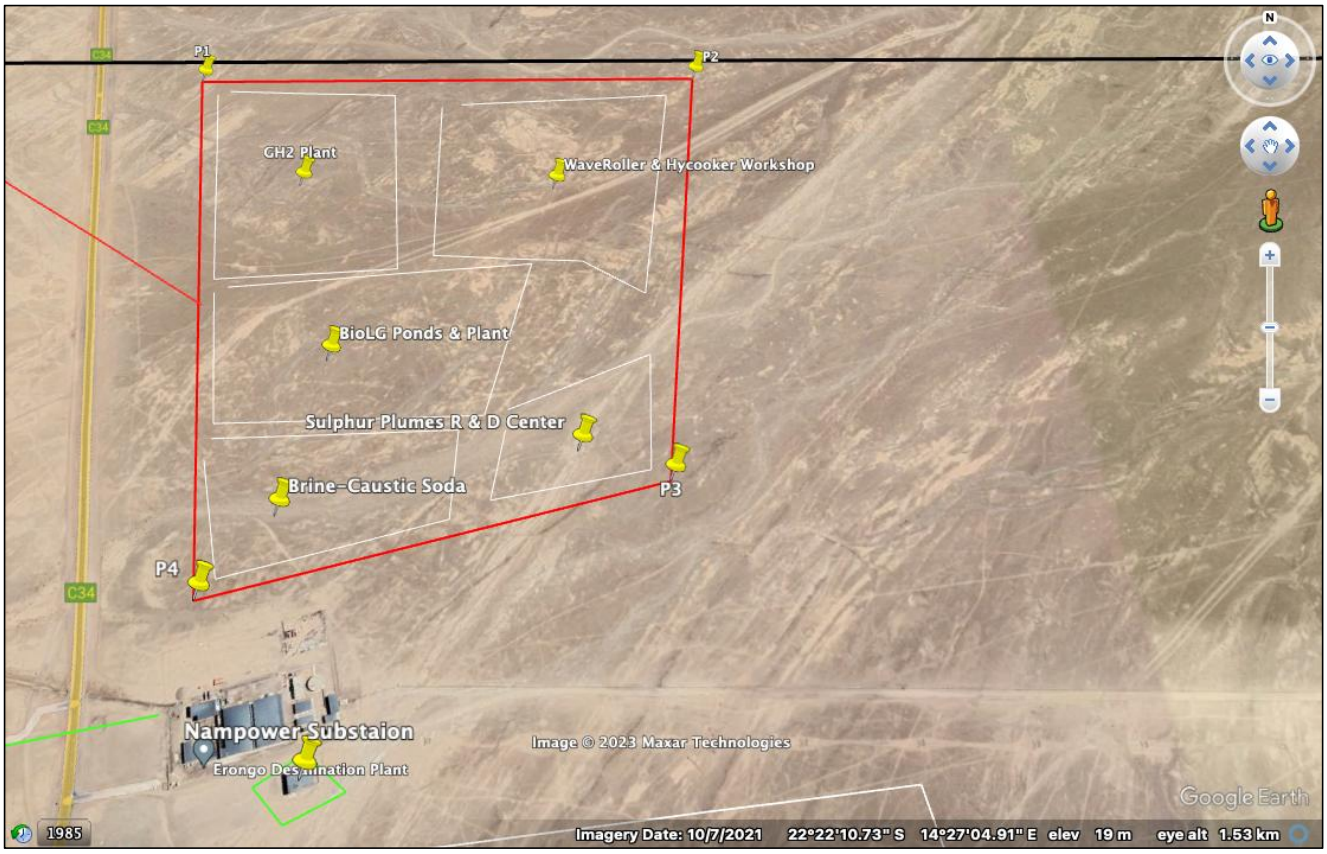

Figure 1: Proposed Subdivision of Wlotzkasbaken Townlands into 5 Portions

1.3 Project Motivation (Need and Desirability)

In order for Kaoko to develop on the proposed land, certain land registration procedures and processes are required with the Erongo Regional Council and the Ministry of Urban and Rural Development (MURD), which has the role to coordinate and spearhead the decentralization process, to promote development, establish an effective, decentralised regional and local

government system, housing and physical planning. This line ministry has certain requirements i.e. ECC for the subdivision prior to approval.

The overall project has the potential to create significant socio-economic benefits through employment creation and economic contributions.

1.4 Introduction to the Environmental and Social Impact Assessment Process

Environmental and Social Impact Assessments are regulated by the Ministry of Environment, Forestry and Tourism (MEFT) in terms of the Environmental Management Act, 7 of 2007. This Act was gazetted on 27 December 2007 (Government Gazette No. 3966) and enacted on 6 January 2012. The Environmental and Social Impact Assessment Regulations: Environmental Management Act, 2007 (Government Gazette No. 4878) were promulgated on 6 January 2012.

