

ENVIRONMENTAL MANAGEMENT PROGRAMME

**FOR THE PROPOSED DEVELOPMENT OF HOTEL
SEBATA, RESTAURANT, CONFERENCE AND
WEDDING FACILITIES, HEALTH SPA AND
RECREATIONAL FACILITIES ON PORTION 48 (A
PORTION OF PORTION 39) OF THE FARM 272 JQ,
RIETVLY, RUSTENBURG LOCAL MUNICIPALITY,
NORTH WEST PROVINCE
NWP/EIA/24/2012**

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List of Acronyms:

DEDECT	Department of Economic Development, Environment, Conservation and Tourism
EMPr	Environmental Management Programme
ECO	Environmental Control Officer

1. INTRODUCTION

The following Environmental Management Programme (EMPr) was compiled to mitigate against any negative impacts that might occur during the construction and operational phases of the proposed development of Hotel Sebata, Restaurant, Conference and Wedding Facilities, Health Spa and Recreational Facilities on Portion 48 (A Portion of Portion 39) of the Farm 271 JQ, Rietvly, Rustenburg Local Municipality, North West Province. The impacts associated with this project are listed in the accompanying Basic Assessment Report.

The impacts on the environment can only be prevented or minimised through the dedicated implementation of the EMPr by Sebata Group, the project proponent and the appointed Contractor. An Environmental Control Officer (ECO) is to be appointed to ensure compliance with the EMPr and authorization conditions stipulated by the Department of Economic Development, Environment, Conservation and Tourism.

2. ENVIRONMENTAL ASSESSMENT PRACTITIONER

Nemai Consulting was appointed by Sebata Group as the independent Environmental Assessment Practitioner (EAP) to undertake the relevant environmental protocols to ensure that the proposed project complies with the following legislation:

- National Environmental Management Act (Act 107 of 1998) (NEMA);
- National Water Act (Act 36, 1998) (NWA);
- National Heritage Resources Act (Act 25 of 1999); and
- Occupational Health and Safety Act (Act 85 of 1993).

The member of Nemai Consulting that was involved with compiling the EMPr is tabulated below.

Table 1: Person involved with compiling the EMPr

NAME	QUALIFICATIONS	EXPERIENCE
Mrs. R. Le Roux	B Soc.Sc. Hons (Environmental Management)	<ul style="list-style-type: none"> • 7 years experience. Acted as the ECO on various projects; selected projects including: • Environmental Control Officer (ECO) for the Mooi Mngeni Transfer Scheme Phase 2: Spring Grove Dam, KwaZulu Natal. • Environmental Control Officer for the Reconstruction of Berth 5, Island View, Port of Durban, KwaZulu Natal. • Environmental Control Officer for the proposed upgrade

NAME	QUALIFICATIONS	EXPERIENCE
		<p>of Maydon Wharf Berth 12, Port of Durban, KwaZulu Natal.</p> <ul style="list-style-type: none"> • Environmental Control Officer for the Extension of Berth 10, Island View, Port of Durban, KwaZulu Natal. • Environmental Control Officer for an additional Railway Line, Port of Richards Bay, KwaZulu Natal. • Environmental Control Officer for the Umhlanga Ridgeside Mixed Use Development, KwaZulu Natal. • Environmental Control Officer for the Geotechnical Investigations for the 600 and 700 Series Terminal, Port of Richards Bay. • Prepared EMPs on various projects; selected projects including: <ul style="list-style-type: none"> • EIA for the proposed Low Cost Housing at Lawley Station Gauteng Province. • EIA for the proposed Low Cost Housing at Danville (Elandspoort), Pretoria West. • New Filling Station at Ilala Ridge, Durban • New Excell Filling Station, Chatsworth Durban; • Tanks installations at Super Trade Spar, Hlabisa; • Y - Motors Service Station, Umlazi; • Hill Service Station, Durban.

3. OBJECTIVES OF THE EMPR

This Environmental Management Programme provides the management actions required to reduce environmental impacts generated during the construction, operational and decommissioning activities for this proposed project, as well as gives recommendations for the rehabilitation of impacted areas. This report must be read in conjunction with the Basic Assessment Report compiled for Environmental Authorization.

The primary objectives of the EMPr are to:

- Describe actions that when implemented will achieve mitigation of environmental impacts, or result in improved management of activities thereby reducing the probability of impacts occurring;
- Define organisational and administrative arrangements for environmental management and monitoring of the work contract, including defining the responsibilities of staff and co-ordination, liaison and reporting procedures;
- Define procedures for environmental control, in the event of pollution (spillage) or similar events requiring action;
- Preserve the topsoil, flora and fauna within the study area to be affected;

- Ensure management and control of invasive plants in the construction footprint; and
- Rehabilitation to be undertaken upon project completion.

4. PROJECT DESCRIPTION

Sebata Group has appointed Nemai Consulting to undertake the environmental investigation for the proposed development of Hotel Sebata, Restaurant, Conference and Wedding Facilities, Health Spa and Recreational Facilities on Portion 48 (A Portion of Portion 39) of the Farm 271 JQ, Rietvly, Rustenburg Local Municipality, North West Province.

