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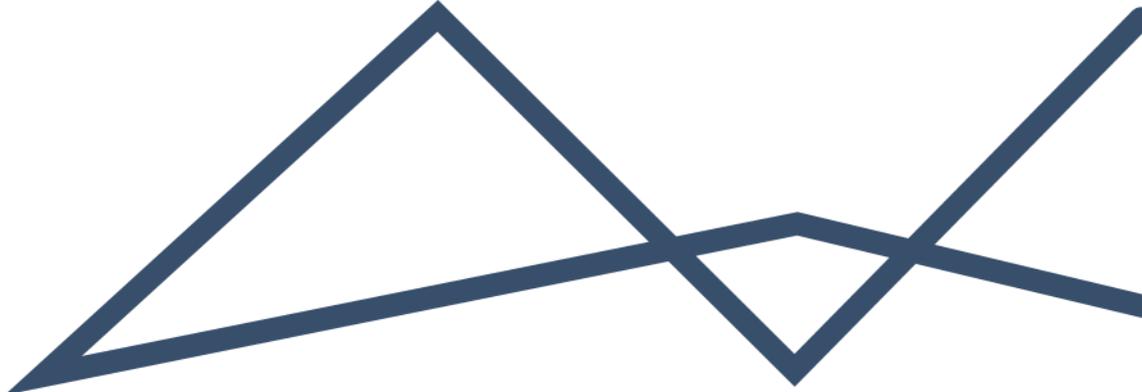
T 011 789 7170 E info@eims.co.za W www.eims.co.za

ENVIRONMENTAL MANAGEMENT PROGRAMME

HARMONY ST HELENA 123 PIPELINE PROJECT

MAIN ASSOCIATED MINING RIGHT: ST HELENA (FS
30/5/1/2/2/85MR)





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	NAME	SIGNATURE	DATE
COMPILED:	Dr Lucien James		2026/03/11
CHECKED:	John von Mayer		2026/03/13
AUTHORIZED:	Liam Whitlow		2026/03/13

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Appendices

Appendix 1: EAP Curriculum Vitae

Appendix 2: Code of Practice: Emergency Preparedness and Response Plan



Definitions of key terms and abbreviations

Term	Definition
Applicant	According to NEMA, the applicant is a person who has submitted an application for an environmental authorization to the competent authority and has paid the prescribed fee. This EMPr utilizes this term to refer to the person who is ultimately issued with the EA or equivalent permission and who is ultimately responsible for compliance therewith and the associated EMPr.
CEO	Contractors environmental officer
CLF	Community Liaison Forum
COP	Code of Practice
DFFE	Department of Forestry Fisheries and the Environment
DPM	Developers project manager
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
ECO	Environmental control officer
EIA	Environmental Impact Assessment. In instances where a Basic Assessment process has been followed to obtain the EA, then EIA refers to the Basic Assessment process and associated Basic Assessment Report.
EIA Regulations	The Environmental Impact Assessment Regulations promulgated under the NEMA, GNR982, as amended.
EMPr	Environmental Management Programme
EPRP	Emergency Preparedness and Response Plan
GHG	Greenhouse Gases
IEA	Independent Environmental Auditor
Impact Management Outcomes	The specific, measurable result that must be achieved through the implementation of impact management actions to ensure that environmental impacts are avoided, minimized, or remedied (i.e. what needs to be achieved). These are the desired end states or results that must be achieved to manage, mitigate, or enhance environmental impacts identified. They describe what success looks like in terms of environmental performance (e.g., “No contamination of surface water resources during construction”). These outcomes are measurable and auditable, forming the basis for compliance monitoring and reporting.
Impact Management Actions	A specific measure or intervention implemented to avoid, manage, or mitigate a negative environmental impact, or to enhance a positive impact, during the planning, construction, operation, or decommissioning phases of a project (i.e. what needs to be done to achieve the outcome). These are the specific measures, tasks, or interventions that must be implemented to achieve the stated impact management outcomes. They



Term	Definition
	detail how the outcomes will be achieved, including operational controls, procedures, and responsibilities (e.g., “Install silt fences and sediment traps along drainage lines before earthworks commence”)
NC	Non-compliance
NEMA	National Environmental Management Act (Act 107 of 1998)
PM	Airborne particulate matter
PPE	Personal Protective Equipment
SIA	Social Impact Assessment
SMP	Social Management Plan
TOPS	Threatened or protected species- listed under the National Environmental Management: Biodiversity Act (NEMBA), 2004, in terms of Sections 56 and 57. These species are categorized as: Critically Endangered, Endangered, Vulnerable, Protected.
WMP	Waste Management Plan.
WUL	Water Use Licence



1 INTRODUCTION

The Environmental Management Programme (EMPr) is an Integrated Environmental Management (IEM) Tool which typically is preceded by an Environmental Impact Assessment (EIA), and which aims to describe the objectives and management actions for managing and mitigating potential environmental impacts associated with a development proposal. Regulation 19 of the National Environmental Management Act (NEMA), EIA Regulations (GNR 982) requires the compilation and submission of an EMPr to the relevant Competent Authority together with the relevant Environmental Assessment Reports for consideration in the decision making on an Application for Environmental Authorisation (EA) for relevant Listed Activities.

The purpose of this EMPr is:

- to describe the impact management outcomes, including management statements;
- to identify the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development (planning and design, pre-construction, construction, post construction rehabilitation, and where relevant operation); and
- to provide a description of the relevant impact management actions which clearly defines what actions are to be taken, who is responsible for the actions, when such actions are to be undertaken, and how the implementation of such actions are to be monitored.

The ultimate objective of the EMPr is to ensure that undue or reasonably avoidable adverse impacts during the applicable phases of a development or activity are prevented, and that the positive benefits of the projects are enhanced.

2 SCOPE OF THIS DOCUMENT

This EMPr applies to the development activity described in Section 5. The purpose of the EMPr is to give effect to precautionary and mitigatory measures, which are to be put in place for controlling the activities that take place during the project. The EMPr also provides guidance to assist in ensuring compliance with relevant national legislative and regulatory requirements.

The EMPr is a working document that should be updated on a regular basis, as and when necessary. Formal risk identification forms an integral part of EMPr management and assists with prioritizing and focusing the control of risks. The EMPr thus supports this on-going proactive mitigation and the duty of care to the environment. The EMPr shall therefore allow for risk minimization, rather than just ensuring legal compliance. The purpose of this EMPr is thus also to allow the user to make minor amendments to ensure continual revision and improvement of risk mitigation through the continual re-assessment of risks associated with the activity. Any amendments must comply with formal amendment processes as define in the NEMA EIA Regulations.

3 DOCUMENT STRUCTURE

The structure of this document is guided primarily by the requirements for the content of an EMPr as prescribed by Appendix 4 of the NEMA EIA Regulations. Consideration has also been given to the content and structure requirements as prescribed by other guidelines, as well as EIMS's professional judgement and experience. Table 1 provides an itemised breakdown of the NEMA EIA Regulations Appendix 4 requirements together with a cross reference to the relevant section of this EMPr where this requirement is addressed.

Table 1: EMPr Structure

Appendix Reference	Description	Section in EMPr
Appendix 4(1)(1)(a)	Details of – (i) The EAP who prepared the EMPr; and	4 Appendix 1



Appendix Reference	4 Description	Section in EMPr
	(ii) The expertise of that EAP to prepare an EMPR, including a curriculum vitae;	
Appendix 4(1)(1)(b)	A detailed description of the aspects of the activity that are covered by the EMPR as identified by the project description.	5
Appendix 4(1)(1)(c)	A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	6 Figure 2
Appendix 4(1)(1)(d)	A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including – <ul style="list-style-type: none"> (i) Planning and design; (ii) Pre-construction activities; (iii) Construction activities; (iv) rehabilitation of the environment after construction and in the case of a closure activity, closure; and (v) Where relevant, operation activities; 	7
Appendix 4(1)(1)(f)	A description of proposed impact management actions, identifying the manner in which the impact management contemplated in paragraphs (d) will be achieved, and must, where applicable, include actions to – <ul style="list-style-type: none"> (i) Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) Comply with any prescribed environmental management standards or practices; and (iii) Comply with any applicable provisions of the act regarding closure, where applicable. 	10
Appendix 4(1)(1)(g)	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	9 10
Appendix 4(1)(1)(h)	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	9 10
Appendix 4(1)(1)(i)	An indication of the persons who will be responsible for the implementation of the impact management actions;	9 10
Appendix 4(1)(1)(j)	The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	9 10
Appendix 4(1)(1)(k)	The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	9 10



Appendix Reference	Description	Section in EMPr
Appendix 4(1)(1)(l)	A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	9
Appendix 4(1)(1)(m)	An environmental awareness plan describing the manner in which – (i) The applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) Risks must be dealt with in order to avoid pollution or the degradation of the environment; and	8.10
Appendix 4(1)(1)(n)	Any specific information that may be required by the competent authority.	N/A

It is noted that this EMPr is the culmination of an Environmental Impact Assessment (EIA) specific to the development activities. This EMPr should be read in the context of this EIA. Where relevant the content of the EIA has been extracted and summarised for inclusion in this EMPr. The EIA provides further detail on the nature and extent of the development activities, the receiving environment, and the identified and assessed impacts.

4 DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

In terms of Regulation 13 of the EIA Regulations, an independent Environmental Assessment Practitioner (EAP), must be appointed by the applicant to manage the application for EA. EIMS has been appointed by the Applicant as the EAP and is compliant with the definition of an EAP as defined in Regulations 1 and 13 of the EIA Regulations and Section 1 of the NEMA. This includes, inter alia, the requirement that EIMS is:

- Objective and independent;
- Has expertise in conducting EIA's;
- Comply with the NEMA, the Regulations and all other applicable legislation;
- Takes into account all relevant factors relating to the application; and
- Provides full disclosure to the applicant and the relevant environmental authority.

EIMS was appointed by the Applicant as the EAP to compile this report. EIMS is a private and independent environmental management-consulting firm that was founded in 1993. EIMS has in excess of 30 years' experience in conducting EIA's. The details of the EIMS consultants who compiled this EMPr are presented in Table 2 and copies of the EAP Curriculum Vitae are included in Appendix 1.

Table 2: EAP Details

Name of Practitioner	Lucien James
Tel No.:	+ 27 11 789 7170
E-mail:	sthelena@eims.co.za
Qualifications:	PhD
Expertise of the EAP:	Dr Lucien James is an Environmental Consultant and Archaeologist with experience in different fields across the Arts, Social Science, Natural Science, and academia in general. He has been employed by EIMS as an environmental consultant since March 2023 working on several projects under various roles. He is registered with EAPASA as a Candidate EAP. Lucien has obtained a BSc (Hons) in Geography, Archaeology and Environmental Studies (Archaeology-focused) and is accredited as a Professional Archaeologist with the Association of South African Professional Archaeologists (ASAPA). He holds a MSc in



	Geography having done research on phytoremediation and the mining industry. In 2024, he completed his Ph.D. through research with a focus on collaborative River Basin Management in South Africa. He has worked as a Teaching Assistant (TA) and researcher since 2018 and engages in academic work through publications and conferences. He has taught 1st year, 2nd year, 3rd year and Honour's Archaeology and Geography courses. His research has been funded by the National Research Foundation (NRF) and the Water Research Commission (WRC). He is also actively publishing new papers in international academic journals. He has presented his research at a national level through various conferences in South Africa and has participated in other conferences and workshops on Climate Change and Climate Change Adaptation.
EAPASA Registration:	2023/6772

Name of Practitioner	John von Mayer
Tel No.:	+ 27 11 789 7170
E-mail:	sthelena@eims.co.za
Qualifications:	BSc (Hons)
Expertise of the EAP:	John von Mayer is a principal consultant at EIMS and has been involved in numerous large projects the past 17 years. He has experience in Project Management, small to large scale Environmental Impact Assessments, Environmental Auditing, Water Use Licensing, and Public Participation. He is a Registered Professional Natural Scientist (400336/11) with the South African Council Natural and Scientific Professions (SACNASP) as well as a registered Environmental Assessment Practitioners Association of south Africa (EAPASA) Environmental Practitioner.
EAPASA Registration:	2019/1247

5 DESCRIPTION OF THE ACTIVITY

The proposed activity consists of the construction and operation of the Harmony St Helena 123 Return Water Pipeline, a linear infrastructure project located within the Matjhabeng Local Municipality. The pipeline will traverse portions of Farms Klippan 14, Stuirmanspan 92, Marmegeli 20, and St Helena 42, connecting key process-water facilities associated with Harmony's reclamation system. The project entails installation of approximately 11.4 km of above-ground 650 Nominal Bore (NB) flanged steel pipeline, mounted on prefabricated plinths. Construction will occur within a defined pipeline servitude and includes temporary site establishment areas, laydown areas, material storage zones, and use of existing access routes. Activities include vegetation clearance (where necessary), ground preparation, installation of plinths, placement of pipeline sections, pressure testing, tie-ins, and commissioning. Applicable Listed activities include:

- Listing Notice 1: Activities 10 and 19.
- Listing Notice 3: Activity 14.

Listed Water Uses:

- Section 21(c) (impeding or diverting the flow of water in a watercourse) and
- Section 21(i) (altering the bed, banks, course or characteristics of a watercourse)



6 DESCRIPTION OF THE SITE AND RELEVANT SENSITIVITIES

The proposed pipeline route is located within a disturbed mining landscape. A sensitivity assessment undertaken for the BAR identified several environmentally sensitive features within the broader region, although none fall within the direct construction footprint. Notably, the pipeline crosses through the 500m Zone of Regulation of six depression wetlands and a drainage line. No direct aquatic impacts are anticipated. The terrestrial ecology assessment confirms low likelihood of occurrence for **Species of Conservation Concern (SCC)** and no identified SCC within the footprint, with biodiversity impacts considered **low** following standard construction controls. From a heritage perspective, the assessment recorded no archaeological or historical resources along the alignment, and the area exhibits low heritage sensitivity. Nonetheless, construction works must implement a chance-find procedure, given the broader district's archaeological context.