1.4.1 ESIA Process

The ESIA process that has been followed is summarized in the table below:

Table 1: ESIA Process

ESIA OBJECTIVES	CORRESPONDING ACTIVITIES
Project initiation, Screening Phase	
◆ Understanding of the environmental and social baseline relating to the proposed Project. ◆ Notify the decision-making authority of the proposed Project. ◆ Initiate the Environmental and Social Impact Assessment process. ◆ Site visits and identify environmental issues. ◆ Identify key stakeholders and early identification of other I&APs.	◆ Project Inception and initiation meetings to discuss the Project and ESIA process requirements. ◆ Liaise with the Marine Ecology Specialist. ◆ Draft ESIA Schedule. ◆ Initiate baseline studies. ◆ Submit Application for authorisations and a Background Information Document (BID) to the authorities. ◆ Register the Project and Applications for environmental clearances with MEFT (DEA) on its online portal. ◆ Early identification of environmental aspects and potential impacts associated with the proposed Project.
Scoping Phase	

ESIA OBJECTIVES	CORRESPONDING ACTIVITIES
◆ Notify other regulatory authorities and I&APs of the proposed Project (via newspaper advertisements, BID, emails, site notices and telephone calls). ◆ Conduct Key Stakeholder and Public meetings. ◆ Carry out specialist investigations and establish baseline environmental conditions. ◆ Determine the terms of reference for additional assessment work. ◆ Compile Scoping Report and Issues and Response Report (IRR) ◆ Distribute the Scoping Report for review and comment by relevant authorities and I&APs. ◆ Assessment of potential issues, consider comments received and compile the ESIA final report.	◆ Develop Public Participatory Process (PPP) Programme. ◆ Develop I&AP database. ◆ Prepare BID and distribute to I&APs. ◆ Notify government authorities and IAPs of the Project and ESIA process (telephone calls, e-mails, BID newspaper advertisements and site notices). ◆ IAP registration and comments. ◆ Meetings with authorities and IAPs. ◆ Investigations by appointed specialists. ◆ Compilation of Scoping Report and ESMPs. ◆ Distribute Scoping Report and ESMP to all I&APs for review and comments. ◆ Assess potential issues, obtain comments and update the Scoping Report and ESMP.

Within this framework, the required components of the ESIA report are discussed in more detail as part of the ESIA Methodology in Section 8.

ESIAs are influenced by national legislation and a range of guidelines. The legislation applicable to this project and the ESIA process is discussed further in Section 3 below.

1.4.2 ESIA Team

I.N.K Enviro Consultants cc is the independent firm of consultants that has been appointed by Kaoko to undertake the Environmental and Social Impact Assessment and related processes. The full ESIA team comprises of a Marine Ecologist as per the following table below.

Table 2: ESIA Team

Specialist	Designation	Tasks and Roles	Company
Mr. Immanuel N. Katali	Project Manager	Management of the process, team	I.N.K Enviro Consultants cc

	Social Expert	members and other stakeholders. Report compilation and process review.	

2 SCOPING METHODOLOGY

2.1 Information Collection

An assessment focusing on both the potential marine and onshore disturbance and displacement and looking at the potential marine and onshore fauna and flora impacts as a result of the project was conducted.

From desktop study methodology and literature review, the description will be based on, inter alia, a review of existing information and data from local and international scientific literature and information sourced from the internet sources and complemented by a beach and site survey in the proposed area.

Therefore, I.N.K used various information sources to identify and assess the issues associated with the proposed project as per the following:

- Site visit by I.N.K.
- Consultation with Kaoko Project Technical Team.
- Consultation with MEFT via online application system.
- Similar ESIA report in the vicinity of Wlotzkasbaken - Desalination Plant and Water Carriage System to Secure Water Supply to the Central Coast, Windhoek And En-Route Users (SLR, 2021).
- Consultation with I&APs.
- Atlas of Namibia.
- Google Earth.
- Internet sources.

2.2 Scoping

The main purpose of scoping is to indicate which environmental aspects relating to the proposed project might have an impact on the environment, to assess them and provide management and mitigation measures to avoid or minimise these impacts.

Table 3 outlines the Scoping requirements as set out in Section 8 of the Environmental and Social Impact Assessment Regulations that were promulgated in January 2012 in terms of the Environmental Management Act, 7 of 2007.

Table 3: Scoping requirements stipulated in the ESIA regulations.

Requirements for a Scoping Report in terms of the February 2012 regulations	Reference in report
(a) the curriculum vitae of the EAP who prepared the report;	Appendix A
(b) a description of the proposed activity;	Section 4
(c) a description of the site on which the activity is to be undertaken and the location of the activity on the site;	Section 4
(d) a description of the environment that may be affected by the proposed activity and the manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed listed activity;	Sections 6
(e) an identification of laws and guidelines that have been considered in the preparation of the Scoping Report;	Section 3
(f) details of the public consultation process conducted in terms of regulation 7(1) in connection with the application, including - (i) the steps that were taken to notify potentially interested and affected parties of the proposed application; (ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given; (iii) a list of all persons, organisations and organs of state that were registered in terms of regulation 22 as interested and affected parties in relation to the application; and (iv) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;	Sections 2.3, 2.4, 2.5 and Appendix B
(g) a description of the need and desirability of the proposed listed activity and any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives have on the environment and on the community that may be affected by the activity;	Sections 1.2
(h) a description and assessment of the significance of any significant effects, including cumulative effects, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning associated with the undertaking of the proposed listed activity;	Sections 7 and 8
(i) terms of reference for the detailed assessment; and	Section 7 & 8
(j) a management plan, which includes - (i) information on any proposed management, mitigation, protection or remedial measures to be undertaken to address the effects on the environment that have been identified including objectives in respect of the rehabilitation of the	Section 9

environment and closure; (ii) as far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of the activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development; and (iii) a description of the manner in which the applicant intends to modify, remedy, control or stop any action, activity or process that causes pollution or environmental degradation and remedy the cause of pollution or degradation and migration of pollutants.	

2.3 Public Participation Process

The public participation process for the proposed project is conducted to ensure that all persons and/or organisations that may be affected by, or interested in the proposed project, were informed of the project and could register their views and concerns. By consulting with relevant authorities and I&APs, the range of environmental issues to be considered in this Report has been given specific context and focus.

Included below is a summary of the I&APs consulted, the process that was followed and the issues that were identified.