The proposed development entails the construction of a seven storey hotel with an approximate floor space of 11 350m², a restaurant of approximate floor space of 435m², conference centre area with an approximate floor space of 1016m² and a hall and chapel for weddings of approximate floor space of 962m². The total area for development is 8,715 hectares. The proposed Hotel Sebata will feature approximately twenty five rooms and the restaurant will

The main function of the proposed hotel is to provide overnight accommodation for guests and tourists. The hotel will feature approximately twenty five rooms with en-suite bathrooms.

The restaurant will feature approximately one hundred seats and will be used by guests and tourists as well as day visitors attending the conference facilities or the health spa.

The wedding venue will be utilised for private wedding functions. The conference centre will provide conference facilities for business clients visiting Rustenburg and Phokeng for business activities and will constitute the reception area for weddings.

The health spa will be used by both day and overnight guests and visitors. The swimming pool facilities will be available exclusively for overnight guests and visitors and for individuals making use of the spa facilities.

Access to the site is available through the following roads that feature within the Rietvly area:

1. The old Swartruggens Road (P2-3) which runs through the Rietvly area, approximately 1.5kms from the study area; and
2. The Phokeng Road Boshhoek Road located at the eastern boundary of the Rietvly area.

No new roads will be constructed for the proposed development. The existing gravel road will be used to provide access to and exist from the study area.

While the construction phase has no preferred alternative in terms of environmental impact, **Alternative 3** is the preferred alternative in terms of environmental impacts during the operational phase.

Alternative 3 promotes feasible sustainable development focussing on water reuse, landscaping, energy conservation and recycling, without requiring the prohibitive capital investment required for alternative 2.

All mitigation measures provided in this Basic Assessment Report and the Environmental Management Programme (please refer to Appendix G attached) to be adhered to.

All mitigation measures provided in the Flora and Fauna Assessment (please refer to Appendix D attached to the Basic Assessment Report) undertaken by Nemai Consulting in July 2012 to be adhered to.

The Heritage Impact Assessment (please refer to Appendix D attached) undertaken by Nemai Consulting in July 2012 indicates that no archaeological material was found in the study area. The Study also indicates that no historically related material was found in the study area. However if during construction archaeological material is uncovered work should cease immediately and an archaeologist or heritage practitioner must be contacted.

5. LEGAL FRAMEWORK

It must be ensured that all legislation relating to the protection of the environment and prevention of pollution is adhered to. This EMP_r must form part of the contractual obligations of all contractors and sub-contractors engaged in the project. The EMP_r, including a copy of all other environmental approvals must be available on site. The obligations as described by the EMP_r are legally binding in terms of environmental statutory legislation. All employees must therefore be given an induction presentation on environmental awareness and specific requirements of the EMP_r.

Specific legislation that must be complied with includes, but is not necessarily limited to:

- National Environmental Management Act (Act 107 of 1998);

- Environmental Conservation Act (Act 73 of 1989);
- National Water Act (Act 36 of 1998);
- National Environmental Management: Biodiversity Act (Act 10 of 2004);
- National Heritage Resources Act (Act 25 of 1999);
- Hazardous Substances Act (Act 15 of 1973); and
- Occupational Health and Safety Act (Act 85 of 1993).

6. IDENTIFIED IMPACTS

The following impacts have been identified applicable to the construction and operation phases of the project:

CONSTRUCTION PHASE	
Feature	Impact
Job Creation	<ul style="list-style-type: none"> • Employment creation is a positive impact therefore no mitigation measures are required.
Construction Camp	<ul style="list-style-type: none"> • Setting of construction camp. • Improper storage of material.
Surface and Ground Water	<ul style="list-style-type: none"> • Contamination of surface and groundwater during construction activities.
Soil	<ul style="list-style-type: none"> • Soil erosion and contamination due to construction activities such as excavation and compaction. • Soil contamination due to vehicles refuelling.
Vegetation	<ul style="list-style-type: none"> • Impact on vegetation during construction activities.
Fauna	<ul style="list-style-type: none"> • Impact on fauna during construction activities.
Aesthetic Value	<ul style="list-style-type: none"> • Visual impacts associated with construction activities.
Noise	<ul style="list-style-type: none"> • Noise associated with construction activities including construction traffic, equipment installation, electricity generators, etc.
Traffic	<ul style="list-style-type: none"> • Increase traffic volumes and vehicles movement.
Air	<ul style="list-style-type: none"> • Dust from construction activities including transportation of fill and spoil material; etc.
Archaeological Artefacts	<ul style="list-style-type: none"> • Impact on the historical inheritance of the area.
Waste	<ul style="list-style-type: none"> • Land, air and water pollution through poor waste management practices.
Safety	<ul style="list-style-type: none"> • Accidents associated with construction activities. • Criminal activities associated with construction.

OPERATION PHASE	
Feature	Impact
Job Creation	<ul style="list-style-type: none"> • Employment creation is a positive impact therefore no mitigation measures are required.

