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MPUMALANGA DEPARTMENT OF PUBLIC WORKS, ROADS AND TRANSPORT

NEW WITBANK (EMALAHLENI) TERTIARY HOSPITAL

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT FOR THE DEVELOPMENT AND CONSTRUCTION OF THE PROPOSED NEW WITBANK (EMALAHLENI) TERTIARY HOSPITAL SITUATED ON ERF 1 OF TSWELOPELE JUNCTION WITHIN EMALAHLENI LOCAL MUNICIPALITY.

SUBMITTED TO THE DEPARTMENT OF AGRICULTURE, RURAL DEVELOPMENT, LAND AND ENVIRONMENTAL AFFAIRS, MPUMALANGA PROVINCE

ENVIRONMENTAL AUTHORISATION REF. NO.: 1/3/1/16/1N-308

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FINAL EMPr

Prepared by

LICEBO ENVIRONMENTAL AND MINING (PTY) LTD

Prepared for:

DEPARTMENT OF PUBLIC WORKS, ROADS AND TRANSPORT (DPWRT)

30 May 2022

Project Number: LEM-A0424-01-2020

Report Number: LEM-A0424-01 (EMPr)

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. ENVIRONMENTAL MANAGEMENT PROGRAMME

1.1 Details of EAP

Licebo Environmental has been appointed as the independent EAP to undertake the EIA process and associated IWULA. The details of the EAP are provided in the Table below:

Practitioner company details	Licebo Environmental and Mining (Pty) Ltd
Name of the Practitioner	Mandla Ralph Repinga
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1.2 Description of the Aspect of the Activity

1.2.1 Location of the Activity

The proposed development will be located in the eMalahleni Local Municipality which falls within the Nkangala District Municipality in Mpumalanga Province. The hospital will be constructed on Erf 1 of Tswelopele Junction (Previously which was a Portion of the Remainder of Portion 121 of the farm Zeekoewater 311 JS) registered on 10 December 2021 under the Title Deed T14063/2021 which is owned by the eMalahleni Local Municipality. The proposed hospital will be situated in eMalahleni between Highveld Mall and the N4 National Road approximately 5 km east of eMalahleni City Centre and 25 km northeast of Middelburg within the eMalahleni Local Municipality, Mpumalanga Province.

1.2.2 Type of Activity to be undertaken.

The Mpumalanga Province Department of Public Works, Roads and Transport (DPWRT) appointed by the Department of Health is intending to construct 400 beds (200 tertiary beds and 200 regional beds) Tertiary Hospital and approximately 70 beds for the future proposed psychiatric ward on Erf 1 of Tswelopele Junction, located in Ward 34 of eMalahleni Local Municipality (ELM). This hospital is known as the New Witbank (eMalahleni) Tertiary Hospital. The proposed project will be constructed on 35

hectares of Erf 1 of Tswelopele Junction. Activities to be undertaken will include but not limited to the construction of Medical Wards, Surgical Theatres, Radiology Department, Pathology Lab, Paediatrics Ward, Maternity Wards, Surgical Wards, Medical Laboratory, High Care Wards, Emergency or Casualty Unit and Short Stay Ward, Future Psychiatric Ward, Steam Boiler, Stormwater Management System and Temporary Waste Storage Facilities.

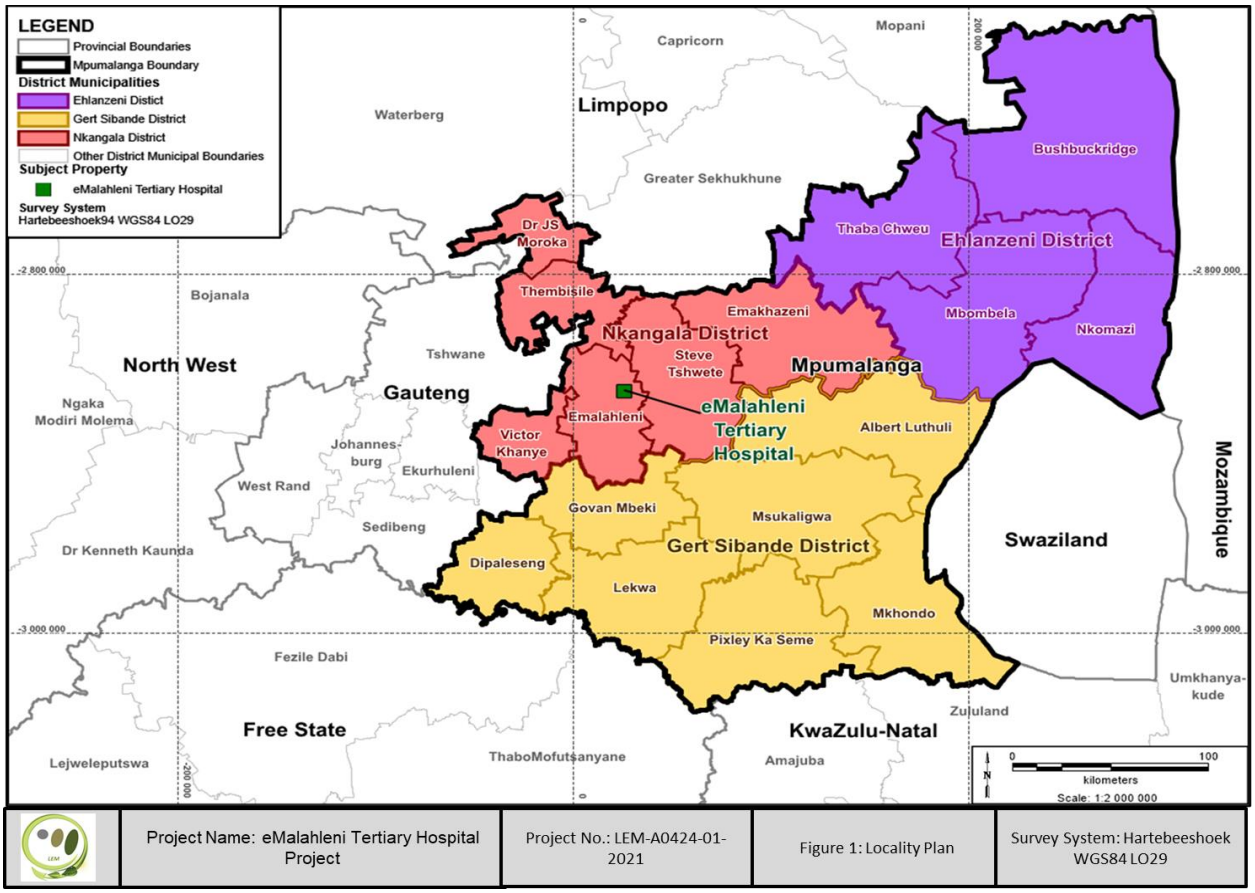

Figure 1: Locality plan

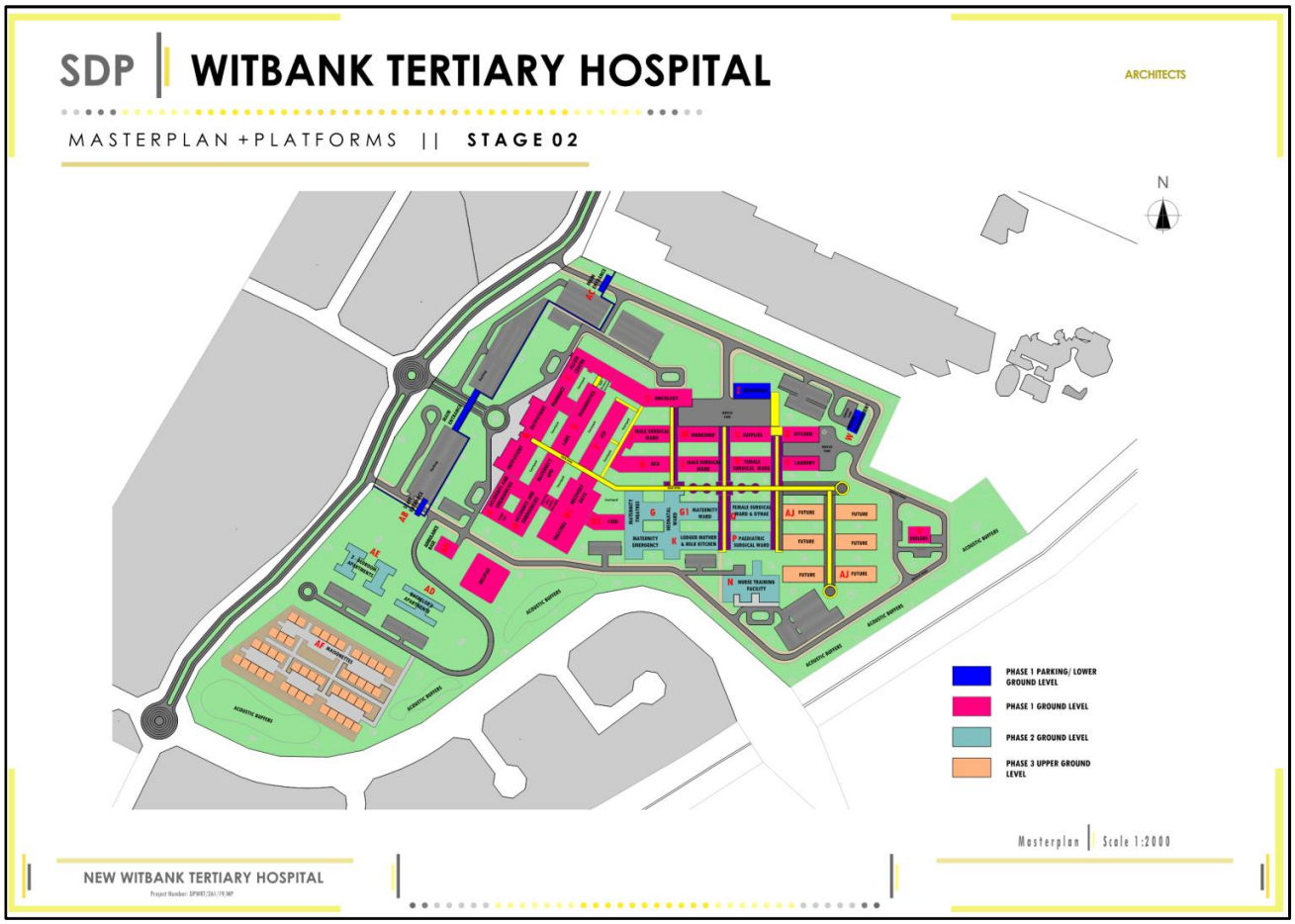

Figure 2: Master plan and Platform for stage 2

2. ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

2.1 The process for managing any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of undertaking a listed activity.

The EMPr specifies the minimum requirements to be implemented by the Holder of the Environmental Authorisation and those appointed to implement this authorisation per the scope of works and scope of the environmental authorisation, in order to minimise and manage the potential environmental impacts and ensure sound environmental management practices. It also provides the framework for environmental monitoring throughout the construction and operational phases. The provisions of this EMPr are binding on the holder during the lifespan of the project. The EMPr must be binding on all parties involved on the project.

It is vital that the EMPr requirements be carefully studied, understood, implemented, and adhered to at all time. To simplify the EMPr requirements, each aspect related to the EMPr has been addressed in the table below. Where necessary, each action within the EMPr is supported by the priority of when the specific action will need to be implemented. Each of these aspects is briefly described below for ease of reference.

2.2 Purpose of the EMPr

An Environmental Management Programme (EMPr) provides management mechanisms/methods for the prevention of undue or reasonably avoidable adverse environmental impacts and for the enhancement of the positive environmental benefits of a development. The EMPr is a legislative requirement in terms of Section 24 N of the National Environmental Management Act (Act No. 107 of 1998, (NEMA) (as amended), and the Environmental Impact Assessment Regulations (Appendix 4) and places a ‘Duty of Care’ / responsibility to prevent, minimise and manage adverse environmental impacts on those whose activities may directly cause, have caused or may in future cause such adverse impacts such as pollution or degradation of the environment.

2.3 Objectives of the EMPr

The EMPr, as a living document in the lifespan of a development, formulates measures and guidelines to mitigate adverse impacts on various environmental components, which have been identified during the impact assessment process and to protect the environmental resources where necessary. The

EMPr further provides mechanism in monitoring the effectiveness of the measures throughout the construction and the operational phase of the development. This EMPr include, among others:

- details of the applicant and the EAP;
- specific location of the proposed development in the context of the local and regional environment;
- detail description of all components of the proposed development;
- detail identification of environmental issues/risks associated with the proposed development;
- provision of mitigation measures for construction and operational phase of the development;
- clear roles and responsibilities of parties in the implementation of this EMPr
- monitoring and auditing process during all phases of development; and
- specific timeframe for implementation of proposed mitigation measures as well timeframe for the submission of audit reports.

2.4 Applicable documentations

Some of the documentations that will be required to undertake the construction and development of the hospital and that will be read in conjunction with the EMPr are the following:

- Environmental Impact Assessment Report for the proposed New Witbank (eMalahleni) Tertiary Hospital including applicable specialists' studies;
- The General Authorisation for the construction and development of the hospital required in terms of Government Notice Regulation (GNR) 509 of the National Water Act, Act 36 of 1998 as amended;
- Environmental Authorisation that will be granted by the DARDLEA in Mpumalanga after the decision has been made; and
- All other approvals required for the construction and development of the hospital.

2.5 Scope of the EMPr

In accordance with the requirements of the Environmental Impact Assessment (EIA) Regulations, 2014, and the requirements of DARDLEA, the EMPr is to be implemented by the Developer/applicant as well as any employee, contractor, agent or sub-contractor appointed to act on behalf of the Developer in the development of the activity. Thus, the specifications outlined in this EMPr are applicable to all activities undertaken by the Developer as well as appointed contractors and all persons involved in the undertaking of the activities on the site.

An Environmental Code of Conduct has also been developed that provides a simplified set of rules that should be adhered to by all persons involved with the project at all times. This is to be displayed at strategic points to ensure continuous environmental awareness.

The effectiveness of the EMPr depends on the level of compliance with conditions and measures in the EMPr by the applicant as well as monitoring of the EMPr.

2.6 Structure of the EMPr

There are three main phases in the EMPr that provide proposed mitigations and management measures in the table below.

Table 1: Phases of the Hospital Project Life-Cycle

Item No.	Project Phase	Description
1.	Pre-Construction / Construction	The pre-construction phase provides guidelines on pre-construction activities including site establishment and clearance, environmental induction and training and awareness. The construction phase will provide guidelines on construction methods and practical mitigation measures that will need to be implemented as part of the construction and development of the hospital.
2.	Operational	The operational phase will provide operational and maintenance manuals/procedures including identified mitigation measures that will need to be implemented and maintained as part of the operation of the critical components and activities associated with the hospital.
3.	Post-construction / Rehabilitation	This section of the EMPr provides management principles for the rehabilitation phase of the hospital and associate infrastructure. This will include best practices methods, procedures and responsibilities required for various development components and related infrastructure.