2.4 The Proposed Transmission Power Cable Project I&APs

The table below provides a broad list of persons, group of persons or organisations that were informed about the project and were requested to register as I&APs should they be interested and/or affected.

Table 4: Kaoko's Project Stakeholders

IAP Grouping	Organisation
Government Ministries	◆ Ministry of Environment, Forestry and Tourism (MEFT) ◆ Ministry of Fisheries and Marine Resources (MFMR) ◆ Ministry of Mines and Energy ◆ Ministry of Works and Transport (MWT) ◆ Ministry of Defense (MD)
Local Authorities	◆ Erongo Regional Council ◆ Arandis Constituency Office ◆ Wlotzkasbaken Settlement Office
Parastatal	◆ Nampower

IAP Grouping	Organisation
	◆ Electricity Control Board. ◆ ErongoRed ◆ Namport ◆ Namwater ◆ University of Namibia - Sam Nujoma Campus
Nearest Communities	◆ Orano Desalination Plant ◆ Residents in Wlotzkasbaken
Media	Newspaper adverts placed on Friday, 10 and Friday, 17 November 2023, in the following newspapers: ◆ Die Republikein ◆ The Allgemeine ◆ The Namibian Sun. ◆ The Namib Times.
Other interested and affected parties	Any other people with an interest in the proposed project or who may be affected by the proposed project.

2.5 Steps in the Consultation Process

Table 5 sets out the steps that were followed as part of the consultation process:

Table 5: Consultation Process with I&APs and Authorities

TASK	DESCRIPTION
Notification - regulatory authorities and IAPs	
Notification to MEFT	I.N.K submitted the Application Form (online system) as a form of project registration and notification to MEFT.
I&AP identification	A stakeholder database was developed for the proposed project and ESIA process. Additional I&APs will be updated during the ESIA process as required.
Distribution of background information document (BID), flyers and stakeholders meeting invitation	BIDs were made available to all I&APs on the project's stakeholder database. Copies of the BID were available on request to I.N.K. Stakeholder meeting invitation were given out to the residents of Wlotzkasbaken. The purpose of the BID was to inform I&APs and authorities about the proposed project, the ESIA process, possible environmental impacts and means of providing input into the

TASK	DESCRIPTION
Notification - regulatory authorities and IAPs	
letters	ESIA process. Attached to the BID was a registration and response form, which provided I&APs with an opportunity to submit their names, contact details and comments on the project.
Newspaper Advertisements	Block advertisements were placed as follows: ◆ Die Republikein (10 and 17 March 2023) ◆ The Namibian Sun (10 and 17 March 2023) ◆ Allgemeine (10 and 17 March 2023) ◆ The Namib Times (10 and 17 March 2023)
Scoping Meetings	Several consultations were made with I&APs. This included meetings and telephonic discussions. Meetings were held with key stakeholders as follows: ◆ Date - Tuesday, 28 November 2023 ◆ Venue - The Orano Desalination Plant Conference Room ◆ Date - Friday, 01 December 2023 ◆ Venue - The New Erongo Regional Council Offices in Wlotzkasbaken The due date to register as an I&AP and submit comments was from 10 November 2023 to 07 December 2023.
Comments and Responses	Minutes and Issues and Response of the meetings were recorded.
MEFT review of ESIA Report and ESMP	A copy of the final Scoping Report, including authority and I&AP review comments, will be submitted to MEFT on completion of the public review process via the online application system.

2.6 General Assumptions and Limitations

The key assumptions and limitations of this ESIA Report are detailed below.

- It is assumed that the information provided by Kaoko, relating to the project activities is accurate and that the project will be implemented and operated as described.

3 IDENTIFICATION OF APPLICABLE ENVIRONMENTAL AND SOCIAL GUIDELINES

3.1 Introduction

The Republic of Namibia has five tiers of law and several policies relevant to environmental assessment and protection, which includes:

- The Constitution
- Statutory law
- Common law
- Customary law
- International law

Key policies currently in force include:

- The EIA Policy (1995).
- Namibia's Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1994).

As the main source of legislation, the Constitution of the Republic of Namibia (1990) makes provision for the creation and enforcement of applicable legislation. In this context and in accordance with its constitution, Namibia has passed numerous laws intended to protect the natural environment and mitigate against adverse environmental impacts.

3.2 Legislation Applicable to the Proposed Project

3.2.1 The Constitution of the Republic of Namibia as Amended

Article 91 (c) provides for duty to guard against "the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia." Article 95(l) deals with the "maintenance of ecosystems, essential ecological processes and biological diversity" and sustainable use of the country's natural resources.

3.2.2 Environmental Management Act No. 7 of 2007 (EMA) and EIA Regulations GN 28, 29, and 30 of EMA (2012)

GN 29 Identifies and lists certain activities that cannot be undertaken without an environmental clearance certificate. GN 30 provides the regulations governing the environmental assessment (EA) process.

3.2.3 Local Authorities Act No. 23 of 1992

The Local Authorities Act prescribes the manner in which a town or municipality should be managed by the Town or Municipal Council.

3.2.4 Urban and Regional Planning Act no. 5 of 2018

This Act consolidate the laws relating to urban and regional planning; to provide for a legal framework for spatial planning in Namibia; to provide for principles and standards of spatial planning.

3.2.5 The Integrated Coastal Management Bill

Once enacted, the Integrated Coastal Management Bill (2014) aims to establish a system of integrated coastal management in Namibia in order to promote the conservation of the coastal environment, maintaining the natural attributes of the coastal landscapes and seascapes, and ensuring the sustainable development and use of the natural resources within the coastal zone that is also socially, economically and ecologically justifiable.