OPERATION PHASE	
Feature	Impact
Local Economic Development	<ul style="list-style-type: none"> Local economic development is a positive impact therefore no mitigation measures are required.
Increased Tourism Potential of the Area	<ul style="list-style-type: none"> Increased tourism potential is a positive impact therefore no mitigation measures are required.
Increase in Property Value	<ul style="list-style-type: none"> The increase in property value is a positive impact therefore no mitigation measures are required.
Use of Land	<ul style="list-style-type: none"> Making use of the study area which currently is and has been vacant and unutilized is a positive impact therefore no mitigation measures are required.
Surface and Ground Water	<ul style="list-style-type: none"> Contamination of groundwater during maintenance activities.
Soil	<ul style="list-style-type: none"> Contamination of soil during maintenance activities.
Vegetation	<ul style="list-style-type: none"> Impact on vegetation during maintenance activities
Fauna	<ul style="list-style-type: none"> Impact on fauna during maintenance activities.
Aesthetic Value	<ul style="list-style-type: none"> Visual impact associated with a 7-storey hotel complex and associated facilities.
Noise	<ul style="list-style-type: none"> Noise impact during maintenance activities.
Waste	<ul style="list-style-type: none"> Land, air and water pollution through poor waste management practices.

7. SUMMARY OF SPECIALIST STUDIES

A Flora and Fauna Assessment was undertaken by Nemai Consulting in July 2012 to determine the impact of the project on the vegetation and animals in the study.

No Red Data species were recorded during the field assessment as these species require stable and healthy habitats. The Report indicates that no sensitive or endangered fauna were recorded within the study area or are likely to occur on site. Habitat disturbance and degradation together with the development of human settlements resulted in larger mammal species moving away from the area.

The Report indicates that conservation and planning tools were consulted for relevancy for this project, and found that an Important Bird Area (IBA) occurs in the study area. The IBA areas are important habitats for conservation of bird populations. Following literature research the Report indicates that this IBA is known for two breeding colonies of Cape Vulture and large populations of raptors and blue cranes. However due to habitat destruction and fragmentation and due to high levels of human disturbance the natural habitat within the study area has been severely impacted thus limiting the occurrence of suitable habitat for large terrestrial birds and certain

smaller raptor species. The Report indicates that potential nesting sites for raptors were searched for during fieldwork (especially on larger *Eucalyptus* trees) but none were found.

The *Endangered Aloe peglerae* is reported to occur in this area, and as a result this area has been given a Critical Biodiversity Area (CBA) 1 status. These are areas with high irreplaceability or low flexibility in terms of meeting biodiversity pattern targets. However due to habitat fragmentation and habitat loss, the ecosystems and species are not fully intact and are highly disturbed.

The Report provides details on the Red Data plant species recorded within the 2527CA quarter degree square in terms of the 1:50 000 grid of South Africa (please refer to Appendix D attached). The Report recommends that during the construction phase, that detailed searches for the rare/threatened and protected species are made during the appropriate time of year when plants are likely to be visible.

The Report indicates that the proposed development will not have a significant impact on biodiversity conservation within the region. The Report recommends that the larger exotic species that are not included in the Category 1 list of invasive species could also be allowed to remain for aesthetic purposes. However species such as syringe (*Melia azedarach*), *Eucalyptus grandis* and *Eucalyptus camaldulensis* should be removed as these are regarded as being highly invasive under suitable conditions.

The Environmental Management Programme and the Flora and Fauna Assessment provide mitigation measures to minimise the potential impacts associated with the project. All identified impacts as a result of the proposed development can be minimised and adequately managed through the implementation of mitigation measures. The adequate implementation of the proposed mitigation measures will result in a minimal impact on the environment (i.e. sensitive habitats such as wetlands to be protected through the creation of appropriate buffer zones).

A Heritage Impact Assessment was undertaken by Nemai Consulting in July 2012.

The Heritage Impact Assessment (please refer to Appendix D attached) undertaken by Nemai Consulting in July 2012 indicates that no archaeological material was found in the study area. The Study also indicates that no historically related material was found in the study area. However if during construction archaeological material is uncovered work should cease immediately and an archaeologist or heritage practitioner must be contacted.

8. ROLES AND RESPONSIBILITIES

The appointed contractor (and all his appointed sub-contractors) to ensure that management measures provided in this EMPr and conditions set in the relevant authorization are implemented and adhered to.

The project ECO will be required to compile a monthly Environmental Compliance Audit Report that will be distributed to the project role players (project manager and the contractor/s).

The ECO will be responsible for the following:

- Compile the environmental compliance checklist according to the Environmental Authorization and the EMPr;
- Undertake monthly inspections and detailed environmental audit reports of all Contractor/s and work areas;
- Monitor the Contractors compliance with the Environmental Authorization and the EMPr on site;
- Maintain documentation related to environmental management of the project;
- Inspect and report on all environmental incidents and advise on and check on corrective action;
- Maintain photographic records of all environmental incidents;
- Undertake environmental awareness training for the project team on site;
- To facilitate communication between I&APs, authorities and the Contractor/s;
- Provide environmental solutions and guidelines to the daily environmental problems;
- To ensure that activities on site comply with legislation of relevance to the environment; and
- To address non-conformances as part of the minutes of progress meetings and to recommend issuing penalties for contraventions of the EMPr;
- Review and sign off Environmental Method Statements prepared by the Contractor; and
- Audit of Environmental Method Statements.