2.7 EMPr as a live document

The approach use for this EMPr is derived from the below Deming Cycle of continuous improvement (Figure 3) that entails the reiterative actions of plan, do, check, act, and back to the planning phase.

2.7.1 Plan

Project-specific planning involves consideration of the legal requirements, development details, and the nature of the receiving environment. This is a starting point for targeted environmental impact management outcomes. Environmental performance indicators are then determined with measurable targets prescribed to monitor the environmental performance of the project.

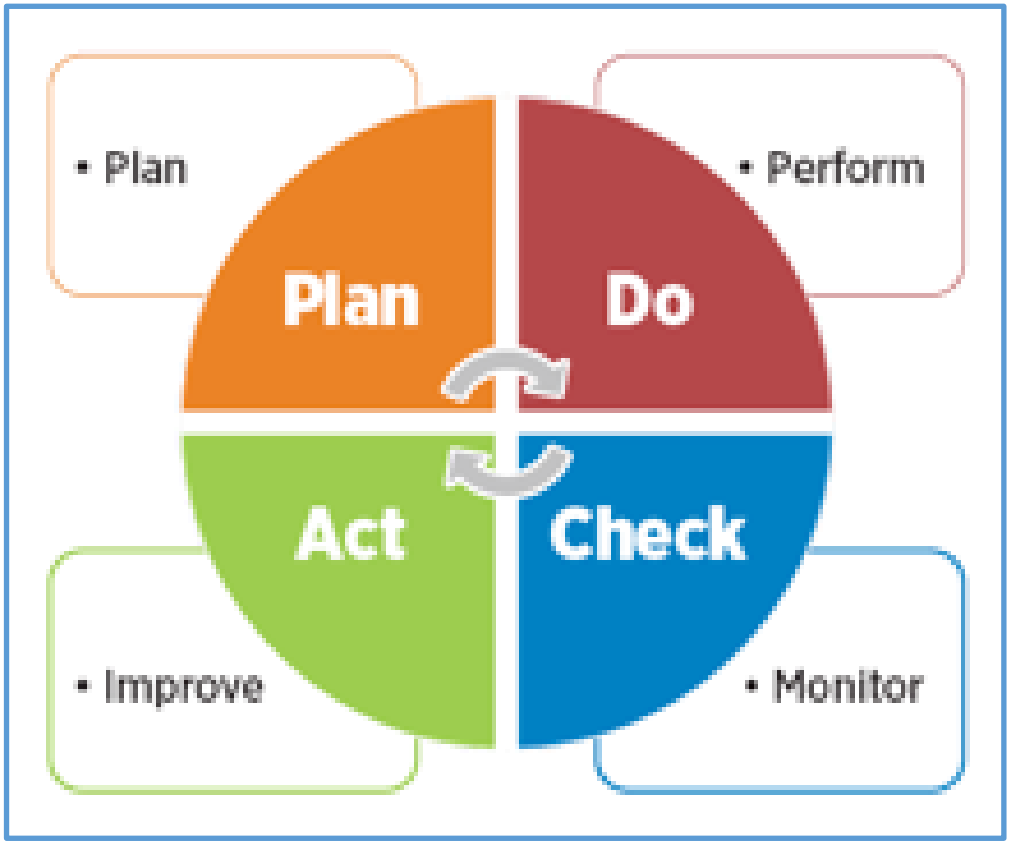

Figure 3: Deming continual improvement life cycle

2.7.2 Do

Throughout the development's life-span, the developer will be required to develop and maintain a relevant Environmental and Quality Management System designed to ensure that best management practices are implemented on a day-to-day management. Such an EMS/QMS should at least include the following information:

- Location and extent of development components and associated infrastructure;
- Associated activities such as the transportation of people and equipment;
- Resources and experience required (staffing);
- Materials and equipment to be used;
- Management actions;
- Human resources used;
- Construction-monitoring activities;
- Emergency/disaster incident and reaction procedures; and
- Rehabilitation procedures for the impacted environment.

These topics will be cross-linked into the contracts related to the development and operation of the hospital project.

2.7.3 Check

A system of assessing monitoring results has been developed to check the environmental management performance. Continuous assessment facilitates proactive management of environmental issues and then mitigation measures can successfully be implemented on an ongoing basis to keep environmental indicators within their target thresholds. Regular auditing of environmental performance is prescribed to prove and preserve accountability.

2.7.4 Act

The assessments and monitoring of the results and findings of the regular audits must be documented within a reporting system. Precautionary mitigation measures and corrective actions will be prescribed and instructions given for implementation. The findings of monitoring and auditing programmes can also be used to update the EMPr. The EMPr is a dynamic project-specific document, which can be updated regularly to address potential changes on the receiving environment.

3. MANAGMENT AND MONITORING PROCEDURES

3.1 Organisational Structure and Responsibility

This section indicates the party responsible for implementing the environmental measures and action plans laid out in the EMPr.

The figure below provides an indication of the organisational and team structure for the Project.

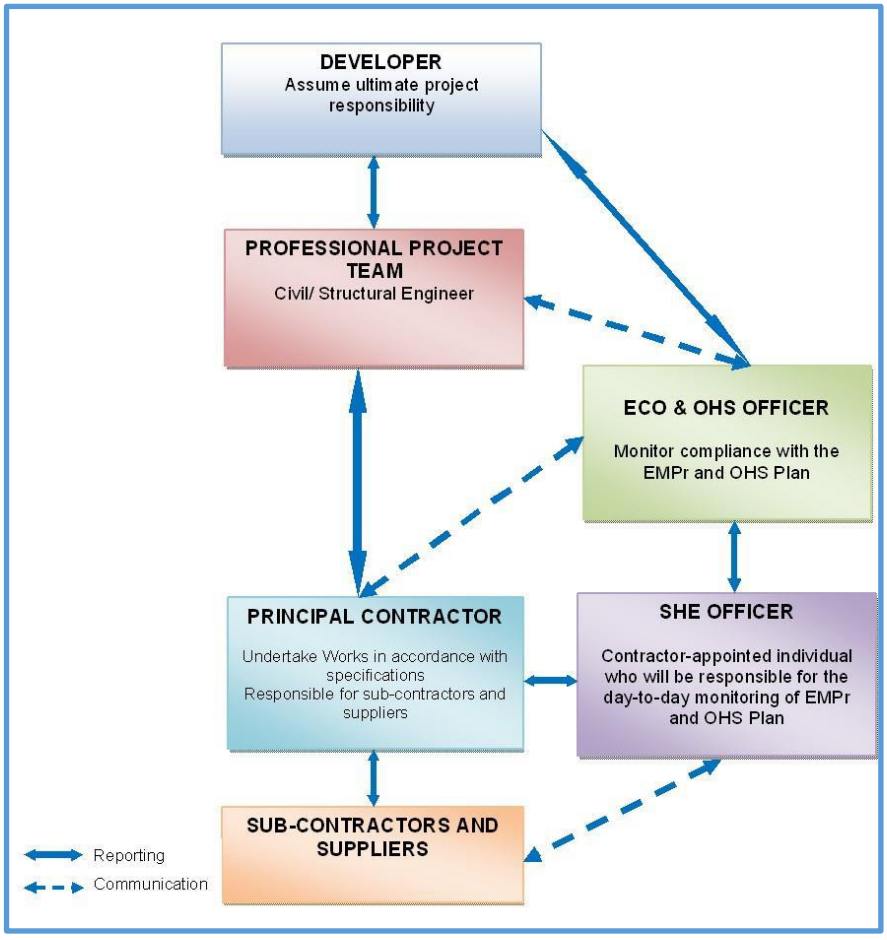

Figure 4: Proposed Project Organisational Structure

3.2 Environmental Authorisation Holder / Project Developer

While the specific role players and their responsibilities are listed below, the Environmental Authorisation Holder / Project Developer is ultimately responsible for ensuring compliance with the

environmental specification and upholding the environmental commitment for compliance with all National, Provincial and local legislation that relates to the management of the environment. Briefly, the Project Developer will:

- Appoint specialist and assemble construction team;
- May on the recommendation of the Engineer and/or Environmental Control Officer order the Contractor to suspend any or all works on site if the Contractor or Sub-Contractor/Supplier fails to comply with the EMPr requirements;
- Take full responsibility for all activities to be undertaken on the site by the contractor and subcontractors regarding compliance with the environmental authorisation and associated EMPr; and
- Maintain control of all activities pertaining to the project.

3.3 The Construction Engineer / Site Manager

The Engineer will:

- Enforce the environmental specifications on site;
- Monitor compliance with the requirements of the specifications;
- Assess the Contractor's environmental performance in consultation with the Environmental Control Officer from which a brief monthly statement of environmental performance is drawn up for record purposes and to be reported to project meetings; and
- Ensure the documentations, in conjunction with the Contractor, on the state of the site prior to construction activities commencing are produced and kept. This documentation will be in the form of photographs or video recordings.

3.4 The Contractor (including sub-contractors)

The Contractor is required to:

- Understand and have knowledge on the content of the EMPr;
- Supply method statements timeously for all activities requiring special attention as specified and/or requested by the Developer, Environmental Control Officer and/or Construction Engineer during the duration of the Contract;
- Be conversant with the requirements of this environmental specification or EMPr. Brief all staff about the requirements and significant of the environmental specification;

- Comply with requirements of the Environmental Control Officer in terms of this specifications and the project specification, as applicable, within the period specified;
- Ensure any Sub-Contractors/Suppliers who are utilized as per the contract, comply with the environmental requirements and specifications. The Contractor will be held responsible for non-compliance on their behalf;
- Bear the costs of any damages or compensation resulting from non-adherence to the said specifications or written site instructions;
- Comply with all applicable legislations;
- Ensure that the Engineer or site manager communicates timeously of any foreseeable activities which will require input from the Environmental Control Officer; and
- The Contractor will conduct all activities in a manner that minimizes disturbance to the natural environment as well as directly affected residents and the public in general.

3.5 Environmental Control Officer (ECO)

The ECO will:

- Understand and have knowledge on the content of the EMPr;
- Be familiar with the recommendations and mitigation measures in the EMPr for the project as well as the contents of the EA and the EIR;
- Ensure presence during construction of the bulk service infrastructure;
- Monitor the implementation of the EMPr during the construction and rehabilitation phases;
- Ensure site protection measures are implemented on site;
- Report any non-compliance or remedial actions that need to be applied to the appropriate environmental authorities;
- Monitor the Principal Contractor, sub-contractors, construction teams and Developer compliance with the EMPr during the construction and rehabilitation phases;
- Monitor all site activities weekly or monthly for compliance as recommended by the Developer or in line with the EA.
- Conduct weekly/monthly site inspections of the site according to the EMPr, and report findings to the Developer/Contractor;
- Attend monthly site meetings;
- Recommend corrective action for any environmental non-compliance at the site;

- Compile an ECO inspection monthly report highlighting the effectiveness of the EMPr and shortcomings if there are any, as well as progress and compliance with the EMPr specifications. These monthly reports are to be submitted to the Developer and DARDLEA (Submission frequency may be as recommended by the competent authority); and
- Conduct onsite training on the requirements of the EMPr and general environmental awareness prior commencement of activities.

It must be noted that the responsibility of the ECO is to monitor compliance, give advice on the implementation of the EMPr and report non-compliance and not to enforce compliance. Ensuring compliance is the responsibility of the Developer and the site appointed Environmental Officer and/or SHE Officer.

3.6 Occupational Health and Safety Officer

The OHS Officer will be responsible for undertaking of the following:

- Compilation of a comprehensive project Health and Safety Risk Assessment (HSRA);
- Compilation of health and safety specifications based on risks identified;
- Reviewing and approval of health and safety plan(s) submitted by appointed Principal Contractor(s);
- Conducting monthly health and safety inspections and compiling monthly OHS reports;
- Conducting monthly health and safety audits with audit reports;
- Assisting the Developer/Contractor in the investigation of accident/incidents;
- Monitoring compliance with Occupational Health and Safety Act (OHSA) and Regulations;
- Establishment and monitoring of project health and safety file;
- Monitoring the Principal Contractor(s') health and safety performance; and
- Preparation of project close-out reports and submission of project files to the client.

3.7 Safety, Health and Environmental (SHE) Officer

The Safety, Health and Environmental Officer will:

- Be fully conversant with the EMPr;
- Be fully conversant with all relevant legislation to the project, and ensure compliance with them;

- Convey the contents of this EMPr to the construction site staff and discuss the contents in detail with the Contractor;
- Undertake regular and comprehensive inspections of the site and surrounding areas in order to monitor compliance with the EMPr;
- Take appropriate action if the specifications contained in the EMPr are not followed;
- Order the removal from the construction site of any person(s) and/or equipment in contravention of the specifications of the EMPr in so far as safety and health is concerned;
- Report any non-compliance or remedial measures that need to be applied to the appropriate environmental authorities, in line with the requirements of the EMPr;
- Submit a report at each project meeting containing incidents that occurred before the meeting;
- Ensuring that the list of transgressions issued by the ECO is available on request; and
- Maintain an environmental register which keeps the records of incidents which occurs on the site during construction. These incidents include but not limited to:
    - Public involvement /complaints;
    - Health and safety incidents involving hazardous materials stored on site; and
    - Non-compliance incidents.

3.8 Training and Environmental Awareness

It is important to ensure that the Contractor has a basic level of environmental awareness and competence to ensure continued environmental due diligence and ongoing minimisation of environmental harm. Training needs should be identified based on the existing capacity of personnel (including the Contractors and Sub-contractors) to implement the EMPr management actions. All personnel must be adequately trained to perform their designated tasks to an acceptable standard.
The environmental training is aimed at:

- Promoting environmental awareness;
- Informing the Contractor of all environmental procedures, policies and programmes applicable;
- Providing generic training on the implementation of environmental management specifications;
- Providing job-specific environmental training to understand the key environmental features of the construction site and the surrounding environment.

The training will be a once-off event that is verbally presented; however, the Contractor should make provision for weekly training where necessary or Toolbox Talks or schedule such training as when is

necessary. In addition to training, general environmental awareness must be encouraged among the project's workforce to ensure that EMPr is implemented and general best environmental practices are implemented. This ensures that environmental accidents are minimised and environmental compliance is maximized.

3.9 EMPr Monitoring

A monitoring programme will be in place not only to ensure compliance with the EMPr through the contract/work instruction specifications, but also to monitor any environmental issues and impacts which have not been accounted for in the EMPr that are, or could result in negative environmental impacts for which corrective actions will be required.

As part of the contract or work instruction, monitoring the implementation of the EMPr must be an on-going work throughout the construction and operation of the project. This will be determined from the Construction Engineer or Site Manager, ECO, SHE Officer must ensure that monitoring is done.