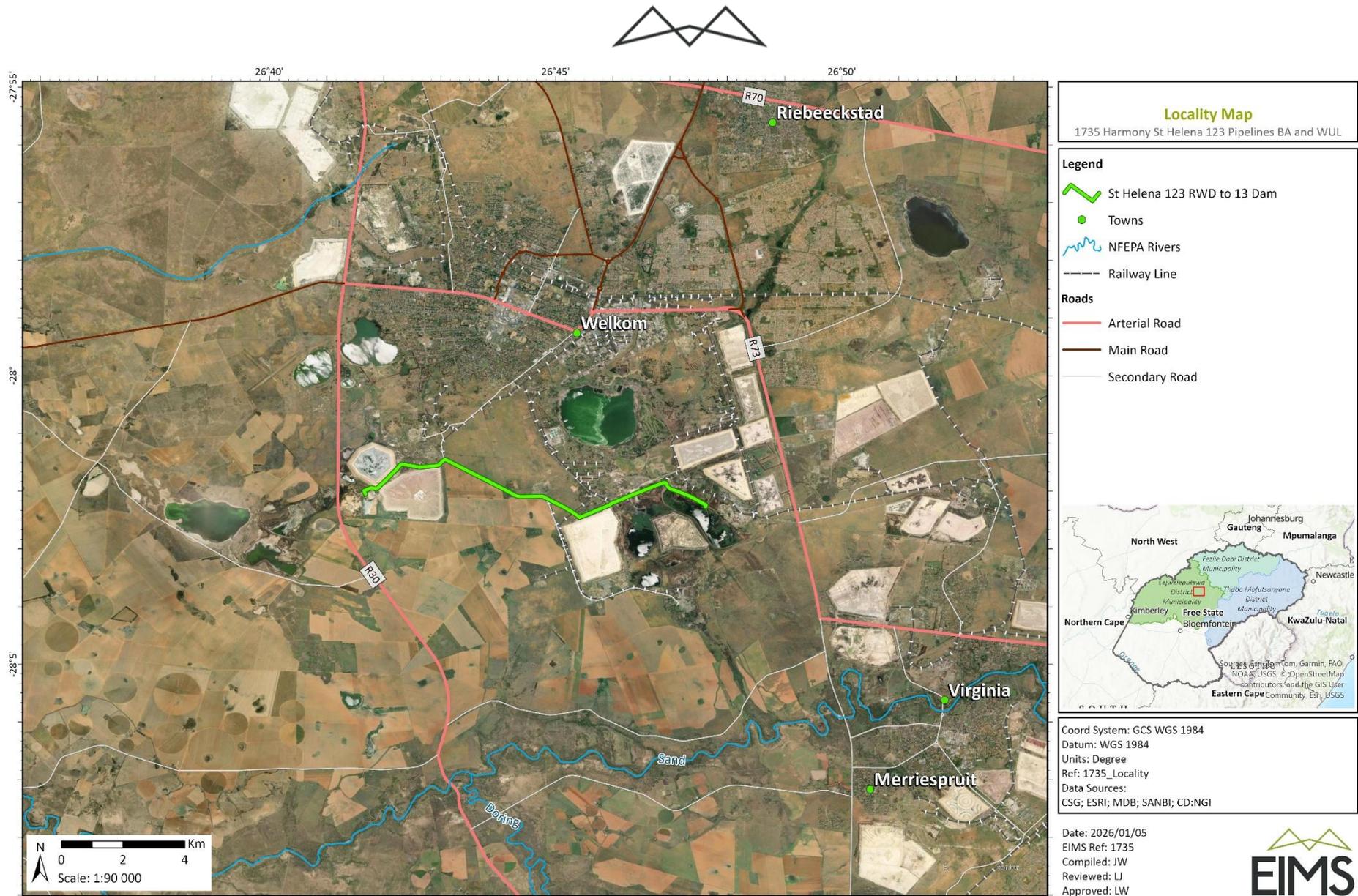


Figure 1: Project layout map

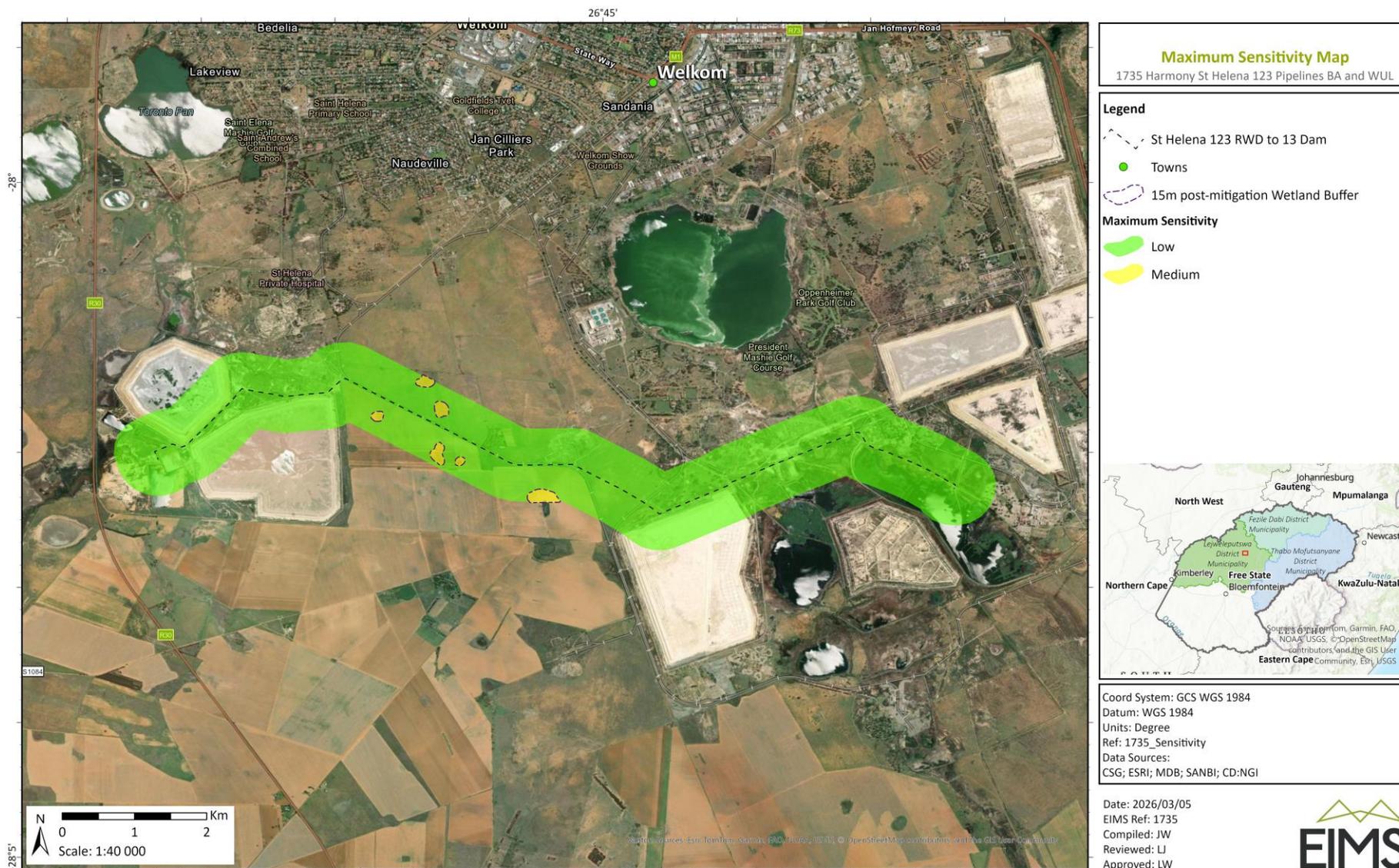


Figure 2: Site sensitivity map.



7 IDENTIFIED IMPACTS AND MANAGEMENT OUTCOMES

An environmental assessment has been undertaken as prescribed by the NEMA EIA Regulations. The EIA has identified relevant anticipated impacts and risks associated with the proposed activity. These impacts have been assessed in terms of the nature, extent, duration, magnitude, and probability and assigned an impact significance rating. The hierarchy of mitigation has been applied to the identified impacts and where possible the impacts have been avoided, or where avoidance is not possible, relevant actions for the management and mitigation have been provided. A re-assessment of the impact significance, post mitigation, was concluded. The impacts identified during the different phases of the activity and the significance of these impacts (post mitigation), together with the proposed impact management outcomes are listed in Table 3. These significance rating set the pre-emptive prediction of level of impact. The actual observed level of impact should be considered during the project development phases and where necessary reconsidered together with associated impact management outcomes and impacts, in consultation with the appointed Independent Auditor.

Table 3: Impact Management Outcomes.

Identified Impact	Relevant development Phase	Post Significance	Mitigation	Proposed Impact Management Outcome
Minimal generation of dust and vehicle emissions from levelling/vehicle movement (AQ1)	Construction	Low -		<p>Air Quality (10.1): Maintain ambient air quality at sensitive receptors; minimise visible dust plumes beyond boundary; control fugitive dust from earthworks and roads.</p> <p>Control exhaust emissions from construction equipment and vehicles (mobile sources).</p> <p>Prevent nuisance dust, odour and smoke.</p>
Minimal dust/emissions from vehicle movement during inspections (AQ2)	Operation	Low -		<p>Air Quality (10.1): As above (AQ outcomes apply during operations; focus on travel speeds, route control, complaint response).</p>
Soil compaction and erosion (G1)	Construction	Low -		<p>Soil (10.8): Prevent soil erosion and sediment loss; preserve topsoil (strip/store/reuse).</p> <p>Prevent soil from unnecessary degradation, compaction and disturbance.</p>
Negligible soil pollution from minor spills (G2)	Construction	Low -		<p>Soil (10.8): Minimise soil contamination.</p>



Identified Impact	Relevant development Phase	Post Significance	Mitigation	Proposed Management Outcome
				Prevent soil from unnecessary degradation, compaction and disturbance.
Soil compaction & erosion (G3)	Operation	Low -		Soil (10.8): Prevent soil erosion and sediment loss. Prevent soil from unnecessary degradation, compaction and disturbance.
Negligible soil pollution from minor spills (G4)	Operation	Low -		Soil (10.8): Minimise soil contamination.
Soil compaction & erosion (G5)	Decommissioning	Low -		Soil (10.8): Prevent soil erosion and sediment loss. Prevent soil from unnecessary degradation, compaction and disturbance.
Indirect wetland loss/disturbance (W1)	Construction	Low -		Water (10.7): Avoid encroachment into watercourses and wetlands through buffer zones and site planning.
Increased bare surfaces/runoff & erosion (W2)	Construction	Low -		Water (10.7): Maintain natural drainage patterns and minimize alteration of hydrology. Minimise the change in stormwater runoff from pre-development to post-development conditions.
Wetland vegetation degradation / AIPs (W3)	Construction	Low -		Water (10.7): Avoid encroachment into watercourses and wetlands through buffer zones and site planning. Maintain natural drainage patterns and minimize alteration of hydrology.



Identified Impact	Relevant development Phase	Post Significance	Mitigation	Proposed Management	Impact Outcome
Hydrocarbon contamination of wetlands (W4)	Construction	Low -		Water (10.7): Prevent contamination of surface water and groundwater from amongst other sediment, fuels, chemicals, and wastewater. Ensure emergency response procedures are in place for water pollution incidents.	
Altered hydrology at drainage crossing (W5)	Construction	Low -		Water (10.7): Maintain natural drainage patterns and minimize alteration of hydrology. Minimise the change in stormwater runoff from pre-development to post-development conditions.	
Increased dirty/processed water inputs due to leakage (W6)	Operation	Low -		Water (10.7): Prevent contamination of surface water and groundwater from amongst other sediment, fuels, chemicals, and wastewater.	
Wetland vegetation degradation & AIPs (W7)	Decommissioning	Low -		Water (10.7): Avoid encroachment into watercourses and wetlands through buffer zones and site planning. Maintain natural drainage patterns and minimize alteration of hydrology.	
Wetland soil/hydrology disruption & sediment loads (W8)	Decommissioning	Low -		Water (10.7): Avoid encroachment into watercourses and wetlands through buffer zones and site planning. Maintain natural drainage patterns and minimize alteration of hydrology.	



Identified Impact	Relevant development Phase	Post Significance	Mitigation	Proposed Management	Impact Outcome
Construction noise (N1)	Construction	Low -		<p>Noise (10.4): Prevent exceedance of applicable noise limits at sensitive receptors.</p> <p>Minimize community disturbance by scheduling noisy activities and using engineering controls.</p> <p>Control noise at source through equipment selection, maintenance, and mufflers.</p>	
Traffic/movement noise (N2)	Construction	Low -		<p>Noise (10.4): Prevent exceedance of applicable noise limits at sensitive receptors.</p> <p>Minimize community disturbance by scheduling noisy activities and using engineering controls.</p>	
Maintenance/inspection noise (N3)	Operation	Low -		<p>Noise (10.4): As above: Prevent exceedance of applicable noise limits at sensitive receptors.</p> <p>Minimize community disturbance by scheduling noisy activities and using engineering controls.</p>	
Traffic noise during operations (N4)	Operation	Low -		<p>Noise (10.4): Prevent exceedance of applicable noise limits at sensitive receptors.</p> <p>Minimize community disturbance by scheduling noisy activities and using engineering controls.</p>	
Decommissioning noise (N5)	Decommissioning	Low -		<p>Noise (10.4): Minimize community disturbance by scheduling noisy activities and using engineering controls.</p>	



Identified Impact	Relevant development Phase	Post Mitigation Significance	Proposed Management Outcome
Habitat loss/fragmentation (TE1)	Construction	Medium to Low -	<p>Biodiversity (10.6): Avoid and minimize impacts on natural habitats and species through site selection, design, and construction planning.</p> <p>Minimise habitat fragmentation and maintain ecological connectivity during construction.</p>
Introduction/spread of AIPs (TE2)	Construction	Medium to Low -	<p>Biodiversity (10.6): Control invasive alien species and prevent their introduction or spread.</p>
Faunal disturbance/mortalities (TE3)	Construction	Medium to Low -	<p>Biodiversity (10.6): Avoid and minimize impacts on natural habitats and species through site selection, design, and construction planning.</p>
Continued habitat fragmentation (TE4)	Operation	Medium to Low -	<p>Biodiversity (10.6): Minimise habitat fragmentation and maintain ecological connectivity during construction.</p>
Leaks/discharges affecting terrestrial environment (TE5)	Operation	Medium to Low -	<p>Biodiversity (10.6): Avoid and minimize impacts on natural habitats and species through site selection, design, and construction planning.</p> <p>Minimise habitat fragmentation and maintain ecological connectivity during construction.</p>
Ongoing faunal disturbance (incl. SCC) (TE6)	Operation	Medium to Low -	<p>Biodiversity (10.6): Avoid and minimize impacts on natural habitats and species through site selection,</p>



Identified Impact	Relevant development Phase	Post Significance	Mitigation	Proposed Management	Impact Outcome
				design, and construction planning. Minimise habitat fragmentation and maintain ecological connectivity during construction.	
Vegetation destruction during dismantling (TE7)	Decommissioning	Medium to Low -		Biodiversity (10.6): Minimise habitat fragmentation and maintain ecological connectivity during construction.	
Community development via industry growth (S1)	Operation	Medium to High +		Social (10.5): Support local socio-economic benefits through local hiring, skills transfer and procurement of good and services from local enterprises.	
Potential future job creation (S2)	Operation	Low +		Social (10.5): Promote effective stakeholder engagement and maintain transparent communication throughout the project lifecycle. Support local socio-economic benefits through local hiring, skills transfer and procurement of good and services from local enterprises.	
Unknown archaeological finds (C1)	Construction	Low + improvement chance-finds)	(post; after	Cultural Heritage (10.10): Protect tangible and intangible cultural heritage from adverse impacts of construction activities and support its preservation. Identify, avoid, and minimize impacts on archaeological sites, built heritage, cultural landscapes, and natural features of cultural significance.	