9. REPORTING

a. Lines of Communication (Reporting)

Open and clear lines of communication to be established and maintained between the Contractor and any further parties to be appointed for the project (e.g. Independent ECO, Consulting Engineers, etc.).

b. Compliance Monitoring

Contractor to ensure that management on site is familiar with the requirements of the EMPr and conditions stipulated in the environmental authorization and Directives issued for the project. Therefore the Contractor should implement a management system reviewing compliance to these.

c. Authorities Communication

Only the appointed Independent ECO to liaise with the authorities, except if the Contractor has to report Occupational Health and Safety incidents/ accidents to the Department of Labour.

Monitoring reports to be sent by the appointed Independent ECO to the relevant authorities as per specific requirements set in the project's environmental authorization and Directives issued.

- **Major incident reporting**

Contractor to conduct incident investigation immediately after occurrence. If incident is identified as a major incident, the Contractor to inform the Engineer without delays.

Contractor to ensure all his employees are made aware of the relevant incident reporting procedures.

- **Legal non-compliance**

Any legal non-compliance which may have a significant detrimental impact on the environment to be reported by the Resident Engineer to the relevant authority within 24 hours, unless otherwise stipulated.

- **Non-compliance with conditions**

Any legal non-compliances which may have a significant detrimental impact on the environment with conditions stipulated in any Authorization/ Permit, to be reported by the Resident Engineer to the relevant authority within 24 hours, unless otherwise stipulated.

10. ENVIRONMENTAL AWARENESS AND TRAINING

Management Objective:

Improved environmental awareness and management of the site and surroundings.

Actions:

- ECO to induct the Contractor, Site Agent, Construction Supervisor and Safety Officer on the conditions and requirements of the Environmental Authorization/ Permits and

directives and to verify that the Contractor's employees have undergone induction on these measures;

- The Contractor to arrange (via a site induction) that all his employees and those of his sub contractors are informed of the findings of the Basic Assessment Report and the requirements of the EMPr before the commencement of construction to the satisfaction of the Engineer in order that these employees:
 - Employees must acquire a basic understanding of the key environmental features of the work site and the environment.
 - Employees are to be made aware of any other environmental matters, such as pollution, protection of fauna and flora, ablution facilities, hazardous waste, and any other matter raised in the EMPr.
- Proof of induction of all staff and sub-contractors to be kept in file on site.

11. PENALTIES AND CORRECTIVE MEASURES

The developer will impose penalties upon the Contractor if found not compliant to the relevant requirements. Penalties will be issued per non-compliance as and when deemed appropriate by the developer.

12. PROJECT LIFECYCLE

During its lifecycle, projects journey through four distinctive phases, as presented in **Figure 1** below.

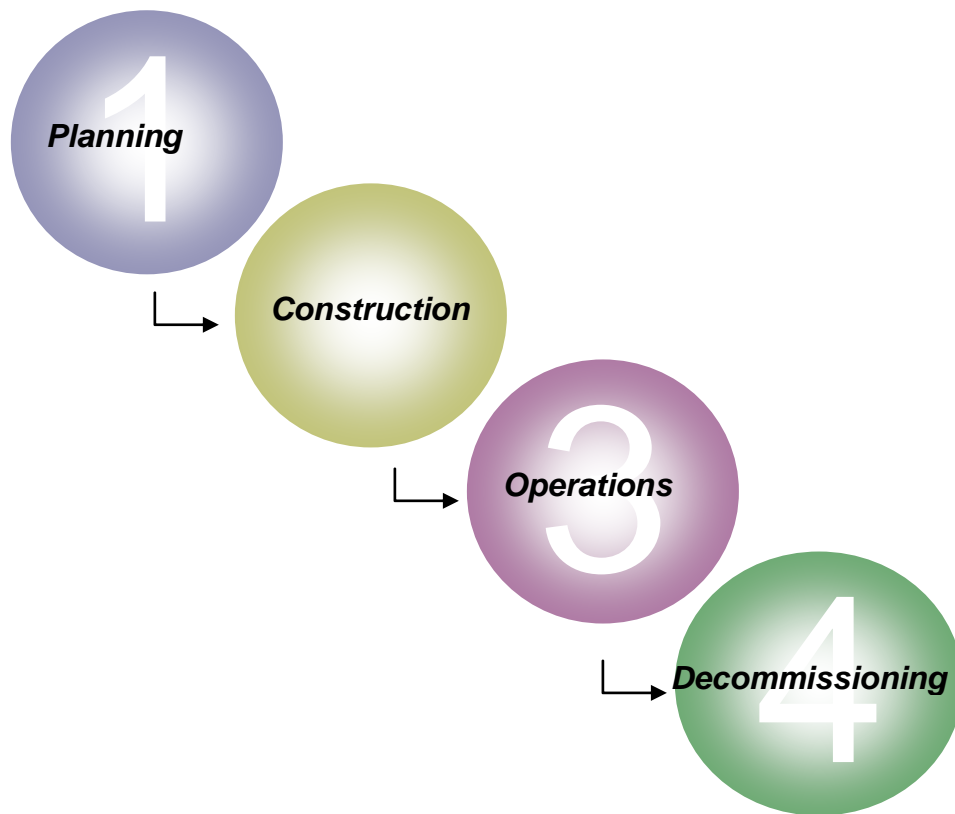


Figure 1: Four Phases of a Project Lifecycle

Due to this project incorporating the re-alignment, reconstruction and rehabilitation of the Newcastle Bypass Start (km 52.30) to Newcastle Bypass End (km 6.10), its life cycle is characterised by the following phases:

- Planning;
- Construction Phase;
- Operational Phase and
- Decommissioning (not applicable for this project).