3.2.6 Coastal Strategic Environmental Assessments

Two Namibian coastal Strategic Environmental Assessments (SEAs) were undertaken between 2006 and 2008, i.e. one for the northern regions of Kunene and Erongo and another for the southern regions of Karas and Hardap. These draw on international experience and were undertaken at a time of mounting production sector pressures within Namibia. Being an initiative of the Namibian Government through MEFT, the two SEAs seek to inform political and technical decision makers at local, regional and national levels.

The 2008 "SEA for the coastal areas of the Erongo and Kunene Regions" compiled by the Namibian Coast Conservation & Management Project (NACOMA) is aimed at ensuring informed decisions on issues related to biodiversity conservation, land use planning and socio-economic development planning in the Kunene and Erongo coastal regions.

3.3 Relevant Namibian Policies

Namibia's policies provide the framework to the applicable legislation. Whilst policies do not often carry the same legal recognition as official statutes, policies are used in providing support to legal interpretation or guidance for civil servants and other stakeholders in the implementation of government objectives.

3.3.1 The Namibia Vision 2030

The principles that underpin Vision 2030 , a policy framework for Namibia's long-term national development, comprise the following:

- Good governance;
- Partnership;
- Capacity enhancement;
- Comparative advantage;
- Sustainable development;
- Economic growth;
- National sovereignty and human integrity;
- Environment; and
- Peace and security.

Vision 2030 states that natural environments are disappearing quickly. Consequently, the solitude, silence and natural beauty that many areas in Namibia provide are becoming sought after commodities and must be regarded as valuable natural assets. Vision 2030 emphasises the importance of promoting healthy living which includes that the majority of Namibians are provided with safe drinking water. The importance of developing wealth, livelihood, and the economy is also emphasized by Vision 2030. This includes infrastructure provision like transport, communication, water, and electricity.

3.3.2 The Harambee Prosperity Plan II

The Harambee Prosperity Plan II (HPPII) (covering the period 2021 - 2025) builds on the solid foundation of the inaugural HPP 2016 - 2020. It continues to prioritize the implementation of targeted policy programme in order to enhance service delivery, contribute to economic recovery and engender inclusive growth. HPPII aims to increase local electricity generation capacity from 624 MW (2020) to 879 MW by 2025.

3.4 Relevant International Standards

3.4.1 The EIB's Statement of Environmental and Social Principles and Standards (EIB, 2009)

The European Investment Bank (EIB) adopted an Environmental Statement in 1996 to underline its commitment to protecting and improving the natural and built environment according to EU policy (EIB, 209). The statement focuses on, a) the principles on which the EIB approach to environmental and social issues are based and b) the environmental and social performance standards that ensure compliance with Bank requirements. The principles and standards are derived from EU policy and law and supplemented by other examples of international good practice. The EIB requires that all the projects it is financing are acceptable in environmental and social terms by applying appropriate safeguards to all its operations.

3.4.2 The EIB's Environmental and Social Handbook (EIB, 2013)

The EIB Environmental and Social Handbook provides an operational translation of the policies and principles contained in the 2009 EIB Statement of Environmental and Social Principles and Standards (see above). Principles include the Environmental and Social Impact Assessment process of identifying predicting, evaluating a project's positive and negative environmental and social impact on the biophysical and human environment as well as identifying ways of avoiding, minimizing, mitigating and compensating, including offsetting in the case of the environment and remedying in the case of social impacts, by applying the mitigation hierarchy. This process includes consultation with direct and indirect stakeholders and the elaboration of an environmental and social management plan detailing the implementation of the mitigation measures.

3.4.3 World Bank Environmental and Social Framework

The W orld Bank's Environmental and Social Framework (ESF) enables the World Bank and Borrowers to better manage environmental and social risks of projects and to improve development outcomes. The ESF offers broad and systematic coverage of environmental and social risks. It makes important advances in areas such as transparency, non-discrimination, public participation, and accountability - including expanded roles for grievance mechanisms. It brings the World Bank's environmental and social protections into closer harmony with those of other development institutions.

The ESF consists of:

- The World Bank's Vision for Sustainable Development.
- The World Bank's Environmental and Social Policy for Investment Project Financing (IPF) which sets out the requirements that apply to the Bank.
- The 10 Environmental and Social Standards (ESS), which set out the requirements that apply to Borrowers.
- Bank Directive: Environmental and Social Directive for Investment Project Financing
- Bank Directive on Addressing Risks and Impacts on Disadvantaged or Vulnerable Individuals or Groups.

3.4.4 World Bank's Pollution Prevention and Abatement Handbook (PPAH)

The Pollution Prevention and Abatement Handbook (PPAH) promotes the concepts of sustainable development by focusing attention on the benefits, both environmental and economic, of pollution prevention, including cleaner production and good management techniques. In many cases, the guidelines provide numerical targets for reducing pollution, as well as maximum emissions levels that are normally achievable through a combination of cleaner production and end-of-pipe treatment. The guidelines are designed to protect human health, reduce mass loading to the environment, draw on commercially proven technologies, be cost effective, follow current regulatory trends and promote good industrial practices, which offer greater productivity and increased energy efficiency.

3.4.5 Applicable International Finance Corporation (IFC) Performance Standards

IFC's Environmental and Social Performance Standards define IFC clients' responsibilities for managing their environmental and social risks. The Performance Standards provide guidance on how to identify sustainability risks and impacts and are designed to help avoid, mitigate, and manage them as a way of doing business in a more sustainable way.