Identified Impact	Relevant development Phase	Post Significance	Mitigation Proposed Management Outcome
			<p>Implement a robust system to respond to chance finds to ensure protection of cultural heritage discovered unexpectedly during construction activities and prevent disturbance until proper assessment is completed.</p> <p>Comply with heritage legislation and permitting, including South Africa's NHRA Section 38 where applicable.</p>
Palaeontological loss (C2)	Construction	Low -	<p>Cultural Heritage (10.10):</p> <p>Comply with heritage legislation and permitting, including South Africa's NHRA Section 38 where applicable.</p> <p>Implement a robust system to respond to chance finds to ensure protection of cultural heritage discovered unexpectedly during construction activities and prevent disturbance until proper assessment is completed.</p>
Economic growth via support of FS mining (E1)	Operation	Medium to High +	<p>Social (10.5): Promote effective stakeholder engagement and maintain transparent communication throughout the project lifecycle.</p> <p>Support local socio-economic benefits through local hiring, skills transfer and procurement of good and services from local enterprises.</p>



The specific impact management actions or mitigation measures applicable to each of these impacts are presented in Section 10.

8 ENVIRONMENTAL MANAGEMENT FRAMEWORK

The compilation of an EMPr for an activity which is likely to result in significant environmental impacts is typically compiled at the culmination of a thorough investigation into the receiving environment and the identification and assessment of likely environmental impacts (i.e. EIA). This EMPr forms part of an EA application process. This EMPr aims to comply with the requirement of Appendix 4 of the EIA Regulations, 2014. These requirements are systematically addressed in the subsequent sections of this report. The primary objectives of the EMPr are as follows:

- To promote sustainability and describe an action programme to mitigate negative impacts as far as possible;
- To be a practical document that sets out both the goals and actions required in mitigation. Though the term “mitigation” can be broad in definition, it means in this context to “alloy, moderate, palliate, temper or intensify.” Mitigation of a negative impact means that its effect is reduced. Mitigation of a positive impact means that its effect is increased or optimised; and
- To indicate responsibilities for the implementation of these action items within the EMPr.

This EMPr shall be deemed to have legal and contractual standing on the basis that its contents and specifically objectives are a detailed expansion of the environmental risks and consequent requirements of the EA (if, and when issued). Where relevant the Applicant¹ is responsible for delegating responsibility for compliance to designated parties (internal or external). Such delegation must be legally binding to the extent relevant.

The objectives and targets in this EMPr are further guided by the NEMA, and specifically by the EIA Regulations. The underlying principles of sustainable development are the ultimate objectives and target of this report. The environmental assessment process and this consequent EMPr includes measures to ensure the development activity complies with the following principles, as instilled in the NEMA, amongst others:

- i. That the disturbance of ecosystems and loss of biological diversity are minimised and remedied;
- ii. That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
- iii. That waste is avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner;
- iv. That a risk-averse and cautious approach is applied, which considers the limits of current knowledge about the consequences of decisions and actions; and
- v. That negative impacts on the environment and on people’s environmental rights be anticipated, prevented and remedied.

An effective EMPr is not a static and isolated management tool and should rather be implemented in a systematic and dynamic manner. The EMPr should be supported by senior management and involve engagement between the applicant, its contractors and workers, and relevant external stakeholders (including the project affected communities).

8.1 ENVIRONMENTAL MANAGEMENT PRINCIPLES

NEMA establishes a general framework for environmental law, in part by prescribing national environmental management principles that must be applied when making decisions that may have a significant impact on the environment. These principles are briefly summarised below:

¹ According to NEMA, the applicant is a person who has submitted an application for an environmental authorization to the competent authority and has paid the prescribed fee. This EMPr utilizes this term to refer to the person who is ultimately issued with the EA or equivalent permission and who is ultimately responsible for compliance therewith and the associated EMPr.



8.1.1 HOLISTIC PRINCIPLE

The Holistic principle, as defined by NEMA (Section 2(4) (b)) requires that environmental management must be integrated, acknowledging that all elements of the environment are linked and inter-related and it must take into account the effect of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option (defined below in Section 8.1.2). Holistic evaluation does not mean that a project must be looked at as a whole. It rather means that it must be accepted that there is an all-inclusive whole into which a project is introduced. If the indications are that the project could have major adverse effects, the project must be reconsidered and where appropriate, re-planned or relocated to avoid an adverse impact or to ensure a beneficial impact.

8.1.2 BEST PRACTICABLE ENVIRONMENTAL OPTION

When it is necessary to undertake any action with environmental impacts, the different options that could be considered for the purpose must be identified and defined. The Best Practicable Environmental Option (BPEO) is defined in NEMA as “the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term.” Other guidelines typically used for environmental management in terms of other legislation include BPM which is the Best Practicable Means and BAT which is the Best Available Technology.

8.1.3 SUSTAINABLE DEVELOPMENT

The concept of sustainable development was introduced in the 1980's with the aim to ensure that the use of natural resources is such that our present needs are provided without compromising the ability of future generations to meet their own needs. The constitution of South Africa is built around the fact that everyone has the right to have the environment protected through reasonable legislative and other measures that secure ecologically sustainable development. The National Environmental Principles included in the NEMA require development to be socially, environmentally and economically sustainable.

8.1.4 PREVENTATIVE PRINCIPLES

The preventative principle is fundamental to sustainable development and requires that the disturbance to ecosystems and the pollution, degradation of the environment and negative impacts on the environment be avoided, or, where they cannot be altogether avoided, are minimised and remedied.

8.1.5 THE PRECAUTIONARY PRINCIPLE

The precautionary principle requires that where there is uncertainty, based on available information, that an impact will be harmful to the environment, it is assumed, as a matter of precaution, that the said impact will be harmful to the environment until such time that it can be proven otherwise. The precautionary principle requires that decisions by the private sector, governments, institutions and individuals need to allow for and recognise conditions of uncertainty, particularly with respect to the possible environmental consequences of those decisions. In South Africa, the DWS (then DWAF) adopted a BPEO guideline in 1991 for water quality management and in 1994 in the Minimum Requirements document for waste management.

In terms of DWAF Minimum Requirements for the Handling and Disposal of Hazardous Waste, 1994, the precautionary principle is defined as, “Where a risk is unknown; the assumption of the worst-case situation and the making of provision for such a situation.” Here the precautionary principle assumes that a waste or an identified contaminant of a waste is “both highly hazardous and toxic until proven otherwise.”

In the context of the EIA process in South Africa, the precautionary principle also translates to a requirement to provide sound, scientifically based, information that is sufficient to provide the decision-making authority with reasonable grounds to understand the potential impacts on the environment, the extent thereof and how impacts could be mitigated. If such information is not adequate for this purpose, the relevant authority cannot be satisfied as is required and then the authority should require that further information be collected and provided.



8.1.6 DUTY OF CARE AND CRADLE TO GRAVE PRINCIPLE

In terms of the NEMA Section 28, *“Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.”*

By way of example, the principle of “duty of care” in terms of waste management emphasises the responsibility to make sure that waste is correctly stored and correctly transported, as it passes through the chain of custody to final point of disposal. This means that waste must always be stored safely and securely. The company removing and disposing of waste also holds the responsibility to hold the relevant licenses, and that waste is transported alongside the necessary paperwork.

“Cradle to Grave” refers to the responsibility a company takes for the entire life cycle of a product, service or program, from design to disposal or termination. Section 2(4)(e) explicitly states that companies are responsible for the environmental health and safety consequences of a policy, programme, project, product, process, service, or activity throughout its life cycle.

8.1.7 POLLUTER PAYS PRINCIPLE

The "polluter pays principle" holds that the person or organisation causing pollution is liable for any costs involved in cleaning it up or rehabilitating its effects. It is noted that the polluter will not always necessarily be the generator, as it is possible for responsibility for the safe handling, treatment or disposal of waste to pass from one competent contracting party to another. The polluter may therefore not be the generator but could be a disposal site operator or a transporter. Through the 'duty of care' principle, however, the generator will always be one of the parties held accountable for the pollution caused by the waste. Accordingly, the generator must be able to prove that the transferral of management of the waste was a responsible action. The polluter pays principle acceding to NEMA dictates that “the cost of remedying pollution, environmental degradation and consequent adverse effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.”

8.2 DUTY OF CARE RESPONSIBILITIES

Section 28 of the NEMA makes provision for duty of care, and remediation of environmental damage. The binding principles are described below:

1. Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.
 - (1A) Subsection (1) also applies to a significant pollution or degradation that-
 - a) occurred before the commencement of this Act;
 - b) arises or is likely to arise at a different time from the actual activity that caused the contamination; or
 - c) arises through an act or activity of a person that results in a change to pre-existing contamination.
2. Without limiting the generality of the duty in subsection (1), the persons on whom subsection (1) imposes an obligation to take reasonable measures, include an owner of land or premises, a person in control of land or premises or a person who has a right to use the land or premises on which or in which-
 - a) any activity or process is or was performed or undertaken; or
 - b) any other situation exists, which causes, has caused or is likely to cause significant pollution or degradation of the environment.



3. The measures required in terms of subsection (1) may include measures to-
 - a) investigate, assess and evaluate the impact on the environment;
 - b) inform and educate employees about the environmental risks of their work and the manner in which their tasks must be performed in order to avoid causing significant pollution or degradation of the environment;
 - c) cease, modify or control any act, activity or process causing the pollution or degradation;
 - d) contain or prevent the movement of pollutants or the cause of degradation;
 - e) eliminate any source of the pollution or degradation; or
 - f) remedy the effects of the pollution or degradation.

8.3 FAILURE TO COMPLY WITH ENVIRONMENTAL CONSIDERATIONS

Within the provisions of the relevant environmental legislation, there are a number of penalties for non-compliance or offences. Below a few extracts are presented for information purposes, however these must not be read in isolation, and the reader is reminded that there are other Acts, or sections of Acts, that may be applicable to the relevant project:

- National Environmental Management Act:
 - NEMA Section 49B(1): A person convicted of an offence in terms of section 49A(1)(a), (b), (c), (d), (e), (f) or (g) is liable to a fine not exceeding R10 million or to imprisonment for a period not exceeding 10 years, or to both such fine or such imprisonment- this includes commencing with a listed activity without an EA or the non-compliance with conditions of any EA and associated EMPr;
 - NEMA Section 49B(2): A person convicted of an offence in terms of section 49A(1)(i), (j) or (k) is liable to a fine not exceeding R5 million or to imprisonment for a period not exceeding 5 years, and in the case of a second or subsequent conviction to a fine not exceeding R10 million or to imprisonment for a period not exceeding 10 years, and in both instances to both such fine and such imprisonment;
 - NEMA Section 49B(3): A person convicted of an offence in terms of section 49A(1)(h), (l), (m), (n), (o) or (p) is liable to a fine or to imprisonment for a period not exceeding one year, or to both a fine and such imprisonment;
- National Water Act:
 - NWA Section 151 (1c): No person may fail to comply with any condition attached to a permitted water use under this Act;
 - NWA Section 151 (2): Any person who contravenes any provision of subsection (1) is guilty of an offence and liable, on the first conviction, to a fine or imprisonment for a period not exceeding five years, or to both a fine and such imprisonment and, in the case of a second or subsequent conviction, to a fine or imprisonment for a period not exceeding ten years or to both a fine and such imprisonment;
- National Environmental Management: Biodiversity Act:
 - NEM:BA Section 102 (1): A person convicted of an offence in terms of section 101 is liable to a fine not exceeding R10 million, or an imprisonment for a period not exceeding ten years, or to both such a fine and such imprisonment.
- National Environmental Management: Waste Act:
 - NEM:WA Section 68 (1): A person convicted of an offence referred to in section 67(1)(b), (c), (d), (e), (f), (i), (j), (k) or (l) or section 67(2)(a), (b), (c), (d) or (e) is liable to a fine not exceeding R5 000 000 or to imprisonment for a period not exceeding five years, or to both a fine and such



imprisonment, in addition to any other penalty or award that may be imposed or made in terms of the National Environmental Management Act;

- NEM:WA Section 68 (2): A person convicted of an offence referred to in section 67(1)(b), (c), (d), (e), (f), (i), (j), (k) or (l) or section 67(2)(a), (b), (c), (d) or (e) is liable to a fine not exceeding R5 000 000 or to imprisonment for a period not exceeding five years, or to both a fine and such imprisonment, in addition to any other penalty or award that may be imposed or made in terms of the National Environmental Management Act;
- NEM:WA Section 68 (3): Any person convicted of an offence referred to in section 67(1)(m) is liable to a fine or to imprisonment for a period not exceeding six months or to both a fine and such imprisonment;
- NEM:WA Section 68 (4): A person who is convicted of an offence in terms of this Act and who persists after conviction in the act or omission that constituted the offence commits a continuing offence and is liable on conviction to a fine not exceeding R1 000 or to imprisonment for a period not exceeding 20 days, or to both such fine and such imprisonment, in respect of each day that person persists with that act or omission;

A procedure for non-compliances (i.e. incentives or disincentives for conformance and non-conformance with the EMPr requirements) must be employed to ensure that the EMPr is adequately implemented. The system to be used must be determined before the project commences, included in the tender documents and contracts, and made clear to all project workers. The system may include that the independent Environmental Control Officer (ECO) can be authorized to impose spot fines on the Contractor and/or his subcontractors for any of the defined transgressions. Such fines should be issued in addition to any remedial costs incurred as a result of non-compliance with the environmental specifications and or legal obligations.