3.10 Reporting Procedures

3.10.1 Documentation

The following documentation must be kept on site in order to record compliance with the EMPr:

- An Environmental File which must include, but not limited to the below requirements:
    - Copy of the EMPr;
    - Copy of the Environmental Authorisations and any addendums;
    - Copy of the General Authorisation approval by DWS;
    - Copy of all other licenses/permits;
    - Copy of all rehabilitation plans;
    - Copy of the bulk services infrastructure including Storm Water Management Plan, Water Reticulation Plan, Sewer Reticulation Plan and Power Line routes construction plan;
    - Copy of relevant legislation(s);
    - Environmental Policy of the Main Contractor;
    - Environmental Method statements compiled by the Contractor;
    - Non-conformance Reports;
- Environmental register, which must include:

  - Communications Register; including records of complaints, minutes and attendance registers of all environmental meetings;
  - Monitoring Results; including environmental monitoring reports, register of audits, Non-Conformance Reports (NCR);
  - Incident book; including copies of notification of emergencies and incidents, and this must be accompanied by a photographic record where necessary and possible; and
  - Waste establishment sites.
- Waste documentation such as sewerage disposal receipts if there will be any;
- Material Safety Data Sheets for all hazardous substances;
- Dust suppression register;
- Water Quality Monitoring reports (where necessary);
- Written Corrective Action Instructions; and
- Notification of Emergencies and Incidents.

3.10.2 Environmental Register

The Developer will put in place an Environmental Register. The contractor will ensure that the following information is recorded for all complaints/incidents:

- Nature of complaint/incident;
- Causes of complaint/incident;
- Party/parties responsible for causing complaint/incident;
- Immediate actions undertaken to stop/reduce/contain the causes of the complaint/incident;
- Additional corrective or remedial action taken and/or to be taken to address and to prevent recurrence of the complaint/incident;
- Time frames and the parties responsible for the implementation of the corrective or remedial actions;
- Procedures to be undertaken and/or penalties to be applied if corrective or remedial actions are not implemented; and
- Copies of all correspondences received regarding complaints/incidents.

The above records will form an integral part of the Contractors' Records. These records will be kept with the EMPr, and will be made available for scrutiny if so, requested by the Developer.

3.10.3 Non-Conformance Report

A Non-Conformance Report (NCR) will be issued to the Contractor as a final step towards rectifying a failure in complying with a requirement of the EMPr. This will be issued by the ECO to the Contractor in writing. Preceding the issuing of an NCR, the Contractor must be given an opportunity to rectify the issue.

Should the ECO assess an incident or issue and find it to be significant (e.g., non-repairable damage to the environment), it will be reported to the relevant authorities and immediately escalated to the level of the NCR. The following information should be recorded in the NCR:

- Details of non-conformance;
- Nature of the risk and the associated environment;
- Any plant or equipment involved;
- Any chemicals or hazardous substances involved;
- Work procedures not followed;
- Any other physical aspects; and
- Actions agreed to by all parties following consultation to address the non-conformance in terms of specific control measures and should take the hierarchy of controls into account.
- Agreed timeframe by which the actions documented in the NCR must be carried out.
- ECO should verify that the agreed actions have taken place by the agreed completion date; when completed satisfactorily, the ECO and Contractor should sign the Close-Out portion of the Non- Conformance Form and file it with the contract documentation.

3.10.4 Environmental Emergency Response

An Environmental preparedness and Response Plan is a process to respond rapidly and effectively to and manage emergency situations that may arise at the New Witbank (eMalahleni) Tertiary Hospital. The Environmental Response Plan will have the following objectives:

- Categorisation of emergency situations through hazard identification and to define procedures for responses to the situations;
- Assigning responsibilities for responding to emergency situations;

- Implementation of an effective system to receive, record and communicate reports of environmental incidents and emergencies; and
- Ensuring that all environmental incidents or emergencies are investigated and the necessary procedures are in place to implement corrective and preventative actions to prevent a recurrence of the incident.
- The Emergency Preparedness and Response Code of Practice will be compiled in accordance with the following:
    - Occupational Health and Safety OHSAS 18001; and
    - National Building Regulations and Building Standards Act 103 of 1977 as Amended.

In the event of an emergency, the Emergency Preparedness and Response Plan/Procedure will be consulted, and the required actions implemented. To facilitate the effective implementation of the procedures, copies of the Emergency preparedness and Response Plan will be placed in accessible and visible locations around the site.

The Contractor's environmental emergency procedures must ensure appropriate responses to unexpected / accidental actions/incidents that could cause harm to the environment. Such incidents may include:

- Accidental discharges to water (i.e., into the watercourse) and land;
- Accidental spillage of hazardous substances (typically oil, petrol, and diesel);
- Accidental toxic emissions into the air; and
- Specific environmental and ecosystem effects from accidental releases or incidents.

The Environmental Emergency Response Plan is separate to the Health and Safety Plan as it is aimed at responding specifically to environmental incidents and must ensure and include the following:

- Construction employees shall be adequately trained in incidents and emergency situations;
- Details of the organization and responsibilities, accountability and liability of personnel;
- A list of key personnel and contact numbers;
- Details of emergency services (e.g., fire department / on-site fire detail, spill clean-up services);
- Internal and external communication plans, including prescribed reporting procedures;
- Actions to be taken in the event of different types of emergencies;
- Incident recording, progress reporting and remediation measures to be implemented; and
- Information on hazardous materials, including the potential impact associated with each, and measures to be taken in the event of accidental release.

The Contractor and their sub-contractor(s) must comply with the environmental emergency preparedness and incident and accident-reporting requirements.

3.10.5 Method Statements

It is a statutory requirement to ensure the wellbeing of employees and the environment. To allow the mitigation measures in this document to be implemented, task-specific method statements should be developed for each set of tasks.

A Method Statement details how and when a process will be carried out, detailing possible dangers/risks, and the methods of control but not limited to the requirements as indicated below.

- Type of construction activity;
- Timing and location of the activity;
- Construction procedures;
- Materials and equipment to be used;
- Transportation of the equipment to and from site;
- How equipment/material will be moved while on site;
- Location and extent of construction site office and storage areas;
- Identification of impacts that might result from the construction activity;
- Methodology and/or specifications for impact prevention/containment;
- Methodology for environmental monitoring;
- Emergency/disaster incident and reaction procedures (required to be demonstrated); and
- Rehabilitation procedures and continued maintenance of the impacted environment.

The Contractor will be accountable for all actions taken regarding compliance of the approved Method Statements. The Contractor shall keep all the Method Statements and subsequent revisions on file, copies of which must be distributed to all relevant personnel for implementation.
The following is a list of Method Statements that may be required:

- Blasting (In case whereby blasting of the platforms or bulk services activities might be required);
- Construction site and office/yard establishment;
- Cement mixing/concrete batching etc;

- Dust management;
- Environmental awareness course(s);
- Environmental monitoring;
- Erosion control;
- Fire, hazardous and/or poisonous substances;
- Fuels and fuel spills (may form part of the item above);
- Storage, handling and decanting of diesel (may form part of the item above);
- Personnel, public and animal safety;
- Rehabilitation of modified/damaged environment(s);
- Solid and liquid waste management;
- Sources of materials (including MSDSs);
- Top-soil management;
- Stormwater Management; and
- Wash areas.

3.10.6 Public Communication and Liaison with I&APs

The Developer must ensure that the adjacent landowners are informed and updated throughout the construction phases. Sufficient signage should be erected around the site informing the public of the construction activities taking place. The sign boards should include the following:

- The name of the Contractor.
- The name and contact details of the site representative to be contacted in the event of emergencies or complaint registration.

4. COMPLIANCE WITH ENVIRONMENTAL SPECIFICATION

The EMPr forms part of the Contract Documentation and is thus legally binding. It is therefore important for the developer and the contractor to include EMPr implementation costs in the budget of the project.

In terms of the NEMA, an individual responsible for environmental damage must pay costs both to the environment and human health ("Polluter Pays Principle") and the preventative measures to reduce or prevent additional pollution and/or environmental damage from occurring.

The Contract is deemed not to have complied with the Environmental Specification/EMPr if:

- There is evidence of contravention of the EMPr on the development areas;
- Environmental damage happens due to negligence;
- The Contractor fails to comply with corrective or instructions issued within a specified time; and
- The Contractor fails to respond adequately to complaints from the public.

Application of a penalty clause will apply for incidents of non-compliance. Failure to rectify the damages within specified reasonable period or a repeat of the damage will result in a fine. This fine will be issued by the ECO. The penalty imposed will be per incident. Unless stated otherwise in the project specification, the penalties that may be imposed per incident will be determined by the ECO.

The Developer is responsible for the implementation of the EMPr and for compliance monitoring of the EMPr. The EMPr will be made binding on all contractors (including sub-contractors) operating on the site and will be included in the Contract. Non-Compliance with, or any deviation from, the conditions set out in this document constitutes a failure in-compliance.

5. ENVIRONMENTAL CODE OF CONDUCT

One of the objectives of the EMPr is to ensure that the workforce, contractors, sub-contractors and construction staff have an understanding of environmental issues and potential impacts that may arise from site activities. This environmental code of conduct provides the basic rules that should strictly be adhered to. It is the responsibility of the Contractor to ensure that site personnel understand and adhere to the Code of Conduct.

Table 4: Environmental Code of Conduct

ENVIRONMENTAL CODE OF CONDUCT
Everyone working on behalf of the holder / developer for this project will be required to keep to the rules of this code of conduct.
It should be noted that ignorance, negligence, recklessness or a general lack of commitment which will result in environmental degradation or pollution shall not be allowed.
Environmental rules that will need to be implemented and adhered to for this project:
• Only use authorised accesses; • Do not litter; • Dispose solid waste to the correct waste containers provided; • Prevent pollution; • Use the toilet facilities provided; • Do not dispose contaminated waste water into the storm water drainage system or the environment; • Immediately report any spillage from containers, plant or vehicles; • Do not burn or bury any waste on the site; • Do not trespass onto private properties; • Do not waste electricity, water or consumables; • No catching, teasing, or setting of devices to trap or kill any animal; • No damage or removal of any trees unnecessarily, shrubs or branches unless it forms part of working instructions and authorization has been received where necessary; • Do not deface, draw or cut lettering or any other markings on trees, rocks or buildings; • Know the firefighting procedure, fire drill and locations of firefighting equipments; and • Know the environmental incident procedures;

DETAILED ENVIRONMENTAL IMPACTS AND MANAGEMENT MEASURES

The EMPr specifies the minimum requirements to be implemented by the Developer as per the scope of works and scope of the environmental authorisation, in order to minimise and manage the potential environmental impacts and ensure sound environmental management practices. It also provides the framework for environmental monitoring throughout the construction and operational phases.

The provisions of this EMPr are binding on the Developer during the lifespan of the project. The EMPr must be binding on all parties involved on the project.

It is vital that the EMPr requirements be carefully studied, understood, implemented, and adhered to at all time. To simplify the EMPr requirements, each aspect related to the EMPr has been addressed in the table below. Where necessary, each action within the EMPr is supported by the priority of when the specific action will need to be implemented. Each of these aspects is briefly described below for ease of reference.

Environmental Measures, Actions and Controls

This section indicates the actions required to either prevent and/or minimise the potential impacts on the environment that is associated with the project.

Responsibility

This section indicates the party responsible for implementing the environmental measures and action plans laid out in the EMPr.

Monitoring Frequency

This section indicates when the actions for a specific aspect must be implemented and/or monitored.

5.1 Project Activities associated with the New Witbank (eMalahleni) Tertiary Hospital

This section provides a preliminary description of activities that will be undertaken as part of the construction and operational phase of the New Witbank (eMalahleni) Tertiary Hospital. Each activity can be linked to the various activities associated with operation of the hospital, waste management, and any other associated activities that constitute the various hospitals operations. These activities act as driving forces that exert pressure on the natural environment, ultimately resulting in impacts

on the biophysical, social, and cultural environments. Activities that will be undertaken as part of the New Witbank (eMalahleni) Tertiary Hospital are listed in **Table 2** below.

Table 2: Project Activities associated with the eMalahleni Local Municipality.

Activity	**Description**
Pre-Construction and Construction Phases	
Activity 1	Recruitment, procurement, and employment
Activity 2	Transport of construction material
Activity 3	Site preparation and establishment
Activity 4	Site clearing, earthworks and excavation (Removal of topsoil, subsoil and stockpiling.)
Activity 5	Construction of the hospital and associated infrastructure (Medical Wards, Surgical Theatres, Radiology Department, Pathology Lab, Paediatrics Ward, Maternity Wards, Surgical Wards, Medical Laboratory, High Care Wards, Emergency or Casualty Unit and Short Stay Ward, Steam Boiler, Stormwater Management System and Temporary Waste Storage Facilities)
Activity 6	Temporary waste and sewage handling
Activity 7	Construction of bulk service infrastructure (Power supply, access road, stormwater management infrastructure, water supply pipeline, sewage pipeline)
Operational Phase	
Activity 8	Employment and job opportunities
Activity 9	Operation of the hospital
Activity 10	Solid waste and effluent management and disposal

5.2 Impacts to be mitigated in their respective phase.

Table 3: Proposed mitigation measures to be implemented as part of this project

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
1.	Recruitment, procurement and employment	Socio-economic	Higher employability	Pre-construction and Construction	• Training the local community members especially during the construction phase for semi-skilled jobs will help in negating possible conflicts. • Job adverts must be made public to all and first preference be given to the local populace.	Skills Training Plan Labour Recruitment Policy and Plan	Project Engineer Developer Social Facilitator	Design and Pre-construction phase
			Increased Aspirations	Pre-construction and Construction	• Developing a Labour, Recruitment and Influx Management Procedure following the following guidelines: ➢ Information dissemination: Employment opportunities should be advertised and	Labour, Recruitment Policy and Plan Influx Management Procedure	Project Engineer Developer Social Facilitator	Design and Pre-construction phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					made available to the local public through regular briefings. ➢ Recruitment and supply chain transparency: Recruitment and procurement processes should be transparent and accessible to the public. ➢ Influx management and security arrangements: Any security measures associated with the project should restrict the uncontrolled influx of job-seekers while allowing free and safe access and			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					mobility for local communities. ➢ Regular engagement with local communities and security personnel, such as workshops and/or meetings, could be undertaken to gain an understanding of communities' needs and the safety and security measures required for the project.			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
				Construction Phase	• The following International Labour Organisation (ILO) conventions must be adhered to in this plan: ➢ ILO Convention 87 on freedom of association and protection of the right to organise; ➢ ILO Convention 98 on the right to organise and collective bargaining; ➢ ILO Convention 29 on forced labour; ➢ ILO Convention 105 on the abolition of forced labour; ➢ ILO Convention 138 on the	Labour, Recruitment Policy and Plan Influx Management Procedure	Project Engineer Developer Social Facilitator	Design and Pre-construction phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					minimum age of employment; ➢ ILO Convention 182 on child labour; ➢ ILO Convention 100 on equal remuneration; ➢ and ILO Convention 111 on discrimination.			
				Construction Phase	• An employment committee should be established to ensure that recruitment is fair and transparent and job opportunities are maximized; • A Community Liaison Officer (CLO) and the human resource manager should be responsible for continued interaction with the employment committee and the	Labour, Recruitment Policy and Plan Influx Management Procedure	Project Engineer and Developer Stakeholder Facilitator	Design and Pre-construction phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					surrounding communities. • The possibility of appointing labour brokers may be investigated to avoid the tensions surrounding employment opportunities; • Scholarships and work apprenticeships can be offered to the local population, particularly the youth; Direct PACs should be provided priority in job opportunities and training, before indirect PACs; • Attention must be provided to employment opportunities for vulnerable persons (women-headed households and disabled persons);			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• A plan for the gradual replacement of expatriates and outsiders by local people can be developed and implemented over the course of the project's lifespan; and • These planning efforts should incorporate collaborative management strategies for in-migration, ensuring fair access to community benefits from the project as well as transparent and effective communication with local stakeholders.			
			Contribution to the local and regional economy	C	• Developing a Labour, Recruitment and Influx Management Procedure following the following	Labour, Recruitment Policy and Plan	Project Engineer and Developer	Design and Pre-construction phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					guidelines: ➢ Information dissemination: Employment opportunities should be advertised and made available to the local public through regular briefings. ➢ Recruitment and supply chain transparency: Recruitment and procurement processes should be transparent and accessible to the public. ➢ Influx management and security arrangements: Any security measures associated with	Influx Management Procedure	Stakeholder Facilitator	