13. IMPACT MANAGEMENT

The framework for the subsequent management measures consists of the following:

- Management objectives – i.e. desired outcome of management measures for mitigating negative impacts and enhancing the positive impacts related to project activities and aspects; and
- Management actions – i.e. practical actions aimed at achieving management objectives and targets.

13.1. Planning / Preconstruction Phase

General requirements during the planning pre-construction phase have been identified and listed the following:

- Design to consider and incorporate environmental requirements.
- Define and communicate roles and responsibilities for the implementation of the EMPr.
- Conduct appropriate environmental baseline studies.
- All test pits created as part of geotechnical investigations are to be filled and rehabilitated.
- Determining and documenting the road conditions for all identified haul roads.
- Develop and implement an environmental awareness programme.
- The appointment of an Environmental Control Officer (ECO).
- During site preparation special care must be taken during the clearing of the works area where organic material must be stored separately from the topsoil and spoil material. Further, the topsoil must also be stored separately from the spoil material to ensure for the protection thereof and that it can be reused during the rehabilitation phase.
- A suitable position for the construction camp to be selected, in consultation with the ECO. This position must be outside the riparian area and flood line.
- Prior to establishment of the site camp, the Contractor shall compile and provide a plan showing the positions of all buildings, lay down yards, batch plants, vehicle wash areas, vehicle repair area, batching areas and infrastructure for approval by the Resident Engineer.

13.2. Construction Phase

13.2.1. Job Creation

Management Objective:

Provide job opportunities at a local level.

Actions:

- Local suppliers to be used for the provision of construction materials and supplies, as far as possible.
- Local labour to be employed as far as is practical.
- Local suppliers to be used as far as possible.
- The labourers to be trained in construction activities.

13.2.2. Construction Camp

Management Objective:

To limit the extent and severity of any environmental impacts, especially any detrimental impact on the riparian area that may result from the establishment of the site.

Actions:

- The site may not be established on a steep slope or within close proximity of watercourses.
- The extent of the site should by all means be limited, to avoid any additional clearance of vegetation.
- Contractor should take into consideration when identifying a possible site location the regulated area (1:100 floodline). Site camp not to be established within this regulated area.
- The Contractor shall establish the construction site in consultation with the Environmental Control Officer and the Resident Engineer.
- The Contractor shall draw-up a plan of all parts of the construction site showing the layout of site establishment, topsoil stockpiles, storage areas, planned access and circulation routes etc. The plan shall be submitted to the Environmental Control Officer and Engineer for comment and approval.
- The Contractor will include environmental hazards and impacts into the safety file for inclusion into the contractor's mitigation measures.
- The Contractor will make all staff and people under their control aware of environmental requirements on site. All to sign an induction register for being informed and held accountable for any transgressions.
- The Contractor will document awareness sessions with their staff and staff are to sign acknowledgement of these issues.
- In the event of an archaeological site being uncovered during excavations all work will be halted in terms of the Heritage Act until permission to continue is provided by the heritage authority.
- The Contractor shall ensure that the Contractors camp and working areas are kept clean and tidy at all times. The Resident Engineer or/and the Environmental Control Officer shall inspect these areas on a regular basis.
- Routes for temporary access and haul roads shall be located within the approved demarcated areas and vehicle movement shall be confined to these roads. Movement of vehicles outside the designated working areas shall not be permitted without authorization from the Resident Engineer.

- All construction activities shall be restricted to working areas designated on the drawings and/or demarcated and approved by the Resident Engineer. Materials including spoil shall be stockpiled at designated sites.
- Burning of vegetation on site is prohibited.
- The Contractor shall ensure that the risk of fire at any location on the site is kept to a minimum.
- The Contractor shall supply fire fighting equipment in proportion to the fire risk presented by the type of construction and other on-site activities and materials used on site. This equipment shall be kept in good operating order.
- The Contractor to have emergency spill kits available on site at all times should there be a spillage of a hazardous substance.
- No smoking allowed on the site. The Contractor is to provide designated safe smoking areas.
- The location of fuel storage sites, vehicle, machinery and equipment maintenance and refuelling sites must be located at least 100 m from water bodies, and must be outside the Regulated Area (1:100 flood line).
- Cement mixing will occur in a designated area on an impervious layer (e.g. plastic or cement mixing pit). The runoff water will be contained for re-use in cement mixing or disposed of to the waste water system. Contaminated water will not be dispersed to the environment.
- Unused cement bags will be stored in an area not exposed to the weather and packed neatly to prevent hardening or leakage.
- All spillages from any chemical must be reported to the Environmental Control Officer.
- All hazardous substances on site to be handled/ utilised by competent employees/ personnel.
- Chemicals and hazardous materials to be stored in demarcated, adequately bunded areas enclosed in accordance with the OHS Act.
- The bund wall to allow for 110% for the volume of storage containers.
- The bund area to be impervious to prevent infiltration of spillages or leaks into the soil.
- Any storage tanks containing hazardous materials must be placed in a ventilated bundwall area.
- Vehicles to be refueled within the demarcated refueling area. No re-fuelling to be undertaken near water bodies or drainage channels.
- Washing to be undertaken in the maintenance area with suitable wastewater collection measures.
- Drip trays to be used during servicing of equipment to prevent leaks and spillages.