8.4 ROLES AND RESPONSIBILITIES

The effective implementation of this EMPr depends on clearly defined roles, responsibilities, and reporting lines within an established institutional framework. This section provides guidance on the key environmental roles and associated reporting structures; however, project-specific requirements will ultimately determine the appointment of designated personnel to fulfil these roles. It is important to note that, in the absence of a formally appointed individual—such as an Environmental Control Officer (ECO)—the holder or applicant of the EA or associated enabling permission remains accountable for ensuring that all duties assigned to such roles in this document are carried out. This approach ensures accountability, promotes effective communication, and supports compliance with legal and regulatory obligations throughout the project lifecycle.

Roles and responsibilities presented herein are broad and must be read in conjunction with the specific roles and responsibilities identified in Section 10 pertaining to specific impact management actions.

8.4.1 PROJECT APPLICANT/PROPONENT

The applicant is the principal party (Proponent) of the project and is the Holder of the relevant approvals (Authorisations, Licences and Permits). The legal accountability for correct implementation of the requirements of the relevant approvals, and this EMPr, falls primarily upon the applicant and must therefore be built into all contractor's contractual agreements. The applicant's role typically includes:

- Provide for all necessary supervision during the execution of the project including appointment of key personnel to act on his/her behalf during the project (e.g.: Project Manager, ECO, etc). The key personnel will be tasked with ensuring that the various contractors/developers comply with the necessary provisions of the approvals and EMPr;
- Ensure that the various contractors and applicable sub-contractors appoint a suitably qualified, competent Environmental Officer (CEO) that will be responsible for among others, ensuring daily compliance with the approvals and EMPr throughout the execution of the relevant project components;
- Notify the relevant competent authority of changes in the development activities resulting in significant environmental impacts;



- Assess the various contractor's environmental performance during the survey, in consultation with the DPM and ECO;
- Ensure compliance with relevant environmental legislation and associated regulations;
- To implement the projects as per the approved project plan;
- To ensure that implementation is conducted in an environmentally acceptable manner;
- To inform and educate all employees about the environmental risks associated with the different activities that should be avoided during the survey process and lessen significant impacts to the environment;

The Applicant is responsible for the development and implementation of the EMPr and, where relevant, ensuring that the conditions in the relevant approvals are satisfied. Where activities are contracted out (e.g. to Contractors and Subcontractors), the liability associated with non-compliance still rests with the Applicant (unless otherwise agreed upon between the authorities, the Applicant and the contracting parties). The Applicant (and not the Contractor) is therefore responsible for liaising directly with the relevant authorities with respect to the preparation and implementation of the EMPr and meeting authorisation conditions.

8.4.2 DEVELOPERS PROJECT MANAGER

The developers project manager (DPM) is the duly appointed representative of the EA holder for the purposes of ensuring compliance with the EMPr and other applicable conditions (authorisation, permits, and /or licences).

During the development, it is envisaged that there may be several contractors and sub-contractors undertaking various activities on the project. The DPM would oversee all contractors and sub-contractors from a project management point of view. The roles and responsibilities of the DPM typically include the following:

- Roles:
 - The DPM acts on behalf of the Applicant regarding the administration of contracts to sub-contractors, etc. and will have overall responsibility for the management of the project and the implementation of the EMPr on behalf of the EA holder.
 - Where required, an environmental control officer (ECO) must be contracted by the DPM to objectively monitor the implementation of the EMPr according to relevant environmental legislation, and other applicable conditions. The DPM is further responsible for providing and giving mandate to enable the ECO to perform responsibilities, and he must ensure that the ECO is integrated as part of the project team while remaining independent.
- Responsibilities:
 - Be fully conversant with the conditions of the EA and other applicable permissions, authorisations and licences.
 - Ensure that all stipulations within the EMPr are communicated and adhered to by the EA holder and its Contractor(s).
 - Issuing of site instructions to the Contractor for corrective actions required.
 - Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings.
 - Overall management of the project and EMPr implementation.
 - Ensure that periodic environmental audits are undertaken on the project implementation.
 - Ensure all permits, authorisations and licenses are obtained, monitored and adhered to.
 - Arrange that the final environmental audit for construction is conducted by an independent auditor/consultant in accordance with the conditions of EA.



8.4.3 ENVIRONMENTAL CONTROL OFFICER

The ECO is appointed by the Applicant or the DPM and must be independent from the Applicant and the Contractors and remains appointed for the duration of the activity. The ECO must have a tertiary qualification in an Environmental Management or appropriate field and must have an appropriate level of experience.

The ECO provides feedback to the DPM regarding all environmental matters. The ECO's key role is auditing the implementation of the EMP. For the purposes of implementing the conditions contained herein, the ECO should be appointed sufficiently in advance of commencement of development activities. The ECO is responsible for the auditing function as well as the clarification of environmental conditions contained in this EMP to anyone working on the site.

The roles and responsibilities of the ECO typically include the following:

- Roles
 - The ECO must have appropriate training and experience in the implementation of environmental management specifications.
 - The primary role of the ECO is to act as an independent quality controller and monitoring agent regarding all environmental concerns and associated environmental impacts.
 - The Contractor, Contractor's Environmental Officer and the Environmental Officer are answerable to the ECO for non-compliance with the Performance Specifications as set out in the EMP and other applicable conditions. In this respect, the ECO is to conduct periodic site inspections, attend regular site meetings, pre-empt problems and suggest mitigation and be available to advise on incidental issues that arise.
 - The ECO is also required to conduct compliance audits, verify the monitoring reports submitted by the Contractor's Environmental Officer.
 - The ECO is to provide feedback to the DPM regarding all environmental matters. The DPM in turn reports back to the Applicant, the Contractor, and Registered Interested and Affected Parties (I&APs), as required.
 - Issues of non-compliance raised by the ECO must be taken up by the PM, and resolved with the Contractor as per the conditions of contract.
 - Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are deemed to be a variation, not allowed for in the Performance Specification) must be endorsed by the PM.
 - The ECO must also, as specified by the EA, report to the Competent Authority/ies (CA) as and when required.
 - Further note, the ECOs function is not limited to the construction phase alone, but is also an active role during the operational and later phases of the project where applicable.
- Responsibilities:
 - Be aware of the findings and conclusions of all BA documentation, and EA and licenses related to the development.
 - Be familiar with the recommendations and mitigation measures of this EMP.
 - Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them.
 - Undertake regular and comprehensive site inspections/compliance audits of the construction site according to the EMP and applicable licenses in order to monitor compliance as required.



- Educate the construction team about the management measures contained in the EMPr and environmental licenses.
- Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective.
- Monitoring the performance of the contractors using an environmental compliance checklist and ensuring compliance with the EMPr and associated method statements.
- In consultation with the DPM order the removal of person(s) and/or equipment which are in contravention of the specifications of the EMPr and/or environmental licenses, or have not adequately remedied such.
- Issuing of site instructions (in consultation with the DPM) to the contractor for corrective actions required.
- Compile regular ECO reports highlighting any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr. ECO reports must be submitted to the DPM and where applicable be available for the Environmental Audits.
- Validating the regular site inspection reports, which are to be prepared by the CEO.
- Validating the findings of the regular environmental internal audits on the CEO which are to be prepared by the EO.
- To monitor and review all environmental incidents (spills, impacts, legal transgressions etc.) and corrective and preventive actions taken in the environmental incident log, with inputs provided by the CEO.
- Checking the CEO's public complaints register in which all complaints are recorded, as well as action taken.
- Assisting in the resolution of conflicts.
- Facilitate training for all personnel on the site – this may range from carrying out the training, to reviewing the training programmes of the contractor and/or sub-contractors.
- In case of non-compliances, the ECO must first communicate this to the DPM, who has the power to ensure this matter is addressed in accordance with the relevant legislative requirements. Should no action or insufficient action be taken, the ECO may report this matter directly to the authorities as non-compliance.
- Maintenance, update and review of the EMPr with due consideration of the NEMA processes applicable thereto.
- Communication of all modifications to the EMPr to the relevant stakeholders.
- Facilitate and advise on the environmental audits.

It is important to note that where opportunity for interpretation occurs within the conditions of this EMPr, the interpretation of the ECO will take preference. If necessary further clarification may be sought from the relevant competent authority.

*The role of the ECO and Independent Auditor can, depending on the scale and complexity of the activity, be fulfilled by the same entity/ person.

8.4.4 CONTRACTOR

The contractor is usually a third party appointed by the applicant/DPM to undertake the actual development activities. In instances where the Applicant will be implementing the project activities then the obligations and



responsibilities assigned to the contractor will fall on the applicant. For the purposes of this section, any contractor (regardless of who appointed them) is referred to as the “contractor”.

The relevant contractors are answerable to the DPM and ECO for all environmental issues associated with the project. The principal contractor/s, any other contractors and sub-contractors will be required to comply with the provisions contained herein, and accordingly, the EMPr and its provisions must form part of any contractual arrangements between the applicant and contractors, and contractors and their sub-contractors, etc. The contractor must comply with EMPr and ensure that all his employees and sub-contractors appointed by him/her are familiar with the EMPr.

The roles and responsibilities of the Contractor/s include the following:

- Roles:
 - The contractor has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract are in line with the EMPr and that method statements are implemented as described.
 - External contractors must ensure compliance with this EMPr while performing the onsite activities as per their contract with the EA holder.
 - The contractors are required, where specified, to provide method statements setting out in detail how the impact management actions contained in the EMPr will be implemented during the development of the project.
 - The main contractor that is appointed by the EA holder and has a signed contract with the EA holder must appoint a contractor’s environmental officer (CEO). The CEO of the main contractor will then be responsible for all sub-contractors working under the main contractor in terms of verifying that they abide by the requirements of the EMPr.
- Responsibilities:
 - Implementation and compliance with recommendations and conditions of the EA and EMPr, including providing the contractor’s environmental protection policy and the specific method statements for the project.
 - Ensure all site staff are trained and kept updated in terms of the EA, EMPr and other legal requirements.
 - Project delivery and quality control for the development services as per appointment.
 - Employ a CEO to monitor and report to ECO on the activities on-site during the construction or contracted period.
 - Ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is properly operated and maintained, to facilitate proper access and enable any operation to be carried out safely.
 - Attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones.
 - Ensure that contractors’ staff repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in this EMPr, to the satisfaction of the ECO.

8.4.5 CONTRACTOR ENVIRONMENTAL OFFICER

The principal contractor shall appoint a Contractors Environmental Officer (CEO), who is responsible for implementation of the EMPr. Depending on the complexity of the project the principal contractor may appoint and assign a CEO who is responsible for applying the CEO duties for the principal contractor as well as associated sub-contractors. The scope of the CEO must be such that the CEO is adequately resourced to be able to



effectively implement the specified roles and responsibilities. Should the CEO delegation or assignment not be adequate then the DPM may issue instruction to the contractor to supplement the resources².

The Contractor must ensure that the Contractor's EO is suitably qualified and competent to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other Contractors, labourers, the ECO and the public (if necessary). The Contractor's EO ensures that all sub-contractors working under the Contractor and sub-contractors abide by the requirements of the EMPr. The costs related to the implementation of the EMPr will be the responsibility of the relevant Contractor/ sub-contractor.

The roles and responsibilities of the CEO/s include the following:

- Roles:
 - The CEO's primary role is to coordinate the environmental management activities of the contractor on site and to be responsible for on-site implementation of the EMPr (or relevant sections of the EMPr) applicable to the contractor.
 - The CEO can be a dedicated environmental officer; or an independent consultant.
 - The contractor must ensure that the CEO is suitably qualified and experienced to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other site contractors, labourers, the ECO and the public.
 - The CEO ensures that all sub-contractors working under the contractor abide by the requirements of the EMPr.
 - The contractor is answerable to the DPM and ECO for all environmental issues associated with the project.
 - Contractor performance will, amongst others, be assessed on health, safety and environmental management criteria.
- Responsibilities:
 - Ensure all their staff are aware of the relevant environmental requirements, conditions and constraints with respect to all of their activities on site.
 - Implementing the environmental conditions, guidelines and requirements as stipulated within the EA, EMPr, method statements and/or other licences and permits.
 - Review the contractors safe work procedures/risk assessments/induction training/DSTI's (daily safe task instruction) during the survey and include information relating to the relevant environmental risks and appropriate mitigation measures;
 - Establishing and maintaining an environmental incident and non-compliance register;
 - To record, implement and monitor all environmental incidents (spills, impacts, legal transgressions etc.) and corrective and preventive actions taken in the incident and non-compliance register.
 - Establishing and maintaining a stakeholder grievance or complaints register;
 - Respond to enquiries and requests from the ECO.
 - Undertaking corrective actions where non-compliances are registered within the stipulated timeframes.

² It is noted that where impact management outcomes and associated management actions relate to post construction phases and there is not a specific contractor or implementing agent, then the role of the CEO can, where applicable, be allocated to an internal representative of the applicant or proponent.



8.4.6 ENVIRONMENTAL AUDITOR

The Independent Environmental Auditor (IEA) is an impartial and suitably qualified professional appointed to evaluate and verify compliance with the conditions of the Environmental Authorisation (EA), the approved Environmental Management Programme (EMPr), and any other relevant environmental obligations. The IEA operates independently of the project proponent or applicant, contractor, CEO, and any party with a vested interest in the activity, ensuring objectivity and transparency in the auditing process.

The responsibility of the IEA includes the following:

- Roles:
 - Independent compliance monitoring and reporting to the competent authorities.
- Responsibilities
 - Undertake audits in accordance with Regulation 34 of the NEMA EIA Regulations, 2014 (as amended) to determine compliance with the EA, EMPr, and closure plan (if applicable).
 - Ensure audits are performed at the frequency specified in the EA or, if not specified, at intervals not exceeding five years.
 - Compile audit reports in line with the requirements of Appendix 7 of the NEMA EIA Regulations, including findings, non-compliances, corrective actions, and recommendations for improvement.
 - Confirm that the report reflects accurate, evidence-based observations and professional judgment.
 - Declare independence and confirm no conflict of interest in relation to the audited activity, except for fair remuneration for services rendered.
 - Ensure that remuneration is not linked to approval or decision-making outcomes.
 - Submit or ensure the submission of the audit report to the relevant Competent Authority/ies within the prescribed timeframe.

The IEA role as well as the ECO role represent independent and objective oversight. As such, depending on the nature of the specific activity the role of the ECO and the IEA may be assigned to one specific person or entity. The key distinction between the IEA and the ECO is that the IEA will be the role that prepares and submits the Environmental Audit Report as prescribed by regulation 34 of the EIA Regulations.

8.5 DOCUMENT CONTROL

A formal document control system should be established. The document control system must provide for the following requirements;

- Documents are approved for adequacy prior to use;
- Review and update documents as necessary and re-approve documents;
- Ensure that changes and the current version status of documents are identified;
- Ensure that relevant versions of applicable documents are available at points of use;
- Ensure that documents remain legible and readily identifiable;
- Ensure that documents of external origin necessary for the EMPr are identified and their distribution controlled; and
- Prevent unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose.