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					the project should restrict the uncontrolled influx of job-seekers while allowing free and safe access and mobility for local communities. ➢ Regular engagement with local communities and security personnel, such as workshops and/or meetings, could be undertaken to gain an understanding of communities' needs and the safety and security measures required for the project.			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
			Decrease the value of the properties in the vicinity of Del Judor Extension 4	Construction and Operational Phase	• Specialist (Property) to be appointed for the property evaluation of the status.	Social Development Plan Influx Management Procedure	Developer Stakeholder Facilitator	Design and Pre-construction phase
				Construction Phase	• The following International Labour Organisation (ILO) conventions must be adhered to in this plan: ➢ ILO Convention 87 on freedom of association and protection of the right to organise; ➢ ILO Convention 98 on the right to organise and collective bargaining; ➢ ILO Convention 29 on forced labour;	Labour, Recruitment Policy and Plan Influx Management Procedure	Project Engineer and Developer Stakeholder Facilitator	Design and Pre-construction phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					➢ ILO Convention 105 on the abolition of forced labour; ➢ ILO Convention 138 on the minimum age of employment; ➢ ILO Convention 182 on child labour; ➢ ILO Convention 100 on equal remuneration; and ➢ ILO Convention 111 on discrimination.			
				Construction Phase	• An employment committee should be established to ensure that recruitment is fair and transparent and job opportunities are maximized;	Labour, Recruitment Policy and Plan	Project Engineer and Developer Stakeholder Facilitator	Design and Pre-construction phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• A Community Liaison Officer (CLO) and the human resource manager should be responsible for continued interaction with the employment committee and the surrounding communities. The possibility of appointing labour brokers may be investigated to avoid the tensions surrounding employment opportunities; • Scholarships and work apprenticeships can be offered to the local population, particularly the youth; • Direct PACs should be provided priority in job opportunities and training, before indirect PACs;	Influx Management Procedure Employment Committee Skills Development Plan		

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• Attention must be provided to employment opportunities for vulnerable persons (women-headed households and disabled persons); • A plan for the gradual replacement of expatriates and outsiders by local people can be developed and implemented over the course of the project's lifespan; and • These planning efforts should incorporate collaborative management strategies for in-migration, ensuring fair access to community benefits from the project as well as transparent and effective			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					communication with local stakeholders.			
			Increase in household income and living conditions	Construction Phase	• Local labour must be used as much as possible. Having a system of training workers from the local community will help in uplifting the community thereby improving the living conditions of the people. In addition, the Department is encouraged to develop a Community Development Plan (CDP); or • Social Development Plan (SDP) as part of Corporate Social Responsibility (CSR) initiatives that outline the commitments to community programmes, inclusive of specific targets.	Labour, Recruitment Policy and Plan Employment Committee Skills Development Plan Social Development Plan	Project Engineer and Developer Stakeholder Facilitator	Design and Pre-construction phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
			Influx of job seekers	Construction Phase	• Development of proper management plans like an influx management plan, SEP, HR policy; and • Labour Recruitment Plan may help mitigate the negative impacts of influx.	Stakeholder Engagement Plan Labour, Recruitment Policy and Plan Employment Committee Skills Development Plan Social Development Plan	Project Engineer and Developer Stakeholder Facilitator	Design and Pre-construction phase
			Potential increase in crime substances abuse or illegal activities	Construction Phase	• Security personnel and the police should be on alert to deal with any threats of	Security Management Plan and Threat Analysis	Project Engineer and Developer	Design and Pre-construction phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					crimes and illegal activities		Stakeholder Facilitator	
			Increase pressure on access to basic social services and infrastructure	Construction Phase	• Employing from the local community will mean there is no increase in the population density. This however can have a small bearing as having people coming from outside will be inevitable. • Alternative solutions for electricity and water should strongly be considered to try and avert the likely hoods of this impact. • The municipal has developed interventions in a form of long- and short-term projects which are currently being rolled out, which are to address the bulk infrastructure	Labour, Recruitment Policy and Plan Employment Committee Social Development Plan	Project Engineer and Developer Stakeholder Facilitator	Design and Pre-construction phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					challenges and is intended to cater for the bulk infrastructure upgrades in order to enable development and growth. This can be achieved through: ○ A water conservation and water demand strategy ○ An energy efficiency strategy: and ○ Address the ingress and to the development to ensure mobility.			
2.	Transportation of	Air quality	Dust generation from the movement of vehicles (Fugitive	Construction Phase	• The handling and transportation of materials that may generate dust must	Handling and Transportation of	Project Engineer	Pre-construction and

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
	construction material		Dust - TSP, PM_{10} & $PM_{2.5}$)		be avoided during high wind conditions.	Materials Method Statement/ Procedure. Traffic Management Plan	and Contractor(s) Site Manager (s)	Construction phases
			Traffic congestion		• Speed limits of 20 km/h must be enforced on site. • Adhere to road traffic rules and regulations. • Address the ingress and to the development to ensure mobility.			
		Topography and Visual Environment	Alteration to the visual quality of the study area due to the physical presence and construction activities. The Project and its associated infrastructure will have a high impact on key residential areas such as the		• Good housekeeping measures and architectural design plans that will result in a reduction in impacts that could cause a nuisance, such as dust, proper waste collection and a clean and neat site camp/office.	Architectural Design Plans	Project Engineer and Contractor(s) Site Manager (s) Architect	Pre-construction and Construction phases

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
			bordering neighbourhood.					
		Surface Water	Potential spillages of hydrocarbons on site.		• Accidental spillages and leaks of hydrocarbons must be managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973); • Potential spillages of hydrocarbons from the vehicle and equipments. All potential hydrocarbon spillages and leaks to be cleaned up immediately and the soils remediated; • Spillage control kits to be readily available on site to contain the	Handling and Transportation of Materials Method Statement/ Procedure. Traffic Management Plan Hydrocarbon Management Plan	Project Engineer and Contractor(s) Site Manager (s)	Pre-construction and Construction phases

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					mobilisation of contaminants and clean up spills; • Vehicles and machinery to be serviced in a hard park area or at off-site locations. • Hydrocarbon contaminated material to be disposed of as hazardous waste at designated waste bins and taken to a licensed hazardous landfill site for proper disposal by a reputable waste collection contractor; • Hydrocarbon storage facilities must be placed on concrete or lined (Plastic) bunded area to prevent spillages reaching surface water and/or soil contamination.	Drip Trays and Oil spill kits.		

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					Any mobile storage facilities must be parked in designated lined storage areas; and			
					• Vehicles with leaks must have drip trays in place			
		Noise	Increased noise levels		• Trucks, machinery, and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Silencers will be utilised where possible.			
		Vegetation	Destruction of Rand Highveld Grassland vegetation	C	• Impacts and thus the development on the site must either be avoided or be limited; • Plan construction camps away from the sensitive grasslands; and • an independent Environmental Control Officer (ECO)	Site Plan Establishment; Before Site Clearance Inspection Records (Photos)	Project Engineer Contractor(s) Site Manager (s) ECO	Upon site establishment, and continuous during construction

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					should be appointed to oversee construction	Site Layout Plan Fenced Off Construction Camp		
		Fauna	Nature: Contamination of fauna environment through use and storage of hazardous substances, littering and dumping of waste or sewage leaks		• Hazardous / medical substances and waste must be properly stored and handled according to prescribed manner and must in no way be exposed to the environmental elements; • Hydrocarbons' spills on bare ground will be cleared immediately; • Inspect and clear all litter and waste from the site and surrounds; • Plan and implement a proper storm-water	Site Establishment Plan Before Site Clearance Inspection Records (Photos) Site Layout Plan Hydrocarbon Management Plan	Project Engineer Contractor(s) Site Manager (s) ECO	Upon site establishment, and continuous during construction

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					management plan from the onset.	Fenced Off Construction Camp Stormwater Management Plan		
		Soil	Soil Compaction: Soil Erosion and Dust Emission		• The movement of heavy vehicle should be limited to existing roads and be limited to areas where construction activities will take place.	Site Layout Plan Fenced Off Construction Camp Traffic Management Plan	Project Engineer Contractor(s) Site Manager (s) SHE Officer	Upon site establishment, and continuous during construction
3.	Site preparation and establishment	Surface Water	Changes in hydrology and drainage flow patterns.	C	• The design and construction activities of water management infrastructure must be established and implemented in accordance to the	Site Establishment Plan	Project Engineer	Design, pre-construction construction phases

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					NWA requirements: and • Harmonize site drainage design with that of the neighbouring premises; Stormwater and surface runoff must be directed to the municipal stormwater drainage system; • Where possible, incorporate a water collection system as part of the water stormwater design for use on the irrigation of the gardens/lawns.	General Authorisation Stormwater Management Plan	Contractor(s) Site Manager (s) ECO	
		Wetland	Surface hardening and loss of catchment yield; Onset of erosion; Sedimentation and the potential for the	Construction Phase	• The proper storage and handling of hazardous substances (hydrocarbons and chemicals) is critical. Storage of potentially hazardous materials	Approved General Authorisation Approved Construction	Contractor(s) Site Manager (s) Developer	Duration of pre-construction and construction phases

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
			establishment of alien hydrophytic and terrestrial plant species; Deterioration of wetland PES and provision of ecosystem services; and loss of biodiversity.		(e.g., fuel, oil, cement, bitumen, paint, etc.) should be outside of any drainage lines or wetland, or as specified by the Environmental Control Officer (ECO). This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas; • Any cement batching activities should occur outside of the delineated wetlands/watercourses. Cement batching boards should be used. • Cement products/wash not to be disposed of into	Method Statement Site inspection as part of the environmental inspections.	ECO	

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					the natural environment; • Construction activities should be limited to the approved construction footprint only and no site clearing should be allowed outside of the approved footprint; • Excavated and imported material should be stored away from natural drainage areas and sloped areas to limit the risk of sediment wash to downstream areas; • No clearing of vegetation in wetland/watercourse areas or their respective buffer zones is to be permitted;			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• The construction footprint should be kept as small as possible; and • No physical damage should be done to any aspects of the wetland without the prior approval and consent from the relevant authorities.			
			Soil compaction and loss of wetland habitat areas; Onset of erosion; Sedimentation and the potential for the establishment of alien hydrophytic and terrestrial plant species;	Construction Phase	• Spillages of fuels, oils and other potentially harmful chemicals should be cleaned up immediately and contaminants properly drained and disposed of using proper solid/hazardous waste facilities (not to be disposed of within the natural environment). • Any contaminated soil from the construction site must	Site Establishment Plan Hydrocarbon Management Plan Fenced Off Construction Camp	Project Engineer Contractor(s) Site Manager (s) ECO	Upon site establishment, and continuous during construction

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
			Deterioration of wetland PES and loss of the provision of ecosystem services; and Soil and water pollution due to the ingress of hydrocarbons, organic waste and litter.		be removed and appropriately cleaned or disposed of; • No stockpiling should take place within a wetland/watercourse; • Any erosion points created during construction should be filled and stabilized immediately; • Erosion control measures should be employed where required; • Excavated and imported material should be stored away from natural drainage areas and sloped areas to limit the risk of sediment wash to downstream areas; • Any alien and/or invasive plants	Stormwater Management Plan Alien Invasive Management Plan Stockpile Management Plan Waste Management Plan		

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					encountered should be removed from the site and appropriately disposed of; • The construction zone should be clearly demarcated prior to the commencement of construction activities to ensure that construction vehicles do not unduly disturb wetland/watercourse areas; • The construction footprint should be kept as small as possible; and • Ensure that construction activities are carefully monitored to avoid unnecessary impacts to wetland areas.			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
			Ongoing contamination of the freshwater resources is deemed likely based on the ingress of hydrocarbons associated with increased vehicular activity and contamination from the influx of people, sewage infrastructure and discharge of effluent from commercial activities. Additional potential impacts include compaction of soils and hardening of surfaces, loss of catchment yield and surface water recharge, erosion and	Construction Phase	• Regular inspections and maintenance of all stormwater and sewage infrastructure must be undertaken during the operational phase, with any leaks repaired immediately; • Any damage/erosion caused by infrastructure failure must be repaired immediately following the event; • Re-vegetation of disturbed areas left undeveloped must use indigenous plants including locally-common indigenous grasses, sedges and trees/shrubs; • Implement an alien and invasive plant species control programme to ensure	ECO inspection reports Hydrocarbon Management Plan Fenced Off Construction Camp Stormwater Management Plan Survey Plan. Stockpile Management Plan	Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part of operational phase Alien vegetation management implementation within 12 – 24 months of operation.