The following are the performance standards that are applicable to the construction and operation of the project and are used as the basis of investigation for the ESMP:

Table 6: Applicable Performance Standards

IFC Performance Standard	Description	Applicable	Not Applicable
1. Environmental and Social Management System	An environmental and social management system (ESMS) helps companies integrate plans and standards into their core operations—so they can anticipate environmental and social risks posed by their business activities and avoid, minimize, and compensate for such impacts as necessary. A good management system provides for consultation with stakeholders and a means for complaints from workers and local communities to be addressed.	☑	☐
2. Labour and Working Conditions	It asks that companies treat their workers fairly, provide safe and healthy working conditions, avoid the use of child or forced labor, and identify risks in their primary supply chain.	☑	☐
3. Pollution Prevention and Control	It guides companies to integrate practices and technologies that promote energy efficiency, use resources—including energy and water—sustainably, and reduce greenhouse gas emissions.	☑	☐
4. Occupational Health and Safety, Public Health and Security	It helps companies adopt responsible practices to reduce such risks including through emergency preparedness and response, security force management, and design safety measures.	☑	☐
5. Land Acquisition and Involuntary Resettlement	It advises companies to avoid involuntary resettlement wherever possible and to minimize its impact on those displaced through mitigation measures such as fair compensation and improvements to and living conditions. Active community engagement throughout the process is essential.	☐	☑
6. Biodiversity and Ecosystems	It recognizes that protecting and conserving biodiversity, maintaining ecosystem services, and managing living natural resources adequately are fundamental to sustainable development.	☑	☐

7. Rights and Interests of Indigenous People	It seeks to ensure that business activities minimize negative impacts, foster respect for human rights, dignity and culture of indigenous populations, and promote development benefits in culturally appropriate ways. Informed consultation and participation with IPs throughout the project process is a core requirement and may include Free, Prior and Informed Consent under certain circumstances.	☑	☐
8. Cultural Heritage	Cultural heritage encompasses properties and sites of archaeological, historical, cultural, artistic, and religious significance. It also refers to unique environmental features and cultural knowledge, as well as intangible forms of culture embodying traditional lifestyles that should be preserved for current and future generations. PS8 aims to guide companies in protecting cultural heritage from adverse impacts of project activities and supporting its preservation. It also promotes the equitable sharing of benefits from the use of cultural heritage.	☑	☐

3.4.6 Applicable Listed Activities

The EIA Regulations promulgated in terms of the Environmental Management Act, identify certain activities which could have a substantially detrimental effect on the environment. These listed activities require environmental clearance from MEFT prior to commencing. The following listed activities (Table 9) identified in the regulations apply to the proposed project:

Table 7: Listed activities triggered by the proposed Project.

Listed activity
5. Land Use and Development Activities
5.1 The rezoning of land from - (d) zoned open space to any other land-use;

4 Project description

4.1 Introduction

As mentioned in Section 1.2, Kaoko intends to apply for an Environmental Clearance Certificate (ECC) for its proposed installation of 5 Power Transmission Cables to transmit electricity from offshore where WaveRollers are proposed to be deployed, to the NamPower grid located onshore (Figure 1). The proposed development is located north of Wlotzkasbaken settlement, Erongo Region, Namibia.

The proposed power cables will cover a linear distance of approximately 300 - 500 m offshore to the coastline and installed on the seabed. It will further cover an approximately 1.7 km of underground installation from the shoreline to the NamPower substation located onshore.

The proposed subdivision activities will take place on an undeveloped 20 ha piece of land, located north of the existing Orano Desalination Plant. The activities proposed to be developed within the subdivision boundary include:

- GH2 & E-methanol Plant
- WaveRoller and Green Hydrogen Cooking Stove (HyCooker) Workshop
- Algae Ponds and Bio-LNG, CNG Plant
- Sulphur Plumes Research&Development Centre
- Brine- to-Caustic Soda (Sodium Hydroxide) Processing Plant

4.2 Construction Activities

Construction activities will take place during the establishment and preparation of the sites. Therefore, it is expected that construction will involve the following activities:

- Appoint subcontractors, labours, etc.
- Clearing and grubbing and other earth moving activities.
- Stockpiling topsoil and sub-soil.
- Foundation excavations.
- Setting up contractor's laydown areas.
- Digging of foundations and trenches.
- Delivery of materials – storage and handling of material such as sand, rock, cement, etc.
- General building/construction activities including, amongst others: mixing of concrete; operation of construction vehicles and machinery; civil; painting; etc.

4.2.1 Site Preparations for Infrastructure

Site preparation includes the demarcation of the footprint of the proposed development and the laydown area to be located ±15 m for each of the proposed project component and infrastructure site, for the storage and partial assembly of the project material or equipment to be installed or constructed.

4.2.2 Waste Management during construction activities

Relatively small quantities of waste is anticipated to be generated during the construction phase. Waste shall be transported to the nearest waste disposal site.

4.2.3 Transport routes/Access

The site is located along exisiting roads and tracks within the townland.

4.2.4 Storage of Equipment and Tools

Equipment and tools used on a daily basis will be stored in a temporary storage facility on site.

4.2.5 Rehabilitation of temporary construction sites and laydown area

The removal of all temporary construction equipment will be undertaken at the end of construction activities. This will be done as per Environmental Management Plan recommendations.

4.2.6 Transport and Traffic

The installation traffic, inland, will use the C34 Swakopmund - Henties Bay public road, and existing off-roads currrently used by Orano. Vehicles used for the installation phase will include trucks for moving materials and 4x4 vehicles for workers. Daily traffic will vary depending on the stages of construction but there will be a minimum of 4 vehicles a day.

4.2.7 Topsoil Management

Digging and drilling will be used during the land servicing activities.