The responsibility for establishing a suitable document control system rests with the DPM.



8.6 RECORD KEEPING

It is essential that an official procedure for control of records be developed to ensure records required to demonstrate conformity to environmental standards are maintained. The Applicant, or the DPM is therefore required to develop and maintain a procedure for the identification, storage, protection, retrieval, retention and disposal of records as part of the EMPr. Records must be legible, identifiable and traceable.

8.7 RECORDING AND RESPONDING TO NON-COMPLIANCES

Non-compliance will be identified and managed through the following four key activities including:

- Inspections of the activities;
- Monitoring of selected environmental quality variables (where relevant);
- Audits of the activities and relevant documentation; and
- Reporting.

An environmental incident and non-compliance (NC) register must be prepared and maintained by the CEO throughout the relevant project activity phases to track and monitor environmental concerns, incidents, and non-compliances. The register must include details of date, location (coordinates), description of the NC or Incident, applicable environmental commitment/standard, corrective action taken, adequacy of corrective action, date rectified, etc.

Non-compliance with the EMPr or any other environmental legislation, specifications or standards shall be recorded by the CEO in the incident and non-compliance register. This register shall be maintained by the CEO and will be sent to the Applicant or DPM, Contractor, and ECO on a regular basis. The DPM shall ensure that the responsible party takes the necessary corrective actions. NCs' may only be closed out in the register by the ECO upon confirmation that adequate corrective action has been taken and/or documented proof provided. The register should be utilised to measure overall environmental performance.

8.8 ENVIRONMENTAL INCIDENTS AND NON-COMPLIANCE

For the purposes of this project, an environmental incident can be divided into three levels, i.e. major, medium and minor. All environmental incidents shall be recorded in the incident and non-compliance register. Definitions of environmental incidents are provided in Table 4.

Table 4: Description of incidents and non-compliances for the purpose of the project

Non-Compliance	<p>An Environmental Non-Compliance (NC) refers to any failure to adhere to the conditions, commitments, or requirements stipulated in an Environmental Authorisation (EA), Environmental Management Programme (EMPr), or applicable environmental legislation. Such non-compliance may result in environmental harm, legal liability, or reputational risk for the project proponent.</p> <p>Environmental non-compliance encompasses any deviation from approved environmental management measures, legal obligations, or performance standards that could directly or indirectly lead to adverse environmental, health, or safety outcomes. Key elements include:</p> <ol style="list-style-type: none"> 1. Deviation from Approved Measures <ul style="list-style-type: none"> ○ Failure to implement specified impact management actions or monitoring requirements as outlined in the EMPr or EA. 2. Contravention of Legal Obligations <ul style="list-style-type: none"> ○ Breach of principles under the National Environmental Management Act (NEMA), EIA Regulations, or other sector-specific environmental laws. 3. Failure to Meet Performance Outcomes
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	<ul style="list-style-type: none"> ○ Inability to achieve the impact management outcomes defined in the EMPr, such as biodiversity protection, pollution prevention, or rehabilitation targets. <p>4. Unauthorized Activities</p> <ul style="list-style-type: none"> ○ Commencing or continuing listed activities without obtaining the necessary environmental authorisation or permits. <p>5. Deviation from Work Standards or Procedures</p> <ul style="list-style-type: none"> ○ Any departure from established work practices, operational procedures, or management system requirements that could cause: <ul style="list-style-type: none"> ▪ Injury or illness to personnel or communities ▪ Damage to the workplace or surrounding environment (including marine or aquatic ecosystems) ▪ Legal transgression or regulatory breach.
Major Environmental Incident	<p>An incident or sequel of incidents, whether immediate or delayed, that results or has the potential to result in widespread, long-term, irreversible significant negative impact on the environment and/or has a high risk of legal liability. A major environmental incident usually results in a significant pollution and may entail risk of public danger. Major environmental incidents usually remain an irreversible impact even with the involvement of long-term external intervention i.e. expertise, best available technology, remedial actions, excessive financial cost etc. Major environmental incidents must be reported to the authorities. The ECO shall make the final decision as to whether a particular incident should be classified as a Major incident.</p>
Medium Environmental Incident	<p>An incident or sequel of incidents, whether immediate or delayed, that results or has the potential to result in widespread or localised, short term, reversible significant negative impact on the environment and/or has a risk of legal liability. A medium environmental incident may be reported to the authorities, can result in significant pollution or may entail risk of public danger. The impact of medium environmental incidents should be reversible within a short to medium term with or without intervention. The ECO shall make the final decision as to whether a particular incident should be classified as a Medium incident.</p>
Minor Environmental Incident	<p>An incident or sequel of incidents, whether immediate or delayed, where the environmental impact is negligible immediately after occurrence and/or once-off intervention on the day of occurrence.</p>
Non-compliance	<p>Any failure to adhere to the conditions, commitments, or requirements stipulated in an EA, EMPr, or relevant environmental legislation. Key elements of an NC may include:</p> <ul style="list-style-type: none"> • Deviation from approved measures: Not implementing the specified impact management actions or monitoring requirements. • Contravention of legal obligations: Breaching NEMA principles, EIA Regulations, or sector-specific environmental laws. • Failure to meet performance outcomes: Not achieving the impact management outcomes defined in the EMPr. • Unauthorized activities: Commencing or continuing listed activities without proper environmental authorization.

The following incident reporting procedures shall apply to this project:

- All environmental incidents shall be reported to CEO, and the ECO, and shall be recorded in the incident and non-compliance register;



- An incident and non-compliance report shall be completed by the relevant party responsible for the incident or non-compliance for all medium and major incidents and the report shall be submitted to the DPM and the ECO as soon as possible but preferably no later than 5 calendar days of the incident;
- The ECO shall in consultation with the CEO advise on the appropriate measures and timeframes for corrective action; and
- In the event of an emergency incident (unexpected sudden occurrence), including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed, the Applicant shall notify the relevant authorities in accordance with Section 30(3) of the NEMA. The Applicant shall engage the ECO who shall assess all major incidents and shall advise the Applicant when any such incident must be reported to the authorities as per the above requirement.

8.9 REVIEW AND REVISION OF THE EMPR

It is important to note that this EMPr is made legally binding on the Applicant through the relevant approvals. The EMPr is a dynamic document which may require such alteration and /or amendment as the project evolves. Conditions under which the EMPr would require revision may include:

- Changes in legislation;
- Occurrence of unanticipated impacts or impacts of greater intensity, extent and significance than predicted;
- Inadequate mitigation measures (i.e. where environmental performance does not meet the required level despite the implementation of the mitigation measure);
- Secondary impacts occur as a result of the mitigation measures;
- Instances where the implementation of the specified management, as a result of changes in circumstances, may become impractical or unreasonable to implement; and
- Where the outcome of an Environmental Audit has identified shortcomings in the EMPr or associated compliance.

The Applicant in consultation with the ECO should be responsible for ensuring that the registration and updating of all relevant EMPr documentation is carried out. It shall be the responsibility of the Applicant, in consultation with the DPM and ECO, to ensure that all personnel are performing according to the requirements of the document control procedure, and to initiate the revision of controlled documents, when required by changes in process or operations.

The ECO must undertake a risk assessment of any proposed changes to the EMPr. This risk assessment must be included in the applicable environmental audit report undertaken by the IEA, and where applicable supported by the necessary proof of public consultation. It is important to note that if alterations and/or amendments are required these may only be affected in accordance with the relevant legal processes. The present legislation requirements stipulate that once the activity has commenced, a holder of an EA may make amendments to the impact management outcomes and impact management actions in the following manner:

1. Amendments to the impact management outcomes must be made in line with the process as contemplated in Regulation 37 of the EIA Regulations; and
2. Amendments to impact management actions must be made in line with the process contemplated in Regulation 36 of the EIA Regulations.

Prior to initiating or implementing any EMPr amendments the relevant Competent Authority should be engaged to confirm the correct process.



8.10 ENVIRONMENTAL AWARENESS PLAN AND TRAINING

Training and environmental awareness is an integral part of a complete EMPr. The overall aim of the training will be to ensure that all applicable staff are informed of their requirements and obligations pertaining to the relevant approvals and this EMPr and any environmental risk which may result from their work.

The DPM and contractor must ensure that all relevant employees are trained and capable of carrying out their duties in an environmentally responsible and compliant manner and can comply with the relevant environmental requirements. To obtain buy-in from staff, individual employees need to be involved in:

- Identifying the relevant risk;
- Understanding the nature of risks;
- Devising risk controls; and
- Given incentive to implement the controls in terms of legal obligations.

The DPM and contractor, with guidance from the ECO, shall ensure that adequate environmental training takes place. All employees shall have been given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees. All training must be formally recorded, and attendance registers retained.

The specific requirements for environmental training include:

- **Environmental Induction Training:** All workers must receive induction training which shall be presented by the Contractors Environmental Representatives. The induction training must include an environmental management component which will be prepared by the CEO and presented where possible by the CEO. The training material must include general environmental awareness with an overview of the approved EMPr and applicable approvals. Health and safety expectations including communication and reporting to key personnel, including incidents and during emergencies, should also be outlined. Any key sensitive environmental areas or features must be identified and described in this training. The Induction Training Material must be reviewed and approved by the ECO;
- **Regular Environmental Toolbox Talks** will be prepared by the CEO to cover a range of environmental topics and must be presented to relevant staff during applicable times during the implementation of the development activities. The aim of these toolbox talks will be to inform employees of general environmental requirements pertaining to specific activities, as well as specific EMPr and approval requirements and obligations. The ECO shall review environmental toolbox talks on a periodic basis to ensure the material is relevant and appropriate. The ECO may identify supplementary training or additional topics that must be covered;
- Informal training of all relevant staff is also required on an on-going basis through informal discussions, on-site supervision and through facilitation of day-to-day activities. Such training must be given or otherwise facilitated by the CEO; and
- The CEO must review all safe work procedures/risk assessments/DSTI's (daily safe task instruction) from the safety department and include the relevant environmental risks and appropriate mitigation measures where necessary. Since the above procedures are specific to the applicable activity being undertaken, the inclusion of environmental measures aims to ensure each activity is undertaken in an environmentally responsible manner.

Training must include as a minimum the following topics:

- EA and EMPr conditions and roles/responsibilities (tailored to specific teams depending on their individual roles).
- Emergency preparedness and response procedures.
- Fire prevention and response.
- Procedures/ requirements for working in proximity to sensitive areas.
- Waste management.



- Water management and conservation.
- Code of conduct for interacting with internal and external stakeholders.
- Heritage sites: known heritage sensitives and associated controls as well as potential unknown heritage features and the implementation of the Chance Finds Procedure.

8.11 EMERGENCY RESPONSE PLAN

The DPM and contractor must identify potential emergencies and develop procedures for preventing and responding to them. There are several options for dealing with high priority impacts and risks, as the paradigm has two components, probability and consequence. The design of control measures rests on understanding the cause and effect. Best practice is to intervene with the ultimate factors where feasible, rather than treat the outcomes. Emergency response therefore has the option of reducing probability or reducing the consequence while reducing the probability is the preferred option.

The DPM and Contractor shall be required to develop and implement an Emergency Preparedness and Response Plan (EPRP) prior to commencing work. The Applicant must ensure that the Emergency Preparedness and Response Plan makes provision for environmental emergencies, including, but not limited to:

- Fire Prevention;
- Fire Emergency Response;
- Spill prevention;
- Spill Response;
- Accidents to employees; and
- Use of hazardous substances and materials, etc.

The DPM and Contractor must ensure that lists of all emergency telephone numbers/contact persons (including fire control) are kept up to date and that all numbers and names are posted at relevant locations.

NOTE: This EMPr is to be implemented in conjunction with Harmony's Mandatory Code of Practice (COP): Emergency Preparedness and Response (JT_COP_GEN_013). All emergency preparedness, communication, response, reporting, and training requirements outlined in COP 013 shall apply to this project. In cases where the EMPr provides general or construction-specific requirements, and the COP provides more detailed, mine-wide emergency procedures (e.g., control centres, emergency roles, rescue coordination, chemical emergencies, cyanide response, and emergency communications), the COP takes precedence.

Relevant COP 013 annexures (Emergency Control Centre requirements, Emergency Duties & Responsibilities Checklists, and Emergency Medical and Rescue Protocols) must be applied where applicable. Harmony's COP 013 has therefore been attached to this EMPr as Appendix 2 to ensure full procedural alignment.

8.12 SPILL RESPONSE PROCEDURE

The DPM and Contractor must ensure that all employees, staff and labourers are informed and instructed regarding implementation of spill prevention measures and spill response procedures. In the event of a spill, the following general requirements shall apply, and the detailed spill procedure must cater for these requirements:

- Immediately reporting of spills to the relevant supervisor and CEO (this requirement must be including in induction training);
- Take immediate action to contain or stop the spill where it is safe to do so;
- Contain the spill and prevent its further spread;
- Dispose of any contaminated materials according to appropriate waste disposal procedure. Note: Waste from spills of hazardous materials shall be disposed of as hazardous waste at a suitably licensed waste disposal facility;
- The CEO shall record details of the spill in their respective incident and non-compliance register;



- Photographic evidence shall be obtained of the spill clean-up; and
- Relevant waste manifests retained.

In the case of large spills, the services of a specialist spill response agency shall be required, who shall advise on appropriate clean-up procedures and follow-up monitoring (if required).

The Applicant must also, (as per Section 30 of the NEMA) notify the Director-General (DWS, Competent Authority, DFFE), South African Police Services, Provincial Environmental Authority, the Local Municipality, and any persons whose health may be affected of the nature of an incident including:

- Any risks posed to public health, safety and property;
- Toxicity of the substance or by products released by the incident; and
- Any step taken to avoid or minimise the effects of the incident on public health and the environment.

8.13 MEASURES TO CONTROL OR REMEDY ANY CAUSES OF POLLUTION OR DEGRADATION

The broad measures to control or remedy any causes of pollution or environmental degradation because of the proposed activities taking place are provided below:

- Ensure that the environmentally sensitive areas are adequately understood by applicable staff and adequately demarcated;
- Contain potential pollutants and contaminants (where possible) at source;
- Handling of potential pollutants and contaminants (where possible) must be conducted in controlled areas;
- Ensure the timeous clean-up of any spills;
- Implement a waste management system for all waste streams present; and
- Investigate any third-party claims of pollution or contamination as a result of the project activities.