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
			sedimentation, the potential loss of biodiversity and habitat, loss of natural migration routes for wetland reliant fauna and further fragmentation of the systems present. Proliferation of alien and invasive species has the potential to result in further losses in biodiversity.		that these plants are actively managed and eradicated from the site, with adequate monitoring and follow-up measures (particularly within the first 12 – 24 months of operation). This will need to include any disturbed areas created during construction that may have become colonized by alien and/or invasive plant species; • Any erosion features noted should be immediately stabilised through measures such as plugging, soil mattresses, rock packs, silt traps or sand bags; • Erosion features that have been stabilized	Rehabilitation Management Plan		

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					should be monitored at regular intervals during the operational phase in order to assess whether further protection works are required; and • Buffer zones outside the boundary of wetlands are required to ensure that the ecotones between aquatic and terrestrial environments are effectively managed and conserved.			
		Air Quality	Dust generation from the movement of vehicles (Fugitive Dust - TSP, PM_{10} & PM_2.5)	Construction Phase Construction Phase	• Site clearance is to be done only as needed in phases • All vehicles transporting sand need to have tarpaulins covering their loads which will assist in any	Air Quality Management Plan Traffic Management Plan	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					windblown sand occurring off the trucks. • The handling and transportation of materials that may generate dust must be avoided during high wind conditions.			
		Topography and Visual Environment	Alteration to the visual quality of the study area due to the physical presence and construction activities; The Project and its associated infrastructure will have a high impact on key residential areas such as the bordering neighbourhood.	Construction Phase	• Good housekeeping measures would result in a reduction in impacts that could cause a nuisance, such as dust, proper waste collection and a clean and neat site camp/office.	ECO site inspections. Site good housekeeping.	Contractor(s) Site Manager (s) ECO	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
		Noise	Increased noise levels	Construction Phase	• Trucks, machinery, and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Silencers will be utilised where possible.	Service and Maintenance Plans	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase
		Vegetation	Removal / Destruction of protected plants and plant species of conservation concern (SCC)	Construction Phase	• Ideally, an on-site ecologist should be present when excavation takes place to ensure that any species not identified during this phase, are protected from destruction. Note that the species could be dormant for some time until favourable conditions arise	ECO site inspections. Alien Invasive Management Plan	Contractor(s) Site Manager (s) ECO	Ongoing as part of operational phase
			Compaction and destruction of soils	Construction Phase	• Vehicles and machinery may not veer from the dedicated roads; • Any movement of heavy machinery or	Traffic Management Plan	ECO site inspections.	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					vehicles over stored topsoils must be strictly prohibited; and • Prior to construction, the topsoil must be removed and stored separately from subsoil. The topsoil is imperative for the successful re-establishment of indigenous vegetation and it carries seed from the existing vegetation.	Stockpile Management Plan	Contractor(s) Site Manager (s)	
		Fauna	Destruction of faunal dispersal pathways	Construction Phase	• Ensure activity on site proceeds in a manner that provides fauna the opportunity to freely move off site, to prevent fauna from being trapped on site or Utilise palisade fencing that will allow for at least serval-sized animals	Alien Invasive Management Plan	ECO site inspections. Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					to move through the area			
		Soil	Soil Erosion and Dust Emission	C	• The footprint of the proposed development related activities (construction of eMalahleni tertiary hospital) should be clearly demarcated to restrict vegetation clearing activities to the infrastructure footprint as far as practically possible	Survey Plan.	ECO	Ongoing as part of operational phase
4.	Site clearing, earthworks and excavation (Removal of topsoil, subsoil and stockpiling).	Soil	Soil Erosion and Dust Emission	C	• Bare soils can be regularly dampened with water to suppress dust during the construction phase, especially when strong wind conditions are predicted according to the local weather forecast;	Air Quality Management	ECO Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
		Air Quality	Fugitive Dust – TSP, PM10 & PM2.5	C	• For dust suppression, the use of waterless methods and non-potable water is encouraged and Dust site screening measures perimeter, at excavations, or • In areas of high dust generation. The materials used should be capable of reducing the quantity of dust being blown off-site to below nuisance levels.	Air Quality Management	ECO Contractor(s) Site Manager (s)	Ongoing as part of operational phase
		Noise	Increased noise levels.	C	• Trucks, machinery, and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. • Silencers will be utilised where possible; and Screens will be considered if I&AP	Service and Maintenance Plans	Project Engineer	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					complaints are received.			
		Vegetation	Removal / Destruction of protected plants and plant species of conservation concern (SCC)	C	• A plant species assessment must be undertaken between late November and February to verify whether the species with a potential to occur are present. This will ensure that the assessment is undertaken in the flowering season; and • Apply for a permit from the MTPA to remove / destroy protected provincial plant species that was recorded on the site.	Approved General Authorisation Alien Invasive Management Plan	ECO Contractor(s) Site Manager (s)	Ongoing as part of operational phase
			Destruction of Rand Highveld Grassland vegetation	C	• The final layout should be based on a plant species assessment to verify the presence of plant species of	Alien Invasive Management Plan	ECO	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					conservation concern.		Contractor(s) Site Manager (s)	
			Compaction and destruction of soils	C	• Topsoil is typically stored in berms with a width of 150 – 200 cm, and a maximum height of 100 cm, preferably lower, ideally in a disturbed but weed-free area. • Place berms along contours or perpendicular to the prevailing wind direction; and • Topsoil handling should be limited to stripping, piling (once), and re-application.	Stockpile Management Plan	ECO Contractor(s) Site Manager (s)	Ongoing as part of operational phase
		Fauna	Loss and alteration of faunal habitat	C	• Where areas not targeted for development and / or neighbouring areas are inadvertently impacted and / or	Rehabilitation Management Plan	ECO Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					damaged, clear any material dumped in the area, fill any excavation, and rehabilitate the site as soon as possible.			
		Waste and Effluent	Management of General (Non - Hazardous) Wastes	C and O	• It is recommended that all waste streams should be managed according to the waste management hierarchy following NEM: WA No.59 of 2008, • The municipal has developed interventions in a form of long and short term projects which are currently being rolled out, which are to address the bulk infrastructure challenges and is intended to cater for the bulk infrastructure upgrades in order to enable development	Waste Management Plan	Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					and growth. This can be achieved through: • A water conservation and water demand strategy			
			Changes in hydrology and drainage flow patterns.	C	• Stormwater and surface runoff must be directed to the municipal stormwater drainage system; • Where possible, incorporate a water collection system as part of the water stormwater design; and • The design and construction activities of water management infrastructure must be established and implemented in accordance to the NWA requirements.	Stormwater Management Plan	Contractor(s) Site Manager(s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
		Socio Economic (Removal of vegetation or grazing land)	Loss of Ecosystem services	C	• All wastes must be managed according to the requirements of the South African legislation (NEM: WA, GNR 634 of 2013, GNR 926 of 2013, GNR.463 of 2018, GNR.375 of 2014 and GNR.625 of 2012) and the requirements of the IFC General EHS Guidelines (2007); • As far as practicable, the philosophy of the waste management hierarchy should be applied to the management of all waste streams; • During site establishment, local communities should be provided with an opportunity to collect cleared vegetation for their use. The remaining vegetation	Stormwater Management Plan Waste Management Plan Approved General Authorisation	ECO. Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					should be chipped or allowed to decompose in situ. Burning of vegetation should be the least favoured disposal option and should be discouraged; • All general wastes that cannot be reused or recycled must be stored temporarily in a dedicated area and then transported regularly to the proposed of-site for disposal by a licensed waste service provider; • Landfilling of waste should be the least favoured option; • All bins for the temporary storage of waste that are located outdoors must be covered to			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					prevent ingress of water and access by animals; • A comprehensive Integrated Waste Management Plan must be developed for the site, and it should include Key Performance Indicators (KPIs) against which the management of wastes can be audited; • All employees, contractors and visitors to the site must be informed of correct waste management procedures, including separation of general and hazardous waste at source; and • Waste storage and disposal areas must be located at least			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					100m from water resources including drainage lines and the storm water system.			
			Loss of tenure arrangement	C	• A Stakeholder Engagement Plan (SEP) and a Grievance Mechanism must be developed to allow community members the opportunity to inform the project developers of any activities in the project area; and • Through the SEP, continued and transparent community engagements should be held regularly to address any feedback, concerns, issues and/or grievances. Minutes need to be kept of such meetings, all of	Stakeholder Engagement Plan (SEP)	Social facilitator	Ongoing as part of construction phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					which should be distributed to and signed by the proponent and relevant local authorities.			
5.	Construction of hospital and associated infrastructure	Watercourses including streams and wetland areas.	Reduction of run-off catchment yield to the nearby wetland areas.	C	• A 100 m buffer must be implemented around the wetlands, unless authorised and/or stated otherwise by the WULA/General Authorisation; • Construction activities to avoid the delineated wetland areas unless authorised and/or stated otherwise by the WULA/General Authorisation; and • In case whereby wetlands will be affected, a proper wetland management plan must be	Stormwater Management Plan	ECO	Ongoing as part of construction phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					compiled and implemented;			
		Socio-economic	Increased human exposure to nuisance noise, dust, traffic and other environmental hazards	C and O	• Use of dust suppression to minimize the effects of dust. Use of traffic controllers and signages to show the construction site and to use the latest equipment that has the least noise.	Air Quality ECO Site Inspection	Contractor(s) Site Manager (s)	Ongoing as part of operational phase
			Unrestricted access of construction vehicles/workers onto land and adjacent/surrounding areas	C	• Access roads should be well constructed and have necessary road marking to avoid accidents; • A speed limit should be introduced and strictly adhered to along the improved road and existing roads, particularly when driving close to where pedestrians cross;	Traffic management Plan Approved Construction Method Statement Incident management Plan	Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• The use of company vehicles and other vehicles associated with the proposed project must be tracked or monitored closely, including: A tracker on the vehicles to determine the distance and speed; A log book to record all vehicle use (date, time, mileage etc.) • A Grievance Mechanism must be used to allow community members to voice their concerns regarding community or road safety issues; Any incidents must be reported and assessed by the project developer, who will implement the appropriate measures.			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• A road safety awareness campaign should be conducted.			
		Surface Water	Increased erosion and sedimentation load to the surface water resources.	C	• The design and construction activities of water management infrastructure must be established and implemented in accordance to the NWA requirements. • Ensure that bulk stormwater management systems are designed and constructed to carter for the hospital needs with proper erosion control measures; Stripping of topsoil to be limited within the areas to be disturbed.	Site Establishment Plan General Authorisation Stormwater Management Plan Stockpile Management Plan	Project Engineer Contractor(s) Site Manager (s) ECO	Design, construction phase and ongoing operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• Remove topsoil; and subsoil material to be separately stockpiled and Stockpiles that will be left for longer periods of more than a year will need to be vegetated using approved indigenous local seed mix in case whereby natural vegetation was not successful.			
		Topography and Visual Environment	Alteration to the visual quality of the study area due to the physical presence and construction activities. The Project and its associated infrastructure will have a high impact on key residential areas such as the bordering neighbourhood.	C	• Good housekeeping measures would result in a reduction in impacts that could cause a nuisance, such as dust, proper waste collection and a clean and neat site camp/office.	ECO site inspections. Site good housekeeping. Air Quality	Contractor(s) Site Manager (s) ECO	Ongoing as part the construction and operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
		Soil	Soil Compaction: Soil Erosion and Dust Emission	C	• The movement of heavy vehicle should be limited to existing roads and be limited to areas where construction activities will take place. • To coincide with low rainfall conditions when soil moisture is anticipated to be relatively low such that the soils are less prone to compaction	Stormwater Management Plan	Contractor(s) Site Manager (s)	Ongoing as part the construction and operational phase
			Potential Soil Contamination	C	• Contamination prevention measures must be addressed in the Environmental Management Programme (EMP) for the proposed development (construction of eMalahleni tertiary hospital). These must be implemented and made available and accessible at all times to the	ECO Site inspection Hydrocarbon Management Plan	Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part the construction and operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					contractors and construction crew conducting the works on site for reference; • A spill prevention and emergency spill response plan should be compiled to guide the construction works; and • An emergency response contingency plan should be put in place to address clean-up measures should a spill and/or a leak occur.			
		Fauna	Contamination of fauna environment through use and storage of hazardous substances, littering and dumping of waste or sewage leaks		• All equipment / machinery will be serviced and maintained within operating specifications to prevent the risks of leaks;	Service and Maintenance Plans Hydrocarbon Management Plan	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part the construction and operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• All hazardous / medical substances and waste must be properly stored and handled according to prescribed manner and must in no way be exposed to the environmental elements; and • Cement bags will be stored under a tarpaulin and on an impervious sheet. Cement mixing will take place within a designated area only and all hydrocarbons spills on bare ground will be cleared immediately with Inspection and clearing of all litter and waste from the site and surrounds	ECO Site Inspection Alien Invasive Management Plan Traffic Management Plan	ECO	