4.2.8 Power Supply for Construction Activities

Small, mobile generators will supply power for the installation phase onshore. No power supply is required for the installation offshore.

4.2.9 Sanitation during Construction

Chemical toilets with associated septic tanks (preferred) or toilets connect to French Drain systems will be used. The septic tanks will be emptied on a regular basis and the effluent disposed of at a licensed facility off-site.

4.2.10 Waste Management during Construction

The pilot project will make use of waste bins during the installation phase. These waste bins should be emptied on a regular and waste to be transported to the nearest approved waste disposal site in Henties Bay or Swakopmund.

5 PROJECT ALTERNATIVES

5.1 The "no project" option

As mentioned in section 1.3 above, the the overall project has the potential to create significant socio-economic benefits through employment creation and economic contributions.

The no-go alternative is the baseline against which all alternatives are assessed. The no-go alternative would essentially entail maintaining the current situation, whereby the land will remain zoned as Public Open Space and the proposed WaveRoller will not take place.

Therefore, the challenge facing the project proponent is its contribution towards achieving these goals while at the same time preventing and/or mitigating potential negative social and environmental impacts. The proponent will have to ensure that the identified mitigation measures and commitments to address the potential impacts, will appropriately be implemented and adhered to.

6 DESCRIPTION OF THE CURRENT ENVIRONMENT

This section was compiled utilising the following sources of information:

- Information shared by Kaoko Green Energy Solutions (Pty) Ltd.
- Visual observations during a site visit by I.N.K.
- Specialist investigations (Hydrogeology, Vegetation).
- Google Earth.
- Atlas of Namibia.
- Internet sources.

6.1.1 Activities in the Area

The Orano Desalination Plant and its associated linear infrastructure (pipelines) is one of the key activities and it is located approximately 1 km south of the proposed pilot study area.

Other activities include, recreational angling, which is an activity in the central coast primarily from Swakopmund to Henties Bay, targeting species such as Silver Kob, Blacktail, Galjoen and West Coast Steenbras Figure 5. Life forms such as dense stands of foliose and fruticose lichens occur in this area. Wlotzkasbasken, a small settlement between North of Swakopmund and south of Henties Bay is not exempt from the aforementioned activities. Silver Kob is the main recreational fish species of importance on the vicinity of the proposed pilot area. The Wlotzkasbasken area is an important spawning site for Silver Kob (Figure 6). Anglers can cast their fishing lines at a distance of approximately 100 m from the shoreline, while the devices are proposed to be located at a distance of between 200 m - 500 m from the shoreline. This distance between the two activities will prevent the interference of the the WaveRoller activities on fishing activities.

6.1.2 Climate

The meteorological conditions along the Namibian coast are controlled by the ever-present South Atlantic anticyclone, the northward-flowing Benguela Current (with associated upwelling) and the divergence of the south-east trade winds along the coast. Climatic conditions in the region vary from cool, foggy, windy and hyper-arid conditions along the coast to dry and hot weather towards onshore from which is separated by the Great Escarpment.

6.1.3 Temperature, Rainfall and Fog

Namibia is a hot country with temperatures along the coast being relatively constant, but fluctuating

daily and seasonally in the interior. The coastal area around Swakopmund receives less than 50 mm of rainfall per annum, but approximately a third of the year are characterised as fog days (Figure 6-2). Fog is the most distinctive climatic feature Namibia's coast, with 100-125 days of fog per year in the vicinity of Swakopmund . Fog usually forms when moist maritime air moves over cold upwelled water adjacent to the coast and is the predominant source of precipitation for the coastal areas.

Many plants and animals rely on the fog in these areas as water source and is an important driver of the establishment and growth of lichens. Average rainfall increases and fog days decrease towards the east . Heavy rainfall in the interior of the country rarely reaches the sea, except as occasional floods in the Omaruru, Swakop and Kuiseb rivers. Evaporation rates in Namibia are generally high, however lower rates of evaporation are experienced at the coast due to cooler and more humid coastal conditions.

6.1.4 Surface Wind

The presence of the subtropical South Atlantic Anticylcone off Namibia's coast drives the wind pattern, generating strong to gale force south-westerly winds along the coast in all seasons but most frequently during mid-summer and spring. These strong winds cause upwelling in the ocean, bringing nutrient rich water to the surface and consequently resulting in the high biological productivity characteristic of Namibian coastal waters. Additionally, the coastal southwesterly wind is responsible for transporting sand to the Namib Sand Sea. Occasional hot, dry and powerful easterly winds ("Berg Winds") during winter cause large quantities of dust and sand to be blown offshore, affecting sediment input into the coastal marine environment. The abrasive effect of the sand and dust transported by Berg winds is an important consideration in the design of power lines and other infrastructures. Wind in the interior blows mainly from north, north-east and easterly directions (Figure 6-3), and carries moist air into Namibia.

6.1.5 Topography

The coastal plain of Namibia rises towards the east and forms a plateau of between 900 and 1 300 metres above sea level (m.a.s.l). The incisions of the ephemeral Khan- and Swakop rivers

can be observed between Usakos and Swakopmund, and Otjimbingwe and Swakopmund respectively. Windhoek is situated at approximately 1 700 m.a.s.l.

6.1.6 Geology, Soils and Land Cover

Schists and dolomites, with patches of granite and complex rock types, predominantly underlie the proposed project area. The eastern part around Windhoek is characterised by schistsThe dominant soil types of the proposed project area are petric Gypsisols, pertic Calsisols, eutric Regosols, and lithic and eutric Leptosols, with interspersed rocky outcrops. The desert areas of the proposed project area is sparsely covered with lichen and vegetation.