- Drip trays to be provided for stationary or parked equipment and machinery to prevent leaks and spillages.
- Where vehicles/machinery are leaking oil/fuel drip trays must be used to contain the spill. All vehicles and machinery must be repaired as soon as possible.
- All accidental spillages to be cleaned up immediately.
- Chemicals collected in drip trays to be disposed of at a registered disposal site and certificates of safe disposal to be kept on site.
- All flammable and hazardous substances storage must comply with legislation and by-laws. Material Safety Data Sheets for all hazardous and chemical substances used to be available on site.
- The Contractor will immediately notify the Resident Engineer and the ECO of any pollution incidents.
- Waste should be restricted to storage in specifically designated areas and removed daily.
- Dust abatement on the roads to be carried out as and when required.
- Good housekeeping practices to be followed.

13.2.3. Environmental Awareness of Employees

Management Objective:

Improved environmental awareness and management on the site.

Actions:

- The Contractor shall arrange (via a site induction) that all his employees and those of his sub contractors be informed of the findings of the Basic Assessment Report and the requirements of the EMPr before the commencement of construction to the satisfaction of the Engineer in order that these employees:
 - Employees must acquire a basic understanding of the key environmental features of the work site and environment.
 - Employees are to be made aware of any other environmental matters, such as pollution, protection of fauna and flora, ablution facilities, hazardous waste, and any other matter raised in the EMPr.
- Proof of induction of all staff and sub-contractors will be required to be kept on file.

13.2.4. Ablution Facilities

Management Objective:

All employees on construction site to have adequate access to ablution facilities.

Actions:

Contractor to ensure adequate number of ablution facilities are available along the construction working area. Such facilities also to be available at the site camp/s.

- All staff to use the provided toilets at all times.
- Ablutions are to be cleaned/ emptied on a regular basis, before they are full and contaminate the environment.
- The provision of toilets for each sex is required in terms of the National Building Regulations and Construction Regulation 28.
- At least 1 toilet facility available per 15 workers.

13.2.5. Batching Plant**Management Objective:**

Ensure that the batching plant does not negatively affect the site and immediate environment.

Actions:

- The position of the batching plant is to be located outside the riparian area and not within the 1:100 year flood line.
- The Contractor is to ensure that when the batching plant is washed, that residue and wastewater does not pollute the soil or any surrounding area.
- The base and footings of the batching plant are to be removed from the site immediately after completion of the project.
- The removal of the base and footings is not to allow for the delay of the rehabilitation plan.

13.2.6. Surface and Groundwater**Management Objective:**

To prevent surface and groundwater pollution.

Ensure that the water quality of the watercourses are not altered as a result of construction related activities.

Actions:

- Fuelling equipment to be regularly inspected and any leaks to be immediately repaired.
- To manage the handling, use and storage of hazardous substances (e.g. fuel and oil).
- Hazardous substances to be stored safely and in secondary containers within a bunded area and personal protective equipment to be used when handling these substances.
- All staff to be aware of emergency procedure in case of spillages.
- Vehicles and machinery to be in good working order to avoid oil and fuel leaks.

- Drip trays to be provided for stationary plant (such as compressors, pumps, generators) and for parked equipment.
- Drip trays to be used during servicing of equipment.
- Vehicles to be serviced only in the designated area.
- Pollutants (e.g. cement, concrete, fuels) to be prevented from entering any watercourse.
- All hazardous materials to be stored in appropriate containers on site and disposed of at a licensed disposal facility.
- Monitor all activities within the regulated area of the watercourse for pollution preventative measures.
- Institute adequate remedial measures for any pollution incidents. Polluted area to be restored to pre-existing condition.
- No fuel storage or refuelling of vehicles or equipment will be allowed within 50m of the watercourse/ or within the regulated area, whichever is the greatest.
- Contaminated water may not be disposed of in watercourses.
- Watercourse may not be used for the purposes of bathing, washing of clothing or vehicles.
- The Contractor shall not in any way modify nor damage the banks or bed of streams, rivers, wetlands, other open water bodies and drainage lines adjacent to or within the designated area.
- Prohibit the increase of sediment load within watercourses that may result from construction activities.

13.2.7. Soil

Management Objective:

- Minimise disturbance and loss of topsoil on site.
- Minimise scarring of the soil surface.
- Reduce soil loss.

Actions:

- Adequate sedimentation control measures to be implemented in areas susceptible to erosion.
- Appropriate measures to be implemented to avoid spillages during refuelling (i.e. use of drip trays).
- Topsoil on site must be saved and stored. It is imperative that this soil be collected and stored to ensure that valuable seeds in the soil are not lost to the process of eventual rehabilitation of the site.