9 MONITORING AND AUDITING

Effective monitoring and auditing are essential components of this Environmental Management Programme (EMPr), ensuring that all impact management actions are properly implemented and maintained throughout the project life cycle. This section outlines the method of monitoring the implementation of the impact management actions, the frequency of monitoring the implementation of the impact management actions, the mechanism for monitoring compliance with the impact management actions, and a program for reporting on compliance. Together, these elements provide a structured approach to safeguarding public health and the environment, enabling timely identification of issues and facilitating continuous improvement in environmental performance.

The sub-sections below set out the requirements for compliance monitoring, auditing and reporting as well as the required environmental monitoring necessary to quantify and verify the impact on the environment.

9.1 AUDITING AND REPORTING PROCEDURES

Reporting procedures must be developed at the start of the project, for conveying information from the compliance monitoring activities and to ensure that management is able to take rapid corrective action should certain thresholds be exceeded. Different reporting procedures may include:

- Inspections;
- Accidents and emergencies;
- Measuring performance indicators and interpreting and acting on the indicators;
- Records of monitoring activities to test the effectiveness of mitigation measures and impact controls, as well as for compliance auditing purposes; and



- Training programmes and evidence of appropriate levels/amount of skills/capacities created.

All monitoring and auditing must be accompanied by applicable records and evidence (e.g. delivery slips, photographic records, etc.). All reports must be retained and made available for inspection by the Applicant, the IEA, the ECO and /or the Relevant Competent Authorities. All reports shall be signed by the relevant parties to ensure accountability. The Applicant must use the audit report findings to continually ensure that environmental protection measures are working effectively through a system of self-checking. The EMPr should be viewed as a dynamic document aimed at continual environmental performance improvement.

Table 5 stipulates the compliance monitoring and auditing obligations for the relevant development activity phases.

Table 5: Compliance Monitoring

Activity Phase	Audit Deliverable	Description	Responsible Party	Frequency
Construction Phase	Monthly Compliance Reports (CEO):	These reports must be prepared by the contractors' CEO and must aim to provide a concise monthly performance report, including copies of relevant documents (e.g. waste manifests, incident registers, consultation registers, etc).	CEO	Monthly
	Compliance Audit Reports:	The ECO must compile compliance reports (audits) which are to be submitted to the Applicant for review and correction of non-compliance issues. It is the responsibility of the ECO to report any non-compliance, which is not correctly rectified. Depending on the outcome of the authorisation processes it may be a requirement to submit these to the relevant authorities. These compliance audits will comply with the requirements of Appendix 7 of the EIA Regulations.	ECO	Monthly
	Regulation 34 Environmental Audits:	Compiled by the appointed IEA. These compliance audits will comply with the requirements of Regulation 34 and Appendix 7 of the EIA Regulations and must be undertaken at the frequencies specified in the EA, this EMPr, or every 5 years (where not otherwise specified).	IEA	Annually
Operations	Compliance Audit Reports:	The ECO must compile compliance reports (audits) which are to be submitted to the Applicant for review and correction of non-compliance issues. It is the responsibility of the ECO to report any non-compliance, which is not correctly rectified. Depending on the outcome of the authorisation processes it may be a requirement to submit these to the relevant authorities.	Environmental Control Officer	Monthly



Activity Phase	Audit Deliverable	Description	Responsible Party	Frequency
		These compliance audits will comply with the requirements of Appendix 7 of the EIA Regulations.		

9.2 ENVIRONMENTAL MONITORING

The purpose of monitoring is not merely to collect data, but to provide information necessary to make informed decisions on managing and mitigating potential impacts. Monitoring therefore serves the following functions:

- Serve as early warning system to detect any potential negative impacts;
- To provide information to feedback into management controls to avoid, prevent or minimise potential negative impacts;
- Provide quantitative data that can serve as evidence for the presence of negative impacts or the lack thereof; and
- Allows for trending, modelling and prediction of future conditions or potential impacts.

Table 6 provides a breakdown of the environmental monitoring requirements for this project.

Table 6: Environmental Monitoring Plan.

Phase	Activity	Functional Requirements	Performance Indicator/ Target	Roles and Responsibilities	Frequency	Reporting Mechanism
Construction	Dust generation from vehicle movement, earthworks	Prevent dust plumes leaving the site boundary; maintain safe visibility and air quality	- No visible dust crossing boundary - No justified dust complaints - ECO satisfied during inspections	CEO, Contractor, ECO	Daily (CEO); Monthly (ECO)	CEO daily logs; ECO monthly report; complaints register



Phase	Activity	Functional Requirements	Performance Indicator/Target	Roles and Responsibilities	Frequency	Reporting Mechanism
Operation	Stormwater management, dirty water control	Prevent contaminated water discharge; maintain drainage controls	- No discharge of contaminated water - Clean/dirty water separation maintained - Silt traps functioning	ECO	Monthly (ECO); Before/After rainfall	CEO checklists; ECO audit report; incident register
Construction and Decommissioning	Vegetation clearance, fauna disturbance, AIPs	Prevent unauthorised clearing; prevent AIP establishment ; protect fauna	- No AIP establishment on site	CEO, Contractor, ECO	Weekly (CEO); Monthly (ECO); Seasonally for AIPs	ECO reports; CEO daily logs; photographic records
Construction and Decommissioning	Erosion, compaction, topsoil handling	Prevent erosion and maintain stabilisation	- No active erosion gullies - Erosion Controls functioning	CEO, Contractor, ECO	Weekly (CEO); Monthly (ECO)	Site photos; ECO audit reports
Construction	Equipment servicing, refuelling	Prevent spills; Emergency spill response in place	- No uncontained spills - Spill kits stocked	CEO, Contractor, ECO	Weekly (CEO); Monthly (ECO)	Incident register; ECO reports; spill response records



Phase	Activity	Functional Requirements	Performance Indicator/Target	Roles and Responsibilities	Frequency	Reporting Mechanism
Construction	Machinery & vehicle noise	Keep noise limited; manage complaints	- No repeated noise complaints -Silencers/mufflers installed - Equipment maintained	CEO, Contractor, ECO	Monthly (ECO) or upon complaint	Complaints register; ECO audit

10 IMPACT MANAGEMENT OUTCOMES AND ACTIONS

This section captures impact management outcomes and actions that are applicable to specific project activities. For each identified aspect or activity, a set of prescribed impact management outcomes and associated actions have been identified. It is important to distinguish in this EMPr between the Impact Management Outcomes and the Impact Management Actions.

- **Impact Management Outcomes:** These are the desired end states or results that must be achieved to manage, mitigate, or enhance environmental impacts identified. They describe what success looks like in terms of environmental performance (e.g., “No contamination of surface water resources during construction”). These outcomes are measurable and auditable, forming the basis for compliance monitoring and reporting.
- **Impact Management Actions:** These are the specific measures, tasks, or interventions that must be implemented to achieve the stated impact management outcomes. They detail how the outcomes will be achieved, including operational controls, procedures, and responsibilities (e.g., “Install silt fences and sediment traps along drainage lines before earthworks commence”).

Table 7 presents the impact management outcomes and actions applicable to this project, and to which the project must comply.



Table 7: Environmental management outcomes and impacts.

Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
10.1 AIR QUALITY MANAGEMENT		Impact management outcomes: <ul style="list-style-type: none"> • Maintain ambient air quality at sensitive receptors. • Minimise visible dust plumes crossing the site boundary. • Minimize fugitive dust from earthworks, unpaved roads, material handling, and stockpiles. • Control exhaust emissions from construction equipment and vehicles (mobile sources). • Prevent nuisance dust, odour and smoke. 						
GA1	• Exposed areas or material susceptible to excessive entrainment must be stabilized with water, mulch, soil binders, or other control method.	C, O	Clearance of vegetation (specifically at plinth positions).	C, CEO	During Construction and Operational Inspections/ maintenance	CEO, ECO, IEA	Monthly (C) Annual (O)	ECO Reports IEA Report
GA2	• Take all reasonable measures to minimise the generation of dust as a result of construction activities to the satisfaction of the ECO.		Levelling of ground for placement of plinths.					
GA3	• Control dust entrainment on unpaved roads (e.g. watering, speed limits, and surface treatments) to prevent impact to identified receptors.		Placement of plinths.					
GA4	• Transport materials susceptible to entrainment in covered/tarped trucks; and dampen loads if necessary.	C	Lifting and aligning of pipeline segments on plinths (may involve the use of rigging equipment/vehicles).		During Construction		Monthly	
GA5	• Prevent track-out of materials (soil, sediments, etc) onto public roads (e.g. using stabilized exits, wheel wash stations, and street sweeping).	C, O	Constructing engineered ramps over the pipeline at road crossings (instead of trenching).		During Construction and Operational Inspections/ maintenance	CEO, ECO, IEA	Daily (CEO) Monthly (ECO)	CEO Daily Logs
GA6	• Vehicle speeds must be kept slow and along unsurfaced roads or when							ECO Reports IEA Report

³Project development phases abbreviated as: Planning and Design (PD); Pre-construction (PC); Construction (C); Operation (O); Decommissioning, Rehabilitation and Closure (D); Post Closure (CL).

⁴Responsible parties abbreviated as: Proponent (P), Developers Project Manager (DPM), Environmental Control Officer (ECO), Contractor (C), Contractor Environmental Officer (CEO), Independent Auditor (IA).



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	traversing unconsolidated and non-vegetated areas, in order to minimise dust creation.		Light vehicles and maintenance teams using existing Harmony roads.					
GA7	<ul style="list-style-type: none"> Conduct daily visual inspections during dry/windy periods; escalate and supplement controls if dust observed; deploy Particulate Material monitors if warranted or directed by the ECO. If necessary cease dust generating activities during windy conditions as instructed by ECO. 	C			During Construction			
GA8	<ul style="list-style-type: none"> Notify community or sensitive receptors before high-dust generating activities; provide contact/grievance channels and close-out complaints. 					ECO	Monthly	Incident Record ECO Reports
GA9	<ul style="list-style-type: none"> Community or receptor complaints related to dust must be investigated and addressed as soon as possible. Should repeat complaints be logged, ten targeted dust (PM and/or fallout dust) monitoring must be initiated, and project controls adapted to comply with applicable dust control regulations, standards and thresholds. 							
GA10	<ul style="list-style-type: none"> Maintain combustion vehicles and equipment to reduce exhaust emissions; enforce an anti-idling policy. 	C, O			During Construction and Operational Inspections/maintenance		ECO Reports	



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
10.2 WASTE MANAGEMENT		Impact management outcomes: <ul style="list-style-type: none"> • Prevent pollution and health risks by ensuring proper segregation, handling, storage, and disposal of all waste streams. • Minimize waste generation through source reduction, reuse, and recycling of materials. • Ensure safe handling and disposal of hazardous waste (e.g., oils, solvents, asbestos) in compliance with regulations. • Maintain site cleanliness and prevent littering to reduce safety hazards and visual impacts. • Prevent contamination of soil and water from waste storage and handling areas. • Create workforce awareness in waste management and minimization practices through training and supervision. 						
GW1	• No littering.	C, O	Delivery of construction equipment, pipeline segments, and plinths.	DPM, CEO	During Construction and Operational Inspections/maintenance	CEO, ECO, IEA	Daily (CEO)	CEO daily logs
	• Waste storage and disposal bins/drums should be emptied on regular bases and must not overflow. The drums should be water and scavenger proof. Precautions shall be taken to prevent any refuse from spreading on and from the site.	C	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).		During Construction		Weekly (CEO) Monthly (ECO)	ECO Reports IEA Report
GW2	• Hazardous waste management: store in covered and bunded areas; labelled containers; keep MSDS where applicable; dispose via licensed haulers at licenced disposal facilities.	C, D	Inspection and Maintenance during operation.	CEO	During Construction and Decommissioning	ECO, IEA	Monthly	ECO Reports
GW3	• Segregate waste streams at source (e.g., inert, recyclable, hazardous); provide labelled containers/skips.	C	Dismantling and removal of pipeline.		During Construction			IEA Report
GW4	• Minimize waste generation: order materials accurately; reuse formwork where practical; return packaging; design for deconstruction.			DPM				
GW5	• Recycle and recover construction and demolition materials (concrete,			CEO				



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	metals, timber) via approved facilities; maintain receipts.							
GW6	• Prohibit open burning of any waste.	C, O, D		DPM, CEO	During Construction, Operational Inspections/ maintenance and Decommissioning	CEO, ECO, IEA	Monthly	CEO daily logs
GW7	• Prevent contamination: impermeable surfaces for leachable waste storage; cover skips; secondary containment for liquids.			ECO Reports				
GW8	• Train workforce and subcontractors on waste segregation, hazardous waste handling, and spill response.			IEA Reports				
GW9	• Emergency response for waste incidents: spill kits available; procedures for cleanup and reporting.	C, D			During Construction and Decommissioning	CEO, ECO, IEA	Monthly	Induction/ Training register
GW10	• Prohibit on-site disposal unless specifically licenced and approved by the ECO.	C, O, D			During Construction, Operational Inspections/ maintenance and Decommissioning			Any future workshops
GW11	• All wastes generated must be stored and disposed of according to relevant legal requirements.			Photographic record				
GW12	• Install and maintain stormwater infrastructure (e.g., culverts, drains, sediment traps) associated with site roads to prevent erosion, flooding, and waterlogging.			ECO Reports				
				DPM			Weekly (CEO)(C)	
							Monthly (ECO)(C and O)	
							Monthly	Photographic record
								ECO Reports
							IEA Report	



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
10.3 HEALTH AND SAFETY MANAGEMENT		Impact management outcomes: <ul style="list-style-type: none"> • Prevent uncontrolled fire hazard. • Prevention or minimisation of health and safety risks to employees and general public. • Minimise the risk of injury, harm or complaints. 						
GHS1	<ul style="list-style-type: none"> • All contractors and sub-contractors must comply with their obligations under the relevant legislative frameworks (e.g. Occupational Health and Safety Act; Construction Regulations). 	C, O, D	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).	P, DPM	Life cycle of development	ECO, IEA	Monthly (ECO) Annually (IEA)	Induction Programme and register ECO Reports IEA Report
GHS2	<ul style="list-style-type: none"> • An Occupational Health and Safety (OHS) Management Plan for construction will be developed. Specific measures must include but are not limited to: <ul style="list-style-type: none"> • Requirement for work / task H&S Risk Assessments to be developed and approved. • H&S Roles and responsibilities, including safety managers, safety officers, first aiders, etc. • Installation of barriers, warning tape or netting, signage, a watchperson, and adequate lighting; • use of appropriate PPE at all times; • provision of adequate drinking water and sanitation; • provision of reverse alarms, lights, and all other applicable safety devices for plant and equipment; • workforce H&S induction on the project site safety 		Inspection and Maintenance during operation. Dismantling and removal of pipeline.					