6.1.7 Surface Water and groundwater

Although the surface water features in the study area are not of particular significance for aquatic ecology, dry rivers and drainage lines act as resource sinks that attract and provide habitat for plants and animals. Dry rivers and drainage lines channel water during rains, often characterised by flash floods, and play a critical role in the landscape in terms of transporting water and nutrients downstream. Drainage lines and other surface water features are thus of significance for terrestrial biodiversity and ecology. In Namibia, where surface water is very sparse, groundwater is a critical resource. Little or no groundwater exists between the coast and ~ 15°15'E,hallower groundwater areas are often associated with surface water features (ephemeral rivers and dry rivers).

6.1.8 Lichen Fields

Lichens are composite soil-inhabiting organisms that form biological soil crusts together with other organism groups (e.g. cyanobacteria and bryophytes). They play a crucial role in semi-arid ecosystems, since they are able to retain soil moisture, reduce wind and water erosion of the soil (soil stability), reduce deflation (i.e. loosened materials), fix atmospheric nitrogen (cyanolichens), and contribute to soil organic matter and nutrient richness. Additionally lichens are a food source for beetles and provide shelter for the nests of the vulnerable endemic Damara Tern when breeding (Barnard, 1998). Large lichen fields in the proposed project area are of global biodiversity significance, and include the lichen community north of Wlotzkasbaken.

6.1.9 The Coastal Hummock Belt

The coastal hummock belt refers to a narrow stretch of area from the high water mark, directly inland from the littoral zone. The inland site hosts the primary vegetation species which are very distinct and dominated by *Arthraerua leubnitziae, Zygophyllum clavatum, Brownanthus kuntzei and Zygophyllum stapffi*i. The vegetation assessment noted that in the area of the proposed development, severe degradation of this belt is noted due to anthropogenic activities. However, patches of pristine habitat remain. A similar trend is noted along the rest of the Namibian cost (which hosts this habitat), as recreational activities and related access roads fragment the habitat, isolating endemic hummock invertebrates, thereby reducing their ranges, interrupting gene flow and diminishing their ability to adapt and survive into the future. The assessment notes that this habitat, as a whole, should be considered very sensitive and very vulnerable.

6.1.10 Socio-Economic

The nearset settlement is Wlotzkasbaken, situated about halfway between Henties Bay and Swakopmund on the C34 road. It was founded as a holiday angling spot in the 1930s, but the erven have not been electrified and water is delivered by road and stored in private water towers that characterise the settlement's skyline. There are no walls or fences anywhere; boundaries are demarcated with rocks. In 2000, the Erongo Regional Council expanded the total number of erven to 248 and existing leaseholders were offered the option to buy the piece of land they had rented before and built on. The current Erongo Desalination Plant, built to supply the Areva Trekoppie mine with water, is located on the outskirts of the settlement and adjacent to the proposed project site.

7 IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND POTENTIAL IMPACTS

The scoping phase which included a consultation process with key stakeholders that included government authorities and I&APs allowed the opportunity to raise the issues associated with the project development.

The relevance of the potential impacts ("screening") are also presented in the tables below to determine aspects to be assessed in further detail (Section 8 of this report).

ACTIVITY / FACILITY	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT	Ref
Construction Phase	Soil stripping (earthmoving equipment)	Potential impacts on Lichens and the coastal hummock belt species in the area	Lichens and species of the hummock belt can be found along the route of the power cables. The activities during the inland installation of the power cables which includes human movements, digging and drilling may have an impact on the local fauna and flora. Therefore, the potential impact on the inland fauna and flora has been assessed further in section 8.	**R01**
		Impact on archaeology sites	There's no evidence of archaeological remains in the area. Therefore, no impacts are expected for this issue. No further assessment is required. However, should there be any archaeological findings on site, the related management and mitigation measures stipulated in the ESMP should be followed.	**R02**
	Oil and diesel spillages from vehicles and other equipment	Impact on surface water and groundwater water quality.	The proposed activities may pose the risk of contamination of soil, mainly through accidental spills of oil and diesel etc. Due to the nature of the project, there is a low risk of big hydrocarbon spillages. The related management and mitigation measures are stipulated in the EMP.	**R03**
	Dust	Impact on 3rd party health and safety	The Orano Desalination Plant is the nearest activities and it is located approximately 1 km south of the proposed study area and could potentially be affected by dust. The related management and mitigation measures are stipulated in the EMP.	**R04**
	Noise	Increase in disturbing noise levels (nuisance impact to third parties)	Existing noise sources within and around the project site include activities from Orano Desalination Plan, fishing activities west of the project, natural sounds from wind and vehicle movement on the Swakopmund - Henties Bay	**R05**

			public road The related management and mitigation measures are stipulated in the EMP.	
	Waste disposal Sewerage management	Emissions to land, impact on biodiversity, environmental degradation and nuisance impacts and contamination of surface water and groundwater	Relatively small quantities of waste is anticipated to be generated during the construction phase. Waste shall be transported to the nearest waste disposal site in Henties Bay or Swakopmund. The related management and mitigation measures are stipulated in the EMP.	**R07**
	Visual Impacts and sense of place	Changes in visual conditions	The project area is approximately 1 km north of Orano and located within the Wlotzkasbaken townlands earmarked for industrial development. The presence of Orano 1 km from the project area and its existing industrial infrastructure makes the place not sensitive to change in general. The related management and mitigation measures are stipulated in the EMP.	**R08**

Table 8: Environmental Aspects and Potential Impacts

8 ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

8.1 Assessment Approach and Methodology

The assessment largely adopted a desktop approach, where qualitative information on the environment was collected during a site visit and a beach survey conducted on 01 December 2023.