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
			Hindrance, trapping, killing of fauna, focussing on TOP species		• All contractors on site must undergo environmental awareness training which must include the prohibition of any harm or hindrance to any indigenous fauna species and explicitly indicate consequences of any such deliberate action; • Ensure safe speed limits and safe working conditions in the development area; and should any fauna be trapped within the development area, activities will cease and specialists brought in to safely remove the animals from site. This must be done in line with the Mpumalanga		Contractor(s) Site Manager (s) ECO	Ongoing as part the construction and operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					Nature Conservation Act.			
6.	Temporary waste and sewage handling	Socio-economic	Increased health risks and lowering the quality of life	C and O	• All wastes must be managed according to the requirements of the South African legislation (NEM: WA, GNR 634 of 2013, GNR 926 of 2013, GNR.463 of 2018, GNR.375 of 2014 and GNR.625 of 2012) and the requirements of the IFC General EHS Guidelines (2007); • As far as practicable, the philosophy of the waste management hierarchy should be applied to the management of all waste streams; • During site establishment, local	Stormwater Management Plan Waste Management Plan Approved General Authorisation	ECO site inspections. Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					communities should be provided with an opportunity to collect cleared vegetation for their use. The remaining vegetation should be chipped or allowed to decompose in situ. Burning of vegetation should be the least favoured disposal option and should be discouraged; • All general wastes that cannot be reused or recycled must be stored temporarily in a dedicated area and then transported regularly to the proposed of-site for disposal by a licensed waste service provider; • Landfilling of waste should be the least favoured option; All			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					bins for the temporary storage of waste that are located outdoors must be covered to prevent ingress of water and access by animals; A comprehensive Integrated Waste Management Plan must be developed for the site, and it should include Key Performance Indicators (KPIs) against which the management of wastes can be audited; • All employees, contractors and visitors to the site must be informed of correct waste management procedures, including separation of general			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					and hazardous waste at source; and • Waste storage and disposal areas must be located at least 100m from water resources including drainage lines and the storm water system.			
		Solid Waste and Effluent	Nuisance impact (Production of odours, visual impact and attraction of pest and vermin)	C and O	• All wastes must be managed according to the requirements of the South African legislation (NEM: WA, GNR 634 of 2013, GNR 926 of 2013, GNR.463 of 2018, GNR.375 of 2014 and GNR.625 of 2012) and the requirements of the IFC General EHS Guidelines (2007); • During construction, an Integrated Waste Management Plan	ECO inspection reports Hydrocarbon Management Plan Stormwater Management Plan	Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					(IWMP) should be developed and implemented for the management of hazardous and non-hazardous waste; • During the operation phase, an HCWMS that is adequate for the scale of the health establishment should be developed and implemented. • The HCWMS should incorporate all relevant legal requirements as described in Table 4-3 (Specialist Report) and as a minimum, the listed legislation below must be consulted and incorporated in the HCWMS, and they include: (National Environmental Management: Waste Act (Act No.59 of			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					2008) (NEM: WA); The National Norms and Standard for the Storage of Waste (GNR.926 of 2013); • Proposed National Health Care Risk Waste Management Regulations (GNR.463 of 2018); • Regulations Relating to Health Care Waste Management in Health Establishments (GNR.375 of 2014)); • Landfilling of waste should be the least favoured option; • All bins for the temporary storage of waste that are located outdoors must be covered to prevent ingress of water and access by animals;			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• A comprehensive Integrated Waste Management Plan must be developed for the site, and it should include Key Performance Indicators (KPIs) against which the management of wastes can be audited; • All employees, contractors and visitors to the site must be informed of correct waste management procedures, including separation of general and hazardous waste at source; and • Waste storage and disposal areas must be located at least 100m from water resources including drainage lines and			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					the stormwater system.			
			Health impacts to employees and communities	C and O	• All hazardous wastes must be segregated at the source from general non-hazardous wastes. Store on-site at a secure designated temporary hazardous waste storage facility with secondary containment for collection by an authorised hazardous waste service provider, and subsequent disposal at licensed hazardous waste treatment facilities; • During the operation phase, an IWMP should be developed as part of the HCWMS for the facility must cover the	ECO inspection reports Hydrocarbon Management Plan Stormwater Management Plan Good housekeeping	Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					management of hazardous wastes. • The HCWMS should incorporate all relevant legal requirements as described in Table 4-3 (Specialist Report) and as a minimum, the listed legislation below must be consulted and incorporated in the HCWMS, and they include: (National Environmental Management: Waste Act (Act No.59 of 2008) (NEM: WA); • The National Norms and Standard for the Storage of Waste (GNR.926 of 2013); Proposed National Health Care Risk Waste Management Regulations			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					(GNR.463 of 2018); and • Regulations Relating to Health Care Waste Management in Health Establishments (GNR.375 of 2014)); • The waste stored on-site during the construction phase should not exceed 90 days, while during the operation phase the management and on-site storage of HCRW should follow the Proposed National HCRW Management Regulations (GNR.463 of 2018) (refer to Table 4-3 of the Specialist Report); • Before safe disposal, all hazardous wastes must be temporarily			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					stored at the temporary hazardous waste storage facility. This facility should be designed to include secondary containment lined and covered to protect the contents from the weather (sunlight and rain). If wastes are corrosive, the base of the storage facility should be lined with an acid-resistant coating; • Where possible, empty containers for hazardous chemicals should be returned to suppliers. Where empty containers for hazardous chemicals (hydrocarbons, pesticides, laboratory chemicals, degreasing agents etc.) cannot be returned to the			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					suppliers, they must be triple rinsed, punctured and stored in a secure area until they can be disposed of safely. Rinse water may not be discharged directly to the environment; • As a rule, all chemical containers including used pesticide containers should be considered hazardous waste and disposed of accordingly as hazardous waste; • As per the FOA (2008) guidelines, the burning of empty pesticide containers must be strongly discouraged. Specific guidance on the management of empty pesticide containers is			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					provided by the FAO (2008).			
					• A hydrocarbon (including other chemicals) management Operating Procedure must be designed and implemented. Copies of this document should be made available at designated facilities where hydrocarbons are stored, dispensed, and used. The purpose of this procedure is to provide for the proper storage and handling of hydrocarbons, including waste hydrocarbons, on-site and hence prevent any form of contamination;	ECO inspection reports Hydrocarbon Management Plan Stormwater Management Plan Good housekeeping	Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• It is recommended that soil contaminated with hydrocarbon must be immediately removed and disposed of at a soil bioremediation facility on-site or else disposed of as hazardous waste; • MSDS for all chemicals must be readily available on site and the precautions stipulated in these must be always adhered to. All staff must be trained on the correct management of bunded facilities, including the discharge of collected liquids; • Spill kits must be readily available at strategic points throughout the site			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					and staff must be trained on the correct use of these kits; • Hazardous wastes must not be disposed of into drains as this may impact negatively on the performance of downstream WWTW; • Radioactive waste such as glassware, syringes, solutions, excreta from treated patients etc., should be stored in lead containers to limit dispersion and the container labelled with the radioactive symbol; • During construction and operation, all HCRW must be stored temporarily on-site and removed from the site by a licensed hazardous			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					waste service provider for treatment and disposal at a licensed treatment facility; • All HCRW should be managed following the management procedure described in Annex 3 of the ICRC Medical Waste Management (2011) and following the Proposed National Health Care Risk Waste Management Regulations (GNR.463 of 2018). Where there is a difference between these two sources of guidance, the most stringent should be applied; and Should disposal onto land be the only option, the hazardous waste should be encapsulated and			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					disposed of at a registered landfill site that has been designed to accept and effectively contain hazardous waste of this type in terms of National Norms and Standards for Assessment of Waste for Landfill Disposal (GNR.635 of 2013) and National Norms and Standards for Disposal of Waste to Landfill (GNR.636 of 2013).			
			Contamination of soil and water with sewage.	C and O	• Sewage collection and disposal should be maintained by a licensed hazardous waste service provider. Ablution facilities should be emptied of their contents regularly and the facility maintained to	Wastewater management Plan Approved Construction Method Statement	Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					prevent the attraction of pests; • The use of Chemical toilets should be discouraged unless the contents can be disposed of in a manner that does not pose a threat to the environment; • The performance of the ablution facility must be monitored regularly. Where a system is found to be performing poorly, the cause of the poor performance must be investigated timeously, and remediation measures put in place to restore performance; • If sludge must be removed from the system(s), it must be disposed of in a	ECO Inspection Report Hydrocarbon Management Plan		

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					manner that minimises potential risk to human health and the environment and should comply with the National legislation; and • The environmental monitoring programme for the HCF must incorporate monitoring points that can detect a negative impact on the environment associated with the discharge of sewage. • The HCF should ensure that wastewater characteristics follow all applicable permits and that the receiving WWTW can handle the type and volume of effluent discharged;			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• Oil and grease containing effluents from canteens must be pre-treated using a grease trap before discharge into sewage treatment facilities; and • The environmental monitoring programme for the HCF must incorporate monitoring points that can detect a negative impact on the environment associated with the discharge of sewage.			
			Increase in the quantity of sanitary wastewater requiring treatment at the designated Riverview WWTW	C and O	• It is imperative to ensure that the treatment capacity of the Riverview WWTW is adequately upgraded as planned by the ELM to ensure that the additional sanitary wastewater	Wastewater management Plan Stormwater Management	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					contributed by the proposed development and the increased throughput emanating from the local community are catered for; and • An adequate budgetary allocation should be made available for maintenance and operational faults at the Riverview WWTW.		ECO	
7.	Construction of bulk service infrastructure (Power supply, access road, stormwater management infrastructure, water	Water Quality	Surface run-off of wastewater pollutants high in: material, Biomedical Waste, Organic matter, Detergent residuals, Suspended and settle-able matter, Oils and fats	C	• Ensure sewage and dirty water from the contaminated areas including mortuary washings, medical waste effluent, laboratory discharges do not enter the clean stormwater system; and • Ensure close supervision and regular maintenance			Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
	supply pipeline, sewage pipeline)				of wastewater effluent system; and Sewer pipes must not discharge into the clean water drainage systems. • Employing from the local community will mean there is no increase in the population density. This however can have a small bearing as having people coming from outside will be inevitable. • Alternative solutions for electricity and water should strongly be considered to try and avert the likely hoods of this impact. • The municipal has developed interventions in a form of long and short term projects which are currently			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					being rolled out, which are to address the bulk infrastructure challenges and is intended to cater for the bulk infrastructure upgrades in order to enable development and growth. This can be achieved through: ○ A water conservation and water demand strategy ○ An energy efficiency strategy: and ○ Address the ingress and to the development to ensure mobility.			
			Surface run-off has the potential to carry solid	C	• Solid waste management yard, mortuary and laboratory services	Waste Management Plan	Project Engineer	Ongoing as part of

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
			materials into water bodies.		must be connected to the sewer lines for leachate discharge collection.	Stormwater management plan	Contractor(s) Site Manager (s)	operational phase
		Specialist (Property) to be appointed for the property evaluation of the status.	Social Development Plan Influx Management Procedure	Developer Stakeholder Facilitator	• Design and Pre-construction phase	Decrease the value of the properties in the vicinity of Del Judor Extension 4	Construction and Operational Phase	Specialist (Property) to be appointed for the property evaluation of the status.
		Water demand and supply	Social issues associated with decrease in water supply from source due to additional demand caused by the development.	C	• Water will be sourced from the municipal water supply reticulation system. Additional water demand may need similar expansion to be incorporated in the supply infrastructure to ensure that the hospital have sufficient water; and Provision for onsite storage / reservoir to	Stormwater management plan	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					ensure availability of water in case of water disruptions and/or shortages. • The municipal has developed interventions in a form of long and short term projects which are currently being rolled out, which are to address the bulk infrastructure challenges and is intended to cater for the bulk infrastructure upgrades in order to enable development and growth. This can be achieved through a water conservation and water demand strategy.			
		Surface Water	Poor operation and maintenance of sewer effluent system on site has the potential to cause uncontrol	C	• Operate and maintain sewer effluent in accordance to the design specifications and operating and	Waste Management Plan	Project Engineer	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
			ed spillages and undesirable odours to surrounding areas.		maintenance manuals. • Immediately clean any sewer effluent spillages and render the system functional. • The municipal has developed interventions in a form of long and short term projects which are currently being rolled out, which are to address the bulk infrastructure challenges and is intended to cater for the bulk infrastructure upgrades in order to enable development and growth. This can be achieved through a water conservation and water demand strategy.	Stormwater management plan Site Layout Plan Service and maintenance plan	Contractor(s) Site Manager (s)	
			Changes in hydrology and drainage	C	• Ensure close supervision of drainage	Stormwater management plan	Project Engineer	Ongoing as part of

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					maintenance; Use the rain water collected stormwater for irrigation of lawns and gardens within the hospital.		Contractor(s) Site Manager (s)	operational phase
8.	Employment and job opportunities	Socio-Economic (Employment opportunities)	Contribution to the local and regional economy.	C and O	• Developing a Labour, Recruitment and Influx Management Procedure following the following guidelines: ➢ Information dissemination: Employment opportunities should be advertised and made available to the local public through regular briefings. ➢ Recruitment and supply chain transparency: Recruitment and procurement processes should	Labour, Recruitment Policy and Plan Influx Management Procedure	Project Engineer and Developer Stakeholder Facilitator	Construction phase and Operational Phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					be transparent and accessible to the public. ➢ Influx management and security arrangements: Any security measures associated with the project should restrict the uncontrolled influx of job-seekers while allowing free and safe access and mobility for local communities. ➢ Regular engagement with local communities and security personnel, such as workshops and/or meetings, could be undertaken to			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					gain an understanding of communities' needs and the safety and security measures required for the project.			
				C and O	• The following International Labour Organisation (ILO) conventions must be adhered to in this plan: ➢ ILO Convention 87 on freedom of association and protection of the right to organise; Ø ILO Convention 98 on the right to organise and collective bargaining; ➢ ILO Convention 29 on forced labour;	Labour, Recruitment Policy and Plan Influx Management Procedure	Project Engineer and Developer Stakeholder Facilitator	Construction and Operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					➢ ILO Convention 105 on the abolition of forced labour; ➢ ILO Convention 138 on the minimum age of employment; ➢ ILO Convention 182 on child labour; ➢ ILO Convention 100 on equal remuneration; and ➢ ILO Convention 111 on discrimination.			
				C and O	• An employment committee should be established to ensure that recruitment is fair and transparent and job opportunities are maximized;	Labour, Recruitment Policy and Plan	Project Engineer and Developer Stakeholder Facilitator	Construction and Operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• A Community Liaison Officer (CLO) and the human resource manager should be responsible for continued interaction with the employment committee and the surrounding communities. The possibility of appointing labour brokers may be investigated to avoid the tensions surrounding employment opportunities; • Scholarships and work apprenticeships can be offered to the local population, particularly the youth; • Direct PACs should be provided priority in job opportunities and training, before indirect PACs;	Influx Management Procedure		

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• Attention must be provided to employment opportunities for vulnerable persons (women-headed households and disabled persons); • A plan for the gradual replacement of expatriates and outsiders by local people can be developed and implemented over the course of the project's lifespan; and • These planning efforts should incorporate collaborative management strategies for in-migration, ensuring fair access to community benefits from the project as well as transparent and effective			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					communication with local stakeholders.			
			Increase in household income and living conditions	C	• Local labour must be used as much as possible. Having a system of training workers from the local community will help in uplifting the community thereby improving the living conditions of the people. In addition, the Department is encouraged to develop a Community Development Plan (CDP); or • A Social Development Plan (SDP) as part of Corporate Social Responsibility (CSR) initiatives that outline the commitments to community programmes,	Labour, Recruitment Policy and Plan Influx Management Procedure	Project Engineer and Developer Stakeholder Facilitator	Construction and Operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					inclusive of specific targets.			
			Influx of job seekers	C and O	• Development of proper management plans like an influx management plan, SEP, HR policy; and • Labour Recruitment Plan may help mitigate the negative impacts of influx.	Labour, Recruitment Policy and Plan Influx Management Procedure	Project Engineer and Developer Stakeholder Facilitator	Construction and Operational phase
			Potential increase in crime substances abuse or illegal activities	C and O	• Security personnel and the police should be on alert to deal with any threats of crimes and illegal activities	Labour, Recruitment Policy and Plan Influx Management Procedure	Project Engineer and Developer Stakeholder Facilitator	Construction and Operational phase
			Increase pressure on access to basic social services and infrastructure	C and O	• Employing from the local community will mean there is no increase in the population density. This however can have a small bearing	Labour, Recruitment Policy and Plan	Project Engineer and Developer	Construction and Operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					as having people coming from outside will be inevitable; and • Alternative solutions for electricity and water should strongly be considered to try and avert the likely hoods of this impact.	Influx Management Procedure	Stakeholder Facilitator	
9.	Operation of the hospital	Wetland	Ongoing contamination of the freshwater resources is deemed likely based on the ingress of hydrocarbons associated with increased vehicular activity and contamination from the influx of people, sewage infrastructure and discharge of effluent from commercial activities. Additional	O	• Regular inspections and maintenance of all stormwater and sewage infrastructure must be undertaken during the operational phase, with any leaks repaired immediately; • Any damage/erosion caused by infrastructure failure must be repaired immediately following the event; • Re-vegetation of disturbed areas left undeveloped must	ECO inspection reports Hydrocarbon Management Plan Stormwater Management Plan	Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part of operational phase Alien vegetation management implementation within 12 – 24 months of operation.