- The top layer of soil to be removed and stockpiled in a designated area and to be later reused in rehabilitation.
- No topsoil, which has been stripped, shall be buried or in any other way be rendered unsuitable for further use.
- Topsoil shall be stripped when it is in a dry condition in order to prevent compaction.
- Stripped topsoil shall be stockpiled on sites adjacent to where it has been stripped which have been approved by the Resident Engineer.
- Soil stockpiles shall not take the form of windrows, unless this can be placed far enough away from the working area. This is to prevent the soil from being spread out or mixed with the other spoil during construction.
- Topsoil stripped from different sites shall be stockpiled separately and clearly identified as such. Topsoil obtained from different soil types shall not be mixed.
- Soil stockpiles shall not be higher than 1,5m.
- No vehicles shall be allowed access onto the stockpiles after they have been placed. Topsoil stockpiles shall be clearly demarcated in order to prevent vehicle access and later identification as the resource for rehabilitation and vegetation establishment.
- Soil stockpiles shall not be allowed to become contaminated with oil, diesel, petrol, waste or any other matter which may inhibit the later growth of vegetation in the soil.
- Management, handling, use and storage of hazardous substances (i.e. fuel and oil). Hazardous substances to be stored safely and in secondary containers within a bunded area and personal protective equipment to be used when handling these substances.
- All staff to be aware of emergency procedure in case of spillages.
- Vehicles and machinery to be in good working order to avoid oil and fuel leaks.
- Drip trays to be provided for stationary plant (such as compressors, pumps, generators) and for parked equipment.
- Drip trays to be used during servicing of equipment.
- Vehicles to be serviced only in the designated area.
- Topsoil placement shall be done concurrent with construction as soon as construction in an area has ceased.
- No vehicles shall be allowed access onto topsoil after it has been placed.
- After topsoil placement is complete, cleared and stockpiled vegetative matter shall be spread randomly by hand over the topsoiled area as instructed by Resident Engineer.
- Minimise erosion during or after the construction.
- Rehabilitate all areas disturbed during construction.

- The Contractor shall take measures to the approval of the Resident Engineer to ensure that there is no undue stormwater damage and soil erosion resulting from the construction activities outside the construction camp and works areas.
- During construction, water diversion soil berms should be constructed to divert surface and stormwater from transversing the disturbed areas.
- Cross and side stormwater drainage measures shall be constructed on access and haul roads to the site and roads within the site.
- The Contractor shall ensure that run off from access and haul roads, and that diverted into cross and side drains, does not cause erosion.
- At all stages of the contract, storm water control measures as specified by the Engineer shall be applied to keep soil on site by minimising:
 - erosion of temporary stockpiles of topsoil;
 - erosion from construction roads, excavations and other cleared areas;
 - silt-laden run off from all areas stripped of vegetation, including excavation surfaces and stockpiles of spoil and topsoil;
 - contaminated run off from storage areas; thereby preventing it from entering watercourses.

13.2.8. Vegetation

Management Objective:

- To control and limit the clearance of any vegetation on site. Reduce long term detrimental effects to vegetation on site as well as vegetation adjacent to the site.
- To control invasive and exotic plant species in the construction site.

Actions:

- Access to the site to be adequately controlled.
- The impact on flora to be kept to a minimum.
- The impact on flora to be within the development footprint.
- Permanent marking of natural features such as trees and harvesting of wood or plants from the area is prohibited.
- All personnel to stay within the construction footprint.
- The existing access roads to be used to minimize impact on the environment.
- Removal, damage or disturbance of any plant outside the designated area is not permitted.
- The removal of any plant material from site, including flowers or bulbs is strictly prohibited unless unavoidable and essential for the purposes of construction.
- The removal of plant material for medicinal purposes is prohibited.

- Collection of firewood is prohibited.
- No vegetation matter shall be burnt or removed for firewood.
- The mitigation measures provided in the Flora and Fauna Assessment undertaken by Nemai Consulting in July 2012 to be implemented.
- Rehabilitation after construction must occur.
- Only indigenous species should be used for the rehabilitation and stabilisation of the sites.

13.2.9. Fauna

Management Objective:

To minimize disturbance to fauna on site.

Actions:

- No fishing is allowed.
- No bird nesting sites are to be disturbed.
- No trapping, poaching or killing of animals is allowed.
- All incidents regarding disturbance of animals to be recorded.
- Employees to be encouraged not to disturb fauna on site and to report the presence of fauna so it can be safely removed.
- Work to be restricted to 07h00 - 18h00 to minimise interactions with wild animals.
- All personnel to be inducted on protection of animals.
- Waste receptacles to be scavenger proof.
- Domestic animals or livestock on site are prohibited.
- The mitigation measures provided in the Flora and Fauna Assessment undertaken by Nemai Consulting in July 2012 to be implemented.

13.2.10. Aesthetic Quality

Management Objective:

- To minimise adverse visual impacts associated with construction activities.

Action:

- Damage to the natural environment should be minimised.
- Vegetation should be cut only if absolutely necessary.
- The clearing of all sites should be kept to a minimum and surrounding vegetation should as far as possible be left intact as a natural shield.