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	requirements prior to commencement of activities.							
GHS3	<ul style="list-style-type: none"> Create project construction OHS risk assessments using a suitable methodology to identify hazards, risks, and controls following the hierarchy of controls. Supplement these with detailed job or task-specific assessments, updating them whenever tasks change or after any accident, incident, or near miss. 	PC, C	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).	P, DPM	Before and during construction	ECO, IEA	Monthly	ECO Reports IEA Report
GHS4	<ul style="list-style-type: none"> Where relevant the site must comply with the requirements of the relevant fire safety legislation (including the Veld and Forest Fires Act). 	C, O, D	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).	P, DPM	Life cycle of development	ECO, IEA	Monthly	ECO Reports IEA Report
GHS5	<ul style="list-style-type: none"> The following measures will be taken to reduce the risk of fires: <ul style="list-style-type: none"> No open or unattended fires are permitted on site. Adequate fire breaks must be maintained. Designated smoking areas must be located in areas where fire hazard is regarded as insignificant. Every possible precaution shall therefore be taken when working with potential flammable equipment or liquids near potential sources of combustion. Such precautions include having an approved fire extinguisher immediately available at the site of any such activities. 		Inspection and Maintenance during operation. Dismantling and removal of pipeline.					



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	<ul style="list-style-type: none"> The contractor shall ensure that there is always basic firefighting equipment available on site and the relevant staff are designated and trained in their use. Fire events must be specifically addressed in the EPRP (see section 8.11). The contractor or contractors (as determined by the DPM) shall appoint a member of his staff to be responsible for the installation and inspection of firefighting equipment; and the contractor is to ensure that he/she has the contact details of the nearest fire station in case of an emergency. The local Fire Protection Agency (FPA) must receive prior notice of construction activities. 							
GHS6	<ul style="list-style-type: none"> All staff must receive training on the risks associated with communicable diseases, HIV and AIDS, Tuberculosis, or other relevant. 		Pre-construction and Induction		During Construction, Operational Inspections/ maintenance and Decommissioning	ECO, IEA	Pre-commencement Inductions Any future workshops	Induction/ Training register IEA Reports
GHS7	<ul style="list-style-type: none"> Unauthorised access to the construction areas and specifically high-risk areas (excavations, scaffolding, material stockpiles, 	C	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths,	CEO, ECO	During Construction		Daily (CEO) Monthly (ECO)	CEO Daily logs ECO Reports



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	hazardous material storage areas, etc) must be controlled.		lifting and aligning of pipeline).					
GHS8	<ul style="list-style-type: none"> A grievance mechanism aimed at receiving and resolving environmental and social issues must be developed and implemented. This must as a minimum include: <ul style="list-style-type: none"> Dedicated roles and responsibilities; Must be accessible to community and workers (consider physical access, literacy, languages, etc); Must have a clear issue tracking mechanism and target resolution timelines. Tracking and logging of all receipts and responses. Must be publicised to project affected communities and workers. <p>The Grievance mechanism must be made available for inspection by the ECO and IEA.</p>	C, O, D	<p>Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).</p> <p>Inspection and Maintenance during operation.</p> <p>Dismantling and removal of pipeline.</p>	P, DPM	Life cycle of development	ECO, IEA	Monthly (ECO) Annually (IEA)	<p>Induction Programme and register</p> <p>ECO Reports</p> <p>IEA Report</p>
GHS9	<ul style="list-style-type: none"> When undertaking construction related activities outside of the designated construction area, clear project identification and ID's must be available (in person and on vehicles). 	C		CEO, ECO	During Construction	CEO, ECO	Daily (CEO) Monthly (ECO)	<p>Incident Reports</p> <p>CEO Daily logs</p> <p>ECO Reports</p>
GHS10	<ul style="list-style-type: none"> No loitering by workers in areas outside of and adjacent to the designed construction areas. 							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
GHS11	<ul style="list-style-type: none"> Workers will not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares or otherwise dangerous objects onsite, or to enter the sites while under the influence of alcohol or drugs. 	C, O, D			During Construction, Operational Inspections/ maintenance and Decommissioning			
GHS12	<ul style="list-style-type: none"> An Emergency Preparedness and Response Plan must be developed and implemented (refer to Section 8.11) 							
10.4 NOISE MANAGEMENT		Impact management outcomes: <ul style="list-style-type: none"> Prevent exceedance of applicable noise limits at sensitive receptors. Minimize community disturbance by scheduling noisy activities and using engineering controls. Control noise at source through equipment selection, maintenance, and mufflers. 						
GN1	<ul style="list-style-type: none"> The Contractor must keep noise level within acceptable limits. 	C	Clearance of vegetation (specifically at plinth positions). Levelling of ground for placement of plinths. Placement of plinths. Lifting and aligning of pipeline segments on plinths (may involve the use of rigging equipment/vehicles). Constructing engineered ramps over the pipeline at road crossings (instead of trenching).	C, CEO	During Construction	CEO, ECO	Daily (CEO) Monthly (ECO)	Grievance/ Incident Reports/ register CEO Daily logs ECO Reports
GN2	<ul style="list-style-type: none"> Construction working hours to be restricted as defined in the EA. Where not defined in the EA to: <ul style="list-style-type: none"> 6 days per week (Monday to Saturday); 7.30am to 6.00pm 							
GN3	<ul style="list-style-type: none"> Schedule high-noise tasks during daytime (07:00–18:00); avoid night works unless approved with mitigation. 							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
GN4	<ul style="list-style-type: none"> Monitor and respond to any complaints related to noise through the project grievance mechanism. Should repeat complaints be logged, then targeted noise monitoring must be initiated, and project controls adapted to comply with applicable noise control regulations, standards and thresholds. This should be implemented in consultation with the ECO. 	C, O, D	<p>Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).</p> <p>Inspection and Maintenance during operation.</p> <p>Dismantling and removal of pipeline.</p>	C, DPM	During Construction, Operational Inspections/ maintenance and Decommissioning	ECO, IEA	<p>Monthly (ECO)</p> <p>Annually (IEA)</p>	<p>Grievance/ Incident Reports/ register</p> <p>ECO Reports</p> <p>IEA Reports</p>
GN5	<ul style="list-style-type: none"> Select low-noise equipment where feasible; fit silencers/mufflers on engines and compressors; maintain equipment to spec; where practical, sources of significant noise should be enclosed. 	C, O	<p>Clearance of vegetation (specifically at plinth positions).</p> <p>Levelling of ground for placement of plinths.</p> <p>Placement of plinths.</p> <p>Lifting and aligning of pipeline segments on plinths (may involve the use of rigging equipment/vehicles).</p> <p>Constructing engineered ramps over the pipeline at road crossings (instead of trenching).</p>	C, CEO	During Construction and Operational Inspections/ maintenance	CEO, ECO	<p>Daily (CEO)</p> <p>Monthly (ECO)</p>	<p>Grievance/ Incident Reports/ register</p> <p>CEO Daily logs</p> <p>ECO Reports</p>
GN6	<ul style="list-style-type: none"> Machines and mobile equipment used intermittently should be shut down between work periods or throttled down to a minimum and not left running unnecessarily. 							
GN7	<ul style="list-style-type: none"> Regular and effective maintenance of equipment 							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
10.5 SOCIAL MANAGEMENT		<p>Impact management outcomes:</p> <ul style="list-style-type: none"> • Avoid, minimize, and manage adverse social impacts on local communities, including health, safety, and security risks. • Promote effective stakeholder engagement and maintain transparent communication throughout the project lifecycle. • Implement a functional grievance mechanism for workers and communities to address concerns promptly. • Support local socio-economic benefits through local hiring, skills transfer and procurement of good and services from local enterprises • Promote gender equality and women’s empowerment by ensuring equitable access to employment, training, and participation in decision-making processes. • Protect and promote the rights and well-being of vulnerable groups (including the elderly, persons with disabilities, youth, and female-headed households) by ensuring fair access to project opportunities and avoiding disproportionate burdens. • Protect cultural heritage, sacred sites, and traditional practices through early identification and appropriate management measures. • Enhance community health and well-being through proactive measures addressing communicable diseases, substance abuse, and social pathologies. 						
GS1	<ul style="list-style-type: none"> • Prioritise local employment and procurement during all project phases. Ensure recruitment of local labour (particularly youth and women) for unskilled and semi-skilled positions. Include local businesses in the project’s procurement strategy by setting preferential thresholds for local contractors (e.g. catering, security, transport, fencing). Collaborate with local municipalities, NGOs, and community structures to verify eligible beneficiaries. The recruitment and procurement policy must set realistic targets and be communicated clearly to manage expectations. 	C, O, D	<p>Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).</p> <p>Inspection and Maintenance during operation.</p> <p>Dismantling and removal of pipeline.</p>	P, DPM	Life cycle of development	ECO, IEA	<p>Monthly (ECO) (C)</p> <p>Annually (IEA) (thereafter)</p>	<p>ECO Reports</p> <p>IEA Report</p>
GS2	<ul style="list-style-type: none"> • Facilitate local skills transfer and training programmes where required, through partnerships with accredited training providers, TVET colleges, 							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	SETAs, and NGOs. Include technical, entrepreneurship, and supplier-readiness training to enhance local employability and business participation.							
GS3	<ul style="list-style-type: none"> Mandatory GBV, Sexual Harassment & HIV/STI Awareness Training with Signed Code of Conduct -Before starting constructions Training covers: unacceptable behaviour, local GBV context, penalties for misconduct. Each worker signs a Code of Conduct stating zero tolerance for harassment, exploitation or relationships with minors. 		Pre-construction and Induction		During Construction, Operational Inspections/ maintenance and Decommissioning	ECO, IEA	Pre-commencement Inductions Any future workshops	Induction/ Training register Additional training records IEA Reports
GS4	<p>Worker health awareness and protection</p> <ul style="list-style-type: none"> Adhere to the worker health and safety measures indicated in the EMP. In addition, the following must be considered: To mitigate the risk of increased social pathologies, the Project Developer should implement a Workforce Health and Behavioural Management Programme that includes condom distribution and regular health (HIV/AIDS, STIs) awareness campaigns; toolbox talks addressing the risks of promiscuous behaviour, substance abuse, and gender-based violence; and the development of an in-house infectious diseases' strategy. 		<p>Pre-construction and induction</p> <p>Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).</p> <p>Inspection and Maintenance during operation.</p> <p>Dismantling and removal of pipeline.</p>		Life cycle of development			



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	<ul style="list-style-type: none"> A workforce code of conduct should be enforced to guide employee behaviour on and off site, promoting responsible conduct and positive interaction with local communities. 							
GS5	<ul style="list-style-type: none"> For security and identification purposes, all contractors and employees operating outside of the designated construction area, need to wear identification cards (if possible with Photo ID). Vehicles should be marked as construction vehicles and should have project developer's logo clearly exhibited. 		<p>Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).</p> <p>Inspection and Maintenance during operation.</p> <p>Dismantling and removal of pipeline.</p>	DPM, CEO	During Construction, Operational Inspections/ maintenance and Decommissioning	CEO, ECO	Daily (CEO) Monthly (ECO)	<p>Incident Reports</p> <p>CEO Daily logs</p> <p>ECO Reports</p>
10.6 BIODIVERSITY MANAGEMENT		<p>Impact management outcomes:</p> <ul style="list-style-type: none"> Avoid and minimize impacts on natural habitats and species through site selection, design, and construction planning. Minimise habitat fragmentation and maintain ecological connectivity during construction. Protect legally protected areas, critical habitats, and species of conservation concern in compliance with applicable standards and law. Control invasive alien species and prevent their introduction or spread. Implement progressive rehabilitation and habitat restoration as soon as practicable. 						
GB1	<ul style="list-style-type: none"> Restrict vegetation damage or clearing to imminent construction footprints or areas as approved by the ECO. 	C	Clearance of vegetation (specifically at plinth positions).	CEO, ECO	During construction	CEO, ECO, IEA	Monthly	<p>ECO Reports</p> <p>IEA Report</p>
GB2	<ul style="list-style-type: none"> Where practical phase construction works to: minimise the unnecessary premature disturbance of vegetation 		Levelling of ground for placement of plinths.					



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	and optimise the early initiation of rehabilitation.		<p>Placement of plinths.</p> <p>Lifting and aligning of pipeline segments on plinths (may involve the use of rigging equipment/vehicles).</p> <p>Constructing engineered ramps over the pipeline at road crossings (instead of trenching).</p>					
GB3	<ul style="list-style-type: none"> No Threatened or Protected species (ToPs) and/or protected fauna as listed according NEMBA (Act No. 10 of 2004) and relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits. 	C, O	<p>Clearance of vegetation (specifically at plinth positions).</p> <p>Inspection and Maintenance during operation.</p>	CEO, ECO	During Construction and Operational Inspections/maintenance		<p>Monthly (ECO) (C)</p> <p>Annually (IEA) (O)</p>	
GB4	<ul style="list-style-type: none"> No hunting or poaching permitted. No deliberate or intentional killing of fauna is allowed. 							
GB5	<ul style="list-style-type: none"> Collection of fuel wood and gathering of plants by the construction workforce is prohibited. 							
GB6	<ul style="list-style-type: none"> Prevent introduction of invasive species by cleaning equipment prior to first use on site. 	C	<p>Clearance of vegetation (specifically at plinth positions).</p> <p>Levelling of ground for placement of plinths.</p> <p>Placement of plinths.</p>		During Construction			



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
			<p>Lifting and aligning of pipeline segments on plinths (may involve the use of rigging equipment/vehicles).</p> <p>Constructing engineered ramps over the pipeline at road crossings (instead of trenching).</p>					
GB7	<ul style="list-style-type: none"> Develop and implement an alien invasive management plan. The plan must address local AIS risks, and must as a minimum seek to control establishment and spreading. 	PD, C	Pre-construction and Clearance of vegetation (specifically at plinth positions).	P, DPM	Planning and Design, and during Construction			<p>AIP Management Plan</p> <p>ECO Reports</p> <p>IEA Report</p>
GB8	<ul style="list-style-type: none"> Implement active restoration and rehabilitation on disturbed areas as soon as practically possible. Should adequate revegetation (aligned with surrounding control sites) not occur passively then this must be supplemented by active soil amelioration and seeding with suitable seed mixes. Active revegetation methods and species mix to be approved by the ECO. 	C, O, D	<p>Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).</p> <p>Inspection and Maintenance during operation.</p> <p>Dismantling and removal of pipeline.</p>	CEO, ECO	During Construction, Operational Inspections/ maintenance and Decommissioning			<p>ECO Reports</p> <p>IEA Report</p>
GB9	<ul style="list-style-type: none"> Existing and designated vehicular access and haulage routes must be used- no traversing natural areas 	C, O	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths,		During Construction and Operational			