Impacts are considered in a cumulative manner where possible such that the impacts of the proposed Project are seen in the context of the baseline conditions described in Section 6. Information that has been included in Section 6 will not be repeated in this Section.

Both the criteria used to assess the impacts and the Method of determining the frequency/severity of the impacts is outlined.

Table 9. This Method complies with the EIA Regulations: EMA, 2007 (Government Gazette No. 4878) EIA regulations. Both mitigated and unmitigated scenarios are considered for each impact in the ESIA results.

The potential impacts that required further assessment include the following:

- Potential Impacts on the Lichens and Coastal Hummock Belt Species

Table 9: Frequency/Severity Rating

Likelihood/ Frequency	Definition	Probability	Rating	Consequence/ Severity				
				Insignificant	**Minor**	**Moderate**	**Major**	**Critical**
				Very minor or no impact.	Minor impact that can be contained	Impact may have moderate effects	Serious impact/effect	Permanent Impact/effect
				1	**2**	**3**	**4**	**5**
Very high	Almost certain Extremely likely	>90%	**5**	Low	**Medium**	High	Extreme	Extreme
				5	10	15	20	25
High	Very likely Will probably occur	60-90%	**4**	Low	**Medium**	**Medium**	High	Extreme
				4	**8**	12	16	20
Medium	Likely to happen	40-59%	**3**	**Low**	**Low**	**Medium**	**Medium**	High
				3	**6**	**9**	12	15
Low	Possible but unlikely	10-39%	**2**	**Low**	**Low**	**Low**	Medium	**Medium**
				2	**4**	**6**	8	**10**
Very low	Conceivable but extremely unlikely	<10%	**1**	**Low**	**Low**	**Low**	**Low**	**Low**
				1	**2**	**3**	**2**	**2**

Table 10: Assessment of Potential Impacts

No	Potential Impact	Frequency	Severity	Without Mitigation	Control/ Mitigation	With Mitigation
1	Potential Impact on Fauna and FLichens and oastal Hummock Belts.	4	4	High (16)	◆ Only the designated site access roads provided shall be used as practical as possible and avoid creating new tracks or access roads unnecessary;	Medium (8)
2	Potential Impacts of waste generation	2	3	Low (6)	◆ Workers should be sensitized to dispose of waste responsibly and not to litter; ◆ All domestic and general operations waste produced daily should be contained until such that time it will be transported to the approved designated waste facilities; ◆ If applicable, hazardous waste should be properly handled, stored and disposed of at the nearest authorized waste sites; ◆ No waste should be buried or burned on-site or anywhere else throughout the project lifecycle; .	Low (4)
3	Potential Impacts on: ◆ Archaelogical sites	2	1	Low (2)	◆ If any archaeological material or human burials are uncovered during the course of development activities, then work in the immediate area should be halted, the find would need to be reported to the heritage authorities and may require inspection by an archaeologist.	Low (6)
4	Potential Impacts on Groundwater and Surface Water	2	3	Low (6)	◆ No dumping of waste products of any kind in or in close proximity to any surface water bodies. ◆ Contaminated runoff from the various operational activities should be prevented from entering any surface or ground water bodies. ◆ Ensure that surface water accumulating on-site are channeled and captured through a proper storm water ◆ management system to be treated in an appropriate manner before disposal into the environment. ◆ Disposal of waste from the various activities should be properly managed. ◆ Areas where hydrocarbons will be utilized, the surface should be covered with a plastic impermeable plastic liner to prevent the spillage on the soils and eventual infiltration into the ground. ◆ Project machines and equipment should be equipped with drip trays to contain possible oil spills when operated during construction works. ◆ All hydrocarbon substances and other potential pollutants associated with the project activities should be contained in designated containers on site and later disposed of at nearby approved waste sites in accordance with the discharge standards. This is to ensure that these hazardous substances do not infiltrate into the ground and affect the groundwater quality. ◆ In cases of accidental fuel or oil spills on the soils from site vehicles, machinery and equipment, the polluted soil should be removed immediately and put in a designate waste type container for later disposal as per the preceding bullet point. The removed polluted soil should either be completely disposed of or cleaned and returned to where it was taken from on site or can be replaced with a cleaner soil. This is to ensure that the pollutants contained int the soil does not infiltrate into the site soils and eventually reach to groundwater. ◆ Spill control preventive measures should be in place on site to management soil contamination, thus preventing and or minimizing the contamination from reaching groundwater bodies. The impact would be	Low (4)

No	Potential Impact	Frequency	Severity	Without Mitigation	Control/ Mitigation	With Mitigation
					more on groundwater (aquifers) since the construction works will be done in the dry months, thus there would be no rain to trigger (polluted) runoff to surface water bodies.	
5	Noise and Air Quality	3	4	Medium (12)	◆ Continuous monitoring of noise levels should be conducted to make sure the noise levels does not exceed acceptable limits. ◆ No activity having a potential noise impact should be allowed after 18:00 hours if possible.	Low (6)

9 CONCLUSIONS AND RECOMMENDATIONS

It was concluded from the qualitative assessment by I.N.K that the development of the project could potentially have minimal or insignificant impacts on the environment.

Mitigation measures have been identified and recommended by I.N.K to promote the positive impacts of the project, as well as to avoid / minimise the negative impacts to acceptable levels. An EMP was further developed which identifies potential impacts of the project during the construction and operation phases. The EMP is a legally binding document, which the proponent and contractors onsite must adhere to.

I.N.K concludes that should the management actions and mitigation measures provided in the EIA and EMP report be implemented, the project would have an acceptably low significant impact on the surrounding biophysical and social environment.

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