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
			potential impacts include compaction of soils and hardening of surfaces, loss of catchment yield and surface water recharge, erosion and sedimentation, the potential loss of biodiversity and habitat, loss of natural migration routes for wetland reliant fauna and further fragmentation of the systems present. Proliferation of alien and invasive species has the potential to result in further losses in biodiversity.		use indigenous plants including locally-common indigenous grasses, sedges and trees/shrubs; • Implement an alien and invasive plant species control programme to ensure that these plants are actively managed and eradicated from the site, with adequate monitoring and follow-up measures (particularly within the first 12 – 24 months of operation). This will need to include any disturbed areas created during construction that may have become colonized by alien and/or invasive plant species;	Survey Plan. Stockpile Management Plan		

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• Any erosion features noted should be immediately stabilised through measures such as plugging, soil mattresses, rock packs, silt traps or sand bags; Erosion features that have been stabilized should be monitored at regular intervals during the operational phase in order to assess whether further protection works are required; and • Buffer zones outside the boundary of wetlands are required to ensure that the ecotones between aquatic and terrestrial environments are effectively managed and conserved.			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
		Socio-Economic (Employment opportunities)	Contribution to the local and regional economy	C and O	• Developing a Labour, Recruitment and Influx Management Procedure following the following guidelines: ➢ Information dissemination: Employment opportunities should be advertised and made available to the local public through regular briefings. ➢ Recruitment and supply chain transparency: Recruitment and procurement processes should be transparent and accessible to the public. ➢ Influx management and security	Labour, Recruitment Policy and Plan Influx Management Procedure	Project Engineer and Developer Stakeholder Facilitator	Construction and Operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					arrangements: Any security measures associated with the project should restrict the uncontrolled influx of job-seekers while allowing free and safe access and mobility for local communities. ➢ Regular engagement with local communities and security personnel, such as workshops and/or meetings, could be undertaken to gain an understanding of communities' needs and the safety and security			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					measures required for the project.			
			Influx of job seekers	C and O	• Development of proper management plans like an influx management plan, SEP, HR policy; and • Labour Recruitment Plan may help mitigate the negative impacts of influx.	Labour, Recruitment Policy and Plan Influx Management Procedure	Project Engineer and Developer Stakeholder Facilitator	Construction and Operational phase
			Potential increase in crime substances abuse or illegal activities	C and O	• Security personnel and the police should be on alert to deal with any threats of crimes and illegal activities			
		Vegetation	Potential increase in invasive vegetation	C and O	• Alien invasive species, in particular category 1b species that were identified within the study area, should be removed from the development footprint and immediate surrounds,	ECO inspection reports Alien Invasive Management Plan	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase Alien vegetation manageme

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					prior to construction or soil disturbances. By removing these species, the spread of seeds will be prevented into disturbed soils which could thus have a positive impact on the surrounding natural vegetation; • All alien seedlings and saplings must be removed as they become evident for the duration of construction; • All construction vehicles and equipment, as well as construction material should be free of plant material. Therefore, all equipment and vehicles should be thoroughly cleaned prior to access on to the construction	Service and maintenance plan Site Layout Plan.	ECO	nt implementation within 12 – 24 months of operation.

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					areas. This should be verified by the ECO.			
			Fragmentation of remaining open space in a listed ecosystem		• An independent Environmental Control Officer (ECO) should be appointed to oversee construction must: Ensure that the areas to be conserved are protected from construction and related activities; • A temporary fence or demarcation must be erected around the construction area (include the actual footprint, as well as areas where material is stored) to prevent access to	ECO inspection reports Alien Invasive Management Plan Site Layout Plan. Fenced Off Construction Camp	Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part of operational phase Alien vegetation management implementation within 12 – 24 months of operation.

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					adjacent sensitive vegetation; • Maintain site demarcations in position until the cessation of construction work; Only remove vegetation where necessary and retain vegetation in place for as long as possible prior to removal and implement a vegetation rehabilitation plan to ensure areas that can be rehabilitated post construction are adequately vegetated.	Rehabilitation Management Plan	Project Engineer Contractor(s) Site Manager (s)	operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• A vegetation rehabilitation plan should already be implemented during construction to rehabilitate areas of grassland that will be affected by edge effects. Such a plan should use indigenous species from the study area and must restore accidental disturbed areas beyond the footprint of the infrastructure to what it was prior to construction, thereby making the impact on the remainder of the site negligible in the long term. • Due to the dry climate, natural colonisation could take a long time, in which vegetation may degrade further or	Site Layout Plan		

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					become dominated by encroacher or invasive plant species. Therefore, timeous rehabilitation is imperative. Even in the event of good rains, annual pioneer plants are short-lived and therefore an effort must be made to keep as many shrubs in place as possible or to replace these as part of rehabilitation.			
		Noise	Increased noise levels		• Noise levels in the area were well within 60dBA for the residential areas during day sampling. Therefore, it is expected that additional noise levels contributed by the construction of the hospital will not be of much of any significance;	Noise Management Plan Service and maintenance Plan	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• Trucks, machinery, and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded; and • Silencers will be utilised where possible and Screens will be considered if I&AP complaints are received.			
		Air Quality	Fugitive Dust – TSP, PM10 & PM2.5		• Speed limits of 20 km/h must be enforced on site; • The materials used should be capable of reducing the quantity of dust being blown off-site to below nuisance levels; and • Dust site screening measures should be installed on the site perimeter, at excavations, or in	Air Quality management Traffic Management Plan	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					areas of high dust generation.			
		Waste	Contamination of soil and water with sewage		• Management of Sanitary Wastewater and Sewage Sludge	Wastewater management Plan Stormwater Management	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase
		Surface Water	Potential of sewer effluent, mortuary, discharges, laboratory discharges and medical wastewater contaminating the nearby watercourses.	C and O	• Ensure that bulk effluent management systems are constructed to carter for the hospital needs; • Ensure clean water stormwater management systems are designs and separated from the laboratory, mortuary, medical waste storage facilities and sewer effluent;	Stormwater Management plan Wastewater Management Plan	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• The contaminated effluent to be channelled into sewer effluent for treatment into the municipal wastewater treatment works; • Ensure that the municipal wastewater treatment works will be able to handle the effluent from the hospital and conduct monthly monitoring of surface water along the Olifants River, upstream and downstream areas.			
		Air Quality	Exhaust emissions due to vehicle in and out of the hospital	O	• Implement strict vehicle speed limits.	Traffic management Plan	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
		Noise	Increased noise levels.	O	• Speed limit will be enforced on site in consultation with the Safety Officer; • Trucks, machinery, and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Silencers will be utilised where possible. Point sources will be enclosed where possible. Screens will be considered if I&AP complaints are received; • Fixed noise-producing sources such as generators and pump stations should be either housed in enclosures or barriers around the noise source and Machinery will be maintained within operational noise	Service and maintenance Plan Traffic management Noise management plan	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					limits and will be switched off when not in use.			
		Soil	Potential Soil Contamination	O	• A spill prevention and emergency spill response plan should be compiled to guide the construction works; • An emergency response contingency plan should be put in place to address clean-up measures should a spill and/or a leak occur; and • Contamination prevention measures must be addressed in the Environmental Management	Hydrocarbon Management Plan ECO site Inspection	Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					Programme (EMP) for the proposed development (construction of eMalahleni tertiary hospital). These must be implemented and made available and accessible at all times to the contractors and construction crew conducting the works on site for reference.			
			Soil Compaction	O	• The movement of heavy vehicle should be limited to existing roads and be limited to areas where construction activities will take place; and • If possible, vegetation clearance and commencement of the proposed development and related activities (construction of eMalahleni tertiary	Site Layout Plan Handling and Transportation of Materials Method Statement/ Procedure.	Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					hospital), can be scheduled to coincide with low rainfall conditions when soil moisture is anticipated to be relatively low such that the soils are less prone to compaction.			
			Soil Erosion and Dust Emission	O	• Bare soils can be regularly dampened with water to suppress dust during the construction phase, especially when strong wind conditions are predicted according to the local weather forecast; • All disturbed areas adjacent to the infrastructural areas must be re-vegetated with an indigenous grass mix, to re-establish a protective cover, to minimise	Air Quality Management Plan Erosion Control measures	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					soil erosion and dust emission; and • Temporary erosion control measures must be used to protect the disturbed soils during the construction phase until adequate vegetation has established.			
		Topography and Visual Environment	Alteration to the visual quality of the study area due to the physical presence, scale and size of the Project and its associated infrastructure	O	• Good housekeeping measures would result in a reduction in impacts that could cause a nuisance, such as dust, proper waste collection and a clean and neat site camp/office. • Although mitigation is possible it will be expensive and it should be remembered that the upper levels of Project structures break the horizon,	Air Quality Management Good Housekeeping	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					which makes it more visible. The project will be bordering a residential area and will therefore be intrusive for residents from that area.			
		Waste	Pollution of land and water	O	• Disposal of Stormwater, Wash Water and Other Runoff	Stormwater Management	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase
		Fauna	Contamination of fauna environment through use and storage of hazardous substances, littering and dumping of waste or sewage leaks	O	• All equipment / machinery will be serviced and maintained within operating specifications to prevent the risks of leaks; • All hazardous / medical substances and waste must be properly stored and handled according to prescribed manner	Service and maintenance plan Hydrocarbon Management Plan Waste management	Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					and must in no way be exposed to the environmental elements; and • Cement bags will be stored under a tarpaulin and on an impervious sheet. Cement mixing will take place within a designated area only.			
			Loss and alteration of faunal habitat: only potential exacerbation of edge impacts (litter, waste, hazardous spills) into neighbouring areas.	O	• Where areas not targeted for development and / or neighbouring areas are inadvertently impacted and / or damaged, clear any material dumped in the area, fill any excavation, and rehabilitate the site as soon as possible; • Prioritise hard infrastructure in low and very low SEI areas; and	Rehabilitation Management Plan Waste management plan	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• As per the animal species guidelines, minimise activity in medium SEI areas and maintain connectivity of this area to the northern wetlands. Should the open space be utilised for municipal town development then the conservation of the area will have little value.			
		Vegetation	Destruction of Rand Highveld Grassland vegetation	O	• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction; • Areas that will remain open space should be rehabilitated / landscape using	Rehabilitation Management Plan Waste management plan	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					indigenous species; and • No operational activities may impact negatively on the sensitive vegetation adjacent to the site.			
			Removal / Destruction of protected plants and plant species of conservation concern (SCC)	O	• Degradation of habitat due to invasion by alien invasive plant species or a change in fire regime; and • Edge effects from the development and increased traffic into sensitive areas	Alien Invasive Management Plan Traffic management plan	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase
			Compaction and destruction of soils	O	• Topsoil is typically stored in berms with a width of 150 – 200 cm, and a maximum height of 100 cm, preferably lower, ideally in a disturbed but weed-free area. Place berms along contours or	Stockpile Management Plan Site Layout Plan	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					perpendicular to the prevailing wind direction; and • Once construction is complete, obsolete roads should be obliterated by breaking the surface crust and erecting earth embankments to prevent erosion, while the natural species composition should be re-established; and • Any movement of heavy machinery or vehicles over stored topsoils must be strictly prohibited.	Rehabilitation management plan		
			Fragmentation of remaining open space in a listed ecosystem	O	• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as	Service and maintenance plan Site Layout Plan	Project Engineer Contractor(s) Site Manager (s)	Ongoing as part of Operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					possible to that prior to construction; • Rehabilitate construction camps and any other grassland vegetation that was impacted on by the construction. Use grass sods that were removed prior to construction to rehabilitate the construction footprints. Sods must not be stored for lengthy periods and should not be stacked on top of each other or on top of grazed and moist grasslands. The sods should preferably be removed during the winter months and replanted by springtime latest; • Maintenance or operational workers may not trample	Rehabilitation management plan		

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					natural vegetation and work should be restricted to previously disturbed footprint. In addition, mitigation measures as set out for the construction phase should be adhered to and Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, livestock or pedestrian access.			
			Increase pressure on access to basic social services and infrastructure	C and O	• Employing from the local community will mean there is no increase in the population density. This however can have a small bearing as having people	Skills Training Plan Labour Recruitment Policy and Plan	Project Engineer and Social Facilitator	Construction and operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					coming from outside will be inevitable; • Alternative solutions for electricity and water should strongly be considered to try and avert the likely hoods of this impact.	Water and energy management plan		
10.	Solid waste and effluent management and disposal	Solid Waste and Effluent	Nuisance impact (Production of odours, visual impact and attraction of pest and vermin)	C and O	• All wastes must be managed according to the requirements of the South African legislation (NEM: WA, GNR 634 of 2013, GNR 926 of 2013, GNR.463 of 2018, GNR.375 of 2014 and GNR.625 of 2012) and the requirements of the IFC General EHS Guidelines (2007); • During construction, an Integrated Waste Management Plan (IWMP) should be developed and	ECO inspection reports Hydrocarbon Management Plan Waste management plan	Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part of construction and operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					implemented for the management of hazardous and non-hazardous waste; • During the operation phase, an HCWMS that is adequate for the scale of the health establishment should be developed and implemented. • The HCWMS should incorporate all relevant legal requirements as described in Table 4-3 (Specialist Report) and as a minimum, the listed legislation below must be consulted and incorporated in the HCWMS, and they include: (National Environmental Management: Waste Act (Act No.59 of 2008) (NEM: WA);			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					• The National Norms and Standard for the Storage of Waste (GNR.926 of 2013); Proposed National Health Care Risk Waste Management Regulations (GNR.463 of 2018); • Regulations Relating to Health Care Waste Management in Health Establishments (GNR.375 of 2014)); • As far as practicable, the philosophy of the waste management hierarchy should be applied to the management of all waste streams; • During site establishment, local communities should be provided with an opportunity to collect cleared vegetation for			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					their use. The remaining vegetation should be chipped or allowed to decompose in situ. Burning of vegetation should be the least favoured disposal option and should be discouraged; • All general wastes that cannot be reused or recycled must be stored temporarily in a dedicated area and then transported regularly to the proposed of-site for disposal by a licensed waste service provider; Landfilling of waste should be the least favoured option; All bins for the temporary storage of waste that are located outdoors			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					must be covered to prevent ingress of water and access by animals; • A comprehensive Integrated Waste Management Plan must be developed for the site, and it should include Key Performance Indicators (KPIs) against which the management of wastes can be audited; • All employees, contractors and visitors to the site must be informed of correct waste management procedures, including separation of general and hazardous waste at source; and • Waste storage and disposal areas must			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					be located at least 100m from water resources including drainage lines and the stormwater system. • The municipal has developed interventions in a form of long and short term projects which are currently being rolled out, which are to address the bulk infrastructure challenges and is intended to cater for and growth. This can be achieved through a water conservation and water demand strategy.			
			Health impacts to employees and communities	C and O	• All hazardous wastes must be segregated at the source from general non-hazardous wastes. Store on-site at a secure designated	ECO inspection reports	Project Engineer	Ongoing as part of construction and operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					temporary hazardous waste storage facility with secondary containment for collection by an authorised hazardous waste service provider, and subsequent disposal at licensed hazardous waste treatment facilities; • During the operation phase, an IWMP should be developed as part of the HCWMS for the facility must cover the management of hazardous wastes. The HCWMS should incorporate all relevant legal requirements as described in Table 4-3 (Specialist Report) and as a minimum, the listed legislation below must be	Hydrocarbon Management Plan Waste management plan	Contractor(s) Site Manager (s) ECO	