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	outside of the designated construction footprint.		lifting and aligning of pipeline). Inspection and Maintenance during operation.		Inspections/ maintenance			
GB10	<ul style="list-style-type: none"> Where pest control is required, environmentally friendly options must receive preference. Pest control must be implemented in accordance with relevant legislation. 	C	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).		During Construction			
10.7 WATER RESOURCE MANAGEMENT		Impact management outcomes: <ul style="list-style-type: none"> Prevent contamination of surface water and groundwater from amongst other sediment, fuels, chemicals, and wastewater. Maintain natural drainage patterns and minimize alteration of hydrology. Control stormwater runoff to prevent erosion, flooding, and off-site sedimentation. Minimise the change in stormwater runoff from pre-development to post-development conditions. Ensure proper storage and handling of hazardous substances to avoid leaks and spills. Monitor water quality and implement corrective actions where exceedances or pollution risks occur. Avoid encroachment into watercourses and wetlands through buffer zones and site planning. Prevent illegal discharge of any liquid waste into stormwater systems. Ensure emergency response procedures are in place for water pollution incidents. 						
GWA1	<ul style="list-style-type: none"> No contaminated water to be discharged into the environment without relevant authorisation. 	C, O	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline). Inspection and Maintenance during operation.	CEO, ECO	During Construction and Operational Inspections/ maintenance	CEO, ECO, IEA	Monthly (ECO) Annually (IEA)	ECO Reports IEA Report
GWA2	<ul style="list-style-type: none"> Install erosion and sediment controls (silt fences, sediment basins, check 	C	Construction Activities (Clearance of vegetation,		During Construction			



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	dams, etc) to prevent sediment-laden runoff entering watercourses.		levelling of ground, placement of plinths, lifting and aligning of pipeline).					
GWA3	<ul style="list-style-type: none"> All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses, wetlands and water bodies. 							Photographic Records ECO Reports IEA Report
GWA4	<ul style="list-style-type: none"> Maintain identified buffer zones around watercourses and wetlands and prohibit stockpiling or refuelling within buffer areas. 							ECO Reports IEA Report
GWA5	<ul style="list-style-type: none"> The use of drip trays and mobile containment must be implemented to avoid spills of hazardous materials (e.g. fuels and oils) to the environment. 	C, O, D	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).		During Construction, Operational Inspections/ maintenance and Decommissioning			Photographic Records ECO Reports IEA Report
GWA6	<ul style="list-style-type: none"> Refuelling and servicing of vehicles must take place on impervious surfaces or with the use of drip trays. 							
GWA7	<ul style="list-style-type: none"> All spillage of oil must be avoided by the use of drip trays or similar containment. Where spills occur these must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility. 		Inspection and Maintenance during operation. Dismantling and removal of pipeline.					
GWA8	<ul style="list-style-type: none"> Where possible all vehicle or equipment servicing to take place at a designated area on an impermeable surface to prevent release of hazardous substances to the environment. 							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
GWA9	<ul style="list-style-type: none"> A Spill Response Procedure must be developed and implemented (refer to Section 8.12) 	PD, C	Pre-construction	P, DPM	Planning and Design, and during Construction	CEO, ECO, IEA	Monthly (ECO) Annually (IEA)	Spill Response Procedure ECO Reports IEA Report
GWA10	<ul style="list-style-type: none"> Ensure spill kits are provided and accessible in areas where hazardous substances are stored or used. 	C	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).	CEO, ECO	During Construction			Presence of Spill kits ECO Reports IEA Report
GWA11	<ul style="list-style-type: none"> Prevent discharge of liquid wastes into the stormwater systems. 	C, O, D	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline). Inspection and Maintenance during operation. Dismantling and removal of pipeline.		During Construction, Operational Inspections/ maintenance and Decommissioning			ECO Reports IEA Report
GWA12	<ul style="list-style-type: none"> Conduct regular inspections for leaks, spills, and integrity of containment systems. 	C, O	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).		During Construction and Operational Inspections/ maintenance			Monthly (ECO) (C) Annually (IEA) (O)



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
			Inspection and Maintenance during operation.					
GWA13	<ul style="list-style-type: none"> Use environmentally safe soil binders and dust suppressants; avoid products that pollute water. 	C	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).		During Construction		Monthly (ECO)	
GWA14	<ul style="list-style-type: none"> Implement water conservation practices including: <ul style="list-style-type: none"> Minimising water use during equipment cleaning; Conducting regular audits of water systems; Discussing water usage and conservation in environmental awareness training; and Encouraging the use of grey water. 						Annually (IEA)	
GWA15	<ul style="list-style-type: none"> Provide training on water management to all workers, including but not limited to: <ul style="list-style-type: none"> Methods for transfer and handling of fuels and chemicals. Spill response and use of spill kits. Water conservation measures. Sensitive water resources and associated buffers. 	PD, C	Pre-construction and Clearance of vegetation (specifically at plinth positions).	P, DPM	Planning and Design, and during Construction		Pre-commencement Inductions	Induction/ Training register
							Any future workshops	IEA Reports



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
10.8 SOIL MANAGEMENT		Impact management outcomes: <ul style="list-style-type: none"> • Prevent soil erosion and sediment loss. • Minimise soil contamination. • Preserve soil resources for reuse. • Prevent soil from unnecessary degradation, compaction and disturbance. • Ensure proper stripping, stockpiling, and reuse of topsoil. • Rehabilitate and restore disturbed soils. • Comply with all relevant soil protection legislation and permit conditions. • Prevent the introduction and spread of invasive species. 						
GS1	• Implement erosion and sediment control measures (e.g., silt fences, sediment traps) to minimise erosion for project affected areas.	C	Clearance of vegetation (specifically at plinth positions).	C, CEO, ECO	During Construction	CEO, ECO, IEA	Weekly (CEO) Monthly (ECO)	
GS2	• Regularly inspect and maintain soil and erosion control measures.		Levelling of ground for placement of plinths.					
GS3	• Avoid the unnecessary loss of topsoil resources by stripping, stockpiling and reusing topsoil wherever practically possible.		Placement of plinths.					
GS4	• Topsoil stripping: strip to full depth of topsoil, avoid mixing sub-soil and topsoil.		Lifting and aligning of pipeline segments on plinths (may involve the use of rigging equipment/vehicles).					
GS5	• Remove and dispose or remediate contaminated soils according to the requirements of the National Environmental Management: Waste Act and associated regulations.		Constructing engineered ramps over the pipeline at road crossings (instead of trenching).					
GS6	• Conduct training or toolbox talks on soil protection measures and spill response requirements.	PD, C	Pre-construction and Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).	P, DPM	Planning and Design, and during Construction	ECO, IEA	Pre-commencement Inductions	



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
GS7	<ul style="list-style-type: none"> Restrict vehicle and machinery movement to designated routes to prevent compaction. 	C, O, D						
GS8	<ul style="list-style-type: none"> Develop and implement an alien invasive management plan. 	C, O	Pre-construction and Clearance of vegetation (specifically at plinth positions).	P, DPM	Planning and Design, and during Construction	CEO, ECO, IEA	Monthly (ECO) (C)	ECO Reports IEA Report
GS9	<ul style="list-style-type: none"> Rehabilitate disturbed areas as soon as practical. Revegetate either passively or with active soil supplementation and seeding as advised by the ECO. 	C, O, D	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline). Inspection and Maintenance during operation. Dismantling and removal of pipeline.	CEO, ECO	During Construction, Operational Inspections/ maintenance and Decommissioning		Annually (IEA) (O)	
10.9 TRAFFIC AND TRANSPORT MANAGEMENT		Impact management outcomes: <ul style="list-style-type: none"> Prevent traffic-related injuries and fatalities for workers and the public. Maintain safe separation of vehicles, pedestrians, and plant. Minimize traffic congestion and delays on public roads. Ensure visibility and compliance with speed limits road traffic legislation. Provide clear signage, barriers, and lighting to guide road users and site personnel safely. Prevent use of unauthorized routes. Implement emergency response and incident management protocols for traffic-related events. Minimise off-site dust track-out and deposition on public roads 						
GT1	<ul style="list-style-type: none"> Maintain vehicle safety checks (brakes, lights, reverse alarms) and driver competency verification. 	C, O, D	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).	CEO, ECO	During Construction, Operational Inspections/ maintenance and Decommissioning	CEO, ECO, IEA	Monthly (ECO) (C)	Vehicle checks procedure
GT2	<ul style="list-style-type: none"> Establish incident reporting and emergency response protocol for traffic accidents; conduct drills. 						Annually (IEA) (O)	Incident record



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
GT3	<ul style="list-style-type: none"> Traffic to remain on designated access and routes 		Inspection and Maintenance during operation. Dismantling and removal of pipeline.					ECO Reports IEA Report
GT4	<ul style="list-style-type: none"> Install and maintain stormwater infrastructure (e.g., culverts, drains, sediment traps) associated with site roads to prevent erosion, flooding, and waterlogging. 	C	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).		During Construction			ECO Reports IEA Report
10.10	CULTURAL HERITAGE MANAGEMENT	Impact management outcomes: <ul style="list-style-type: none"> Protect tangible and intangible cultural heritage from adverse impacts of construction activities and support its preservation. Identify, avoid, and minimize impacts on archaeological sites, built heritage, cultural landscapes, and natural features of cultural significance. Implement a robust system to respond to chance finds to ensure protection of cultural heritage discovered unexpectedly during construction activities and prevent disturbance until proper assessment is completed. Comply with heritage legislation and permitting, including South Africa's NHRA Section 38 where applicable. 						
GH1	<ul style="list-style-type: none"> Training and awareness provided to all relevant workers on what typical heritage features may be encountered and how to identify these. Ensure awareness that the chance finds procedure must be implemented on the discovery of a feature, and specifically reinforce stop work requirements. 	C	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).	CEO, ECO	During Construction	CEO, ECO, IEA	Monthly (ECO) (C) Annually (IEA) (O)	Heritage brief included in induction procedure ECO Reports IEA Report
GH2	<ul style="list-style-type: none"> Implement the following Chance Finds Procedure for any unexpected cultural heritage features (including inter alia archaeological features or 							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	<p>graves) discovered during construction:</p> <ul style="list-style-type: none"> • Stop all work affecting the area. • Inform the CEO, who in turn must inform the ECO. • Incident to be recorded in the incident and non-compliance register and relevant procedures followed. • Protect from damage, theft, or weather; use guards if necessary for sensitive items. • Record details in an incident report, take photographs, and log GPS coordinates. • Undertake a rapid evaluation by a suitably qualified specialist (e.g. archaeologist) to determine cultural, historical, or scientific value. • Notify relevant heritage agency in writing within 7 days of discovery. • Follow processes and instruction issued by the relevant heritage agency. • Work in the area can only recommence after clearance from heritage authority and implementation of mitigation measures. 							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
10.11	LABOUR MANAGEMENT	Impact management outcomes: <ul style="list-style-type: none"> • Fair treatment, non-discrimination, equal opportunity for all workers, including subcontracted and migrant workers. • Worker–management relationship strengthened; respect freedom of association and collective bargaining consistent with national law. • Compliant terms and conditions of employment (contracts, wages, working time, leave, termination) per applicable law/standards. • No child or forced labour in the project or primary supply chain; robust age verification and anti-coercion controls. • All necessary precautions linked to the spread of disease are taken. • Accessible worker grievance mechanism (WGRM) with confidentiality, non-retaliation, and timely resolution. • Decent worker accommodation and welfare. 						
GL1	<ul style="list-style-type: none"> • Written employment particulars/contracts with defined wages, hours, leave, termination conditions. These must be compliant with the Basic Conditions of Employment Act. 	C, O, D	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline). Inspection and Maintenance during operation. Dismantling and removal of pipeline.	CEO, ECO	During Construction, Operational Inspections/ maintenance and Decommissioning	CEO, ECO, IEA	Monthly (ECO) (C) Annually (IEA) (O)	Employee particulars and contracts Grievance procedure
GL2	<ul style="list-style-type: none"> • No child labour or forced labour on the project. 			P, DPM	Life cycle of development	IEA	Annually	IEA Report
GL3	<ul style="list-style-type: none"> • A grievance mechanism aimed at receiving and resolving labour issues must be developed and implemented. This must as a minimum include: <ul style="list-style-type: none"> • Dedicated roles and responsibilities; • Must be accessible to workers (consider physical access, literacy, languages, etc); • Must have a clear issue tracking mechanism and target resolution timelines. • Tracking and logging of all receipts and responses. 							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	<ul style="list-style-type: none"> Workers must be informed of grievance procedures. The Grievance mechanism must be made available for inspection by the ECO and IEA. 							
GL4	<ul style="list-style-type: none"> Provision must be made for adequate sanitation for all workers (including ablutions and washing facilities where necessary). Sanitation facilities must be adequately maintained and serviced. Provision of at least 1 toilet for every 15 workers and separate facilities for males / females. 		Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).	P, DPM	During Construction, Operational Inspections/ maintenance and Decommissioning	CEO, ECO, IEA	Weekly (CEO) Monthly (ECO) Annually (IEA)	Confirmation of ablution systems outside of site. ECO Reports IEA Report
GL6	<ul style="list-style-type: none"> The surrounding environment shall not be used for ablution/sanitation purposes. 	C, O, D	Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline). Inspection and Maintenance during operation. Dismantling and removal of pipeline.	P, DPM, CEO				
GL7	<ul style="list-style-type: none"> Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS. 	PD, C	Pre-construction and Construction Activities (Clearance of vegetation, levelling of ground, placement of plinths, lifting and aligning of pipeline).	P, DPM	Planning and Design, and during Construction	ECO, IEA	Pre-commencement Inductions Any future workshops	Induction/ Training register IEA Reports
SL1	<ul style="list-style-type: none"> No overnight worker accommodation on site. 	C	Construction Activities (Clearance of vegetation,		During Construction,		Weekly (CEO)	ECO Reports



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
			levelling of ground, placement of plinths, lifting and aligning of pipeline). Inspection and Maintenance during operation. Dismantling and removal of pipeline.		Operational Inspections/ maintenance and Decommissioning		Monthly (ECO) Annually (IEA)	IEA Report



11 APPENDICES



Appendix 1: EAP Curriculum Vitae



Appendix 2: Code of Practice: Emergency Preparedness and Response Plan