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					consulted and incorporated in the HCWMS, and they include: (National Environmental Management: Waste Act (Act No.59 of 2008) (NEM: WA); • The National Norms and Standard for the Storage of Waste (GNR.926 of 2013); Proposed National Health Care Risk Waste Management Regulations (GNR.463 of 2018); and • Regulations Relating to Health Care Waste Management in Health Establishments (GNR.375 of 2014)); • The waste stored on-site during the construction phase should not exceed 90			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					days, while during the operation phase the management and on-site storage of HCRW should follow the Proposed National HCRW Management Regulations (GNR.463 of 2018) (refer to Table 4-3 of the Specialist Report); • Before safe disposal, all hazardous wastes must be temporarily stored at the temporary hazardous waste storage facility. This facility should be designed to include secondary containment lined and covered to protect the contents from the weather (sunlight and rain). If wastes are corrosive, the base of the			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					storage facility should be lined with an acid-resistant coating; • Where possible, empty containers for hazardous chemicals should be returned to suppliers. Where empty containers for hazardous chemicals (hydrocarbons, pesticides, laboratory chemicals, degreasing agents etc.) cannot be returned to the suppliers, they must be triple rinsed, punctured and stored in a secure area until they can be disposed of safely. Rinse water may not be discharged directly to the environment; • As a rule, all chemical containers including used pesticide containers	ECO inspection reports Hydrocarbon Management Plan Waste management plan		

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					should be considered hazardous waste and disposed of accordingly as hazardous waste; • As per the FOA (2008) guidelines, the burning of empty pesticide containers must be strongly discouraged. Specific guidance on the management of empty pesticide containers is provided by the FAO (2008).			
					• A hydrocarbon (including other chemicals) management Operating Procedure must be designed and implemented. Copies of this document should be made available at designated facilities where hydrocarbons		Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part of construction and operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					are stored, dispensed, and used. The purpose of this procedure is to provide for the proper storage and handling of hydrocarbons, including waste hydrocarbons, on-site and hence prevent any form of contamination; • It is recommended that soil contaminated with hydrocarbon must be immediately removed and disposed of at a soil bioremediation facility on-site or else disposed of as hazardous waste; • MSDS for all chemicals must be readily available on site and the precautions stipulated in these must be always			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					adhered to. All staff must be trained on the correct management of bunded facilities, including the discharge of collected liquids; • Spill kits must be readily available at strategic points throughout the site and staff must be trained on the correct use of these kits; • Hazardous wastes must not be disposed of into drains as this may impact negatively on the performance of downstream WWTW; • Radioactive waste such as glassware, syringes, solutions, excreta from treated patients etc., should be stored in lead			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					containers to limit dispersion and the container labelled with the radioactive symbol; • During construction and operation, all HCRW must be stored temporarily on-site and removed from the site by a licensed hazardous waste service provider for treatment and disposal at a licensed treatment facility; • All HCRW should be managed following the management procedure described in Annex 3 of the ICRC Medical Waste Management (2011) and following the Proposed National Health Care Risk Waste Management Regulations			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					(GNR.463 of 2018). Where there is a difference between these two sources of guidance, the most stringent should be applied; and • Should disposal onto land be the only option, the hazardous waste should be encapsulated and disposed of at a registered landfill site that has been designed to accept and effectively contain hazardous waste of this type in terms of National Norms and Standards for Assessment of Waste for Landfill Disposal (GNR.635 of 2013) and National Norms and Standards for Disposal of Waste to			

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					Landfill (GNR.636 of 2013).			
			Contamination of soil and water with sewage	Construction and Operational	• Sewage collection and disposal should be maintained by a licensed hazardous waste service provider. Ablution facilities should be emptied of their contents regularly and the facility maintained to prevent the attraction of pests; • The use of Chemical toilets should be discouraged unless the contents can be disposed of in a manner that does not pose a threat to the environment; • The performance of the ablution facility must be monitored regularly. Where a system is found to be	ECO inspection reports Hydrocarbon Management Plan Waste management plan	Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part of construction and operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					performing poorly, the cause of the poor performance must be investigated timeously, and remediation measures put in place to restore performance; • If sludge must be removed from the system(s), it must be disposed of in a manner that minimises potential risk to human health and the environment and should comply with the National legislation; and • The environmental monitoring programme for the HCF must incorporate monitoring points that can detect a negative impact on the environment	ECO inspection reports Hydrocarbon Management Plan Wastewater management plan		

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					associated with the discharge of sewage.			
					• The HCF should ensure that wastewater characteristics follow all applicable permits and that the receiving WWTW can handle the type and volume of effluent discharged; • Oil and grease containing effluents from canteens must be pre-treated using a grease trap before discharge into sewage treatment facilities; and • The environmental monitoring programme for the HCF must incorporate monitoring points that can detect a negative impact on		Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					the environment associated with the discharge of sewage.			
			Increase in the quantity of sanitary wastewater requiring treatment at the designated Riverview WWTW	Construction and Operational	• It is imperative to ensure that the treatment capacity of the Riverview WWTW is adequately upgraded as planned by the ELM to ensure that the additional sanitary wastewater contributed by the proposed development and the increased throughput emanating from the local community are catered for; and • An adequate budgetary allocation should be made available for maintenance and operational faults at	ECO inspection reports Wastewater management plan	Project Engineer Contractor(s) Site Manager (s) ECO	Ongoing as part of operational phase

Activity No.	Activity Description	Aspect	Impact	Phase	Mitigation Measures	Monitoring Target	Responsibility	Monitoring Timeframe
					the Riverview WWTW.			

6. MONITORING OF IMPACT MANAGEMENT ACTIONS

New Witbank (eMalahleni) Tertiary Hospital will develop monitoring programmes for air quality, hydrological, waste and wastewater, noise. The specialists have provided New Witbank (eMalahleni) Tertiary Hospital with the recommended points for monitoring.

Additional measures have been suggested by the specialists and these are discussed below:

The following requirements would be the minimum for the HSE program:

- HSE induction training including the emergency response and preparedness procedure of contractors, sub-contractors, consultants and any person appointed to work on the project.
- Accident reporting procedures for notification to the Employer and thereafter appropriate agencies.
- Thorough investigation and documentation of all accidents to ascertain the cause and future methods of preventing recurrence.
- Mandatory first aid instruction for all staff members.
- Regularly scheduled safety meetings.
- Fire prevention and fire-fighting instruction.
- Routine inspection and testing procedure for all safety and emergency equipment and protective devices, and routine walk-through inspections conducted by the Operator through all areas to identify and correct potential unsafe conditions.
- Posting of safety bulletins and posters required by regulatory agencies and other materials concerning accident prevention and hazardous conditions.
- The Applicant shall abide by all local, provincial and national safety requirements.
- The Applicant shall provide for a first aid station and emergency medical response for injured staff.
- The Operator will ensure that all equipment is maintained in a safe operating condition.

6.1 Air Quality

6.1.1 (High Pollution Adversay) HPA Air Quality Management Plan (AQMP)

The HPA was declared a priority area by the Minister of Environmental Affairs and Tourism on 23 November 2007 under the National Environmental Management Air Quality Act (Act No. 39 of

2004) (NEM: AQA) (Government Gazette, No. 30518 of 23 November 2007). A Priority Area is usually associated with elevated ambient concentrations of criteria air pollutants such as PM10, PM2.5, SO_2, and NO_x. Generally, a high number of emitters (industrial and non-industrial) are also concentrated in these areas. To meet the requirements of the NEM: AQA, an AQMP was compiled for the PA and provides a management tool that can be used and implemented by departments and industry to ensure effective air quality management within the area. The primary aim of the AQMP is to provide a framework including short to long-term strategies and programs that can be used to work towards achieving and maintaining compliance with the National Ambient Air Quality Standards within the HPA. In the HPA, industrial emitters were identified as the most significant contributor of emissions accounting for 89% of PM10, 90% of NOx, and 99% of SO2.

Industrial emitters within the HPA include (DEA, 2011):

- Power generation.
- Coal mining.
- Primary & secondary metallurgical operations.
- Brick manufacturers.
- Petrochemical industry.
- Ekurhuleni industrial sources (excluding the above); and
- Mpumalanga industrial sources (excluding the above).

An assessment of ambient air quality monitoring data within the HPA allowed the following areas to be identified as areas of concern. These areas are associated with high-frequency exceedances of the PM10 and SO2 ambient standards. The air quality monitoring data for the HPA also show seasonal trends. A higher frequency of exceedances of the standards is observed during the winter season. The dispersion potential of ground-level pollutants (e.g., vehicle exhaust emissions) is largely reduced due to the strengthening of surface inversions (DEA, 2011).

6.1.2 Dust fallout monitoring

- Dust fallout monitoring must be conducted during construction to confirm model predictions.
- Monthly site inspections by environmental personnel must be conducted to provide an indication of the effectiveness of the dust control measures during construction.
- As per the National Emission Reporting Regulations (GN283 of 2015) requirements, the applicant must register as a data provider with and submit emission reports, in the format required, to the online National Atmospheric Emissions Inventory System (NAEIS). Reports

must be submitted for the preceding calendar year to the NAEIS by March 31st for each calendar year.

- As per the National Dust Control Regulations (GNR827 of 2013), any person who has exceeded the dust fallout limit must develop and submit a dust management plan to a dust fallout monitoring report within three months of submission of a dust fallout monitoring report the air quality officer for approval. The dust management plan must be implemented within a month of the air quality officer's date of approval.

The sites selected for the dust fallout monitoring programme are the most appropriate localities to provide a reliable and representative indication of air quality impacts associated with the proposed project, as per the atmospheric dispersion modelling outcomes as well as the existing dust fall out monitoring programmes.

Table 4: Proposed additional monitoring Stations

Receptor ID	Latitude	Longitude
Dust Station 1	-25.892823°	29.255190°
Dust Station 2	-25.891506°	29.253807°
Dust Station 3	-25.887286°	29.256493°

7. ENVIRONMENTAL AWARENESS PLAN

7.1 Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.

- **Environmental Induction Training**

The purpose of the induction training is to promote a general awareness of the sensitivity of the environment, the legal commitments, and the aspirations of New Witbank (eMalahleni) Tertiary Hospital in terms of environmental management and the environmental consequences of individual actions.

Induction is applicable to all employees, contractors and service providers that will be working within the mine.

- **Environmental Induction for Employees and Service Providers/Visitors**

The induction training for employees, contractors and service providers and on-site visitors is to take the form of a site information conditions which will include:

- A description of environmental sensitivities in the study area environment.
- A description of environmental legal requirements and Seriti's commitment to comply with these requirements.
- A description of broad-based objectives of environmental management for this project.
- A discussion of how individual actions can impact on the environment.
- A discussion of how individual actions can assist in the successful implementation of the environmental authorisation and the EMPr.
- Other relevant generic environmental and corporate requirements.

All employees are to sign that they have understood and will comply with Seriti's training and other applicable requirements.

Requirements

- Environmental induction material (posters, power point presentations etc.)

- Code of Conduct;
- Register of inducted employees, service providers and contractors.

- **Environmental Awareness Programme**

The purpose of the general environmental awareness programme is to promote ongoing environmental awareness amongst the workforce. All members of the project workforce and contractors are to be incorporated into the general environmental awareness programme.

Monthly Environmental Topics

A monthly environmental awareness topic is to be chosen based on the outcomes of internal audits as well as topics of general environmental interest. The topic is to be communicated to the workforce through:

- Discussions at all HSE meetings.
- Posters on notice boards.

Monthly environmental topics could include:

- General and environmental topics;
- Reporting environmental incidents;
- Environmental impacts associated with water, waste, soil, groundwater, fauna, flora, etc
- Environmental emergency training;
- Preventing and cleaning up spills;
- Reduce, reuse and recycle;
- General versus hazardous waste;
- Alien vegetation control;
- Saving water; and
- Saving energy

Requirements

- Environmental topics to be included on the agenda of relevant environmental related meetings.
- Environmental awareness material to be produced and posted.

7.2 Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.

- **Specific Environmental Awareness Training**

The purpose of the job specific environmental awareness training is to ensure that employees within the specific management units are equipped to implement the actions committed to in the environmental authorisation and the EMPr. All members of the workforce are to be subject to job specific environmental training. This training is to undertaken by the managers of each of the management units. Supervisors will be trained to assist with the implementation and training of the work force.

- **Environmental Risk Identification**

The environmental risks associated with each management area are to be identified by the by the site personnel. The risks are to be documented and actions to reduce these risks should be developed. The actions are to ensure overall compliance with the commitments of the environmental authorisation and the EMPr. The findings of the performance assessment audits and EMPr compliance monitoring will also assist in identifying risks.

- **Training**

All members of the workforce (mining, plant workers, administration etc.) are to be subject to job specific training. This may include but not be limited to:

  - Preventing pollution
  - Spill prevention and clean-up procedures
  - The location and purpose of material safety data sheets (MSDSs)
  - Managing waste
  - No-go areas
  - Incident reporting

The aspects to be covered however are dependent on the findings of the individual risk assessments. This is to be undertaken for each management area initially. Thereafter all new

members of the workforce are to undergo environmental training as part of the training required to do their particular job.

Corrective Action

- Any actions undertaken by a worker that pose a risk to the environment are to be stopped immediately.
- The worker is to be instructed in how to correct the action.

Non-compliance is to be incorporated into the standard disciplinary procedure applicable to the project.

Requirements

- Risk assessment and action plan for each of the project areas.
- Training of the workforce within each management area.
- Training of new members of the workforce.
- Records of appropriate training conducted.

7.3 Emergency management.

Safety and emergency procedures, risk management and training

- The application of all occupational health and safety regulations must be ensured. This includes the distribution and use of protective clothing and equipment to at least include safety shoes, overalls, gloves, dust masks, and where appropriate ear muffs and eye/face protection shields.
- Handout and use of safety and protective equipment must be recorded. Staff who fails to use the protective equipment provided by site staff must not be allowed to work at the facility.
- Emergency procedures for fire, adverse conditions due to inclement weather, spillages, stoppage of operations due to refusal to work by employees, etc. must be included in the emergency procedures.
- All relevant fire-fighting equipment should be kept on site.
- Staff working on site shall be trained in all relevant aspects of the Occupational Health and Safety Act No. 86 of 1993 and relevant regulations promulgated under this act.

- The Site Manager shall be assigned as the Safety Coordinator for the facility and the Site Manager shall assign a person as deputy to act when appropriate.

8. DECLARATION OF INDEPENDENCE

I, **Mandla Ralph Repinga**, declare that –

- I am contracted as the Environmental Assessment Practitioner New Witbank (eMalahleni) Tertiary Hospital Project.
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant.
- I declare that there are no circumstances that may compromise my objectivity in performing such work.
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the National Environmental Management Act (Act 107 of 1998), Environmental Impact Assessment Regulations 2014 as amended, and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations, and all other applicable legislation.
- I will consider, to the extent possible, the matters listed in Regulation 8.
- I have no, and will not engage in, conflicting interests in the undertaking of the activity.
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing – any decision to be taken with respect to the application by the competent authority; and – the objectivity of any report, plan, or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realize that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.

MR Repinga (Pr.Sci.Nat.)