- The Contractor shall not establish or undertake any activities, which in the opinion of the Site Engineer are likely to adversely affect the scenic quality of the area. The Resident Engineer may direct the Contractor to refrain from such activities or to take ameliorative actions to reduce the adverse effect of such activities on the scenic quality of the environment.
- The existing access road to be used during the construction phase in order to minimize the impact on the environment.
- No painting or marking of natural features shall be allowed. Marking for surveying and other purposes shall only be with pegs and beacons.
- All excavated material should be flattened out (not compacted) or removed from site.
- No construction rubble, construction material, refuse, litter or any other material not found naturally in the surroundings should be allowed at anytime to be lying around on the construction site. No construction rubble, construction material, refuse, litter or any other material not found naturally in the surroundings should be allowed at anytime to be lying around on the construction site.

13.2.11. Noise

Management Objective:

To minimize noise impact from construction activities.

Actions:

- All construction vehicles to be fitted with silencers and adhere to SABS 0181 requirements.
- Relevant traffic authorities to be contacted for any anticipated disruptions.
- Traffic safety measures including signage and safety measures (as appropriate) to be put in place.
- Construction vehicles to adhere to speed limits.
- Vehicles operators to be suitably licensed and to be inducted on environmental and safety issues.
- No amplified music allowed on site.
- Plant equipment and machinery to be inspected and maintained to ensure that they are effectively muffled.

13.2.12. Traffic

Management Objective:

To minimize traffic impact from construction activities.

Actions:

- Relevant traffic authorities to be contacted for any anticipated disruptions.
- Safe determined speed limit to be adhered to.
- Traffic safety measures including signage and safety measures (as appropriate) to be put in place.
- Construction vehicles to adhere to speed limits.
- Vehicles operators to be suitably licensed and to be inducted on environmental and safety issues.

13.2.13. Air**Management Objective:**

To minimize air pollution.

Actions:

- No fires are allowed on site. Contractor to strictly adhere to Regulation 27 (i.e. “fire precautions on construction sites”) of the Construction Regulations (GNR. 1010 of 2003).
- No waste to be burnt on site.
- Dust suppression measures to be undertaken (e.g. wetting down dirt roads, bare areas and stockpiled soils).
- Stockpiles’ location to take into consideration the prevailing wind directions and locations of sensitive receptors.
- Material loads to be covered and secured during transportation.
- Equipment causing excessive smoke (above the normal standard) should not be allowed on site.
- All machinery / plant to be serviced and lubricated regularly to ensure a good working order.
- All construction vehicles are to adhere to the speed limit on site to prevent dust pollution.

13.2.14. Archaeological Artefacts**Management Objective:**

- To avoid damage to or destruction of previously unknown or excavated archaeological artifacts during construction.
- The preservation and appropriate management of new findings should these be discovered during construction.

Action:

- The Heritage Impact Assessment (please refer to Appendix D attached to the Basic Assessment Report) undertaken by Nemai Consulting in July 2012 indicates that no archaeological material was found in the study area. The Study also indicates that no historically related material was found in the study area. However if during construction archaeological material is uncovered work should cease immediately and an archaeologist or heritage practitioner must be contacted.
- All unearthed graves that might be discovered to be reported to SAPS.
- If any artefacts are found work in the area should cease immediately and the Resident Engineer to be notified as soon as possible.
- Upon receipt of such notification, the Resident Engineer will arrange for the excavation to be examined by an Archaeologist as soon as possible.
- The relevant heritage authority (SAHRA) shall be informed to ensure that appropriate management action is taken immediately in collaboration with the specialist.
- Under no circumstances shall archaeological artefacts be removed, destroyed or interfered with by the Contractor, his employees, his sub-contractors or his sub - contractors' employees.
- A three - strand fence shall protect archaeological sites, which will be at least 2m outside the extremities of the site. The fence shall be clearly marked with danger tape. Vehicular traffic should not be allowed on archaeological and historical sites, within at least a 5m radius from the perimeter of the site.

13.2.15. Waste**Management Objective:**

To undertake waste management on site.

Actions:**Solid Waste:**

- Bins to be wind and scavenger proof.
- Bins to be emptied on a weekly basis or as often as required.
- Waste management measures such as waste reduction, recycling, reuse, treatment and adequate safe disposal to be undertaken. Separate receptacles for glass, paper, metals and plastics shall be provided.
- Separate receptacles for recycling of different types of waste to be provided.
- All receptacles for different types of waste to be clearly marked to indicate the type of waste it contains.

- Littering by the workers is prohibited.
- No refuse or litter is allowed to be burnt on site.
- Site to be cleared of litter at the end of each working day.
- Waste disposal to be done at a registered landfill site.
- Receipts of safe disposal to be kept on site for ECO inspection.
- All waste (i.e. domestic refuse, surplus spoil material, building rubble, etc.) removed from site to be disposed at a licensed landfill site and certificates of safe disposal to be kept on site.

Liquid Waste:

- The Contractor to install and maintain mobile toilets at work site.
- Sewage waste to be appropriately routed to avoid contamination of the stormwater system.
- Waste water from kitchens, showers and sinks to be discharged into conservancy tanks prior to disposal at a licensed disposal facility.
- Runoff from fuel depot, workshop and truck washing area to be routed to an oil separation system before being released or directed into a conservancy tank.
- Certificates of safe disposal to be kept on site for ECO inspection.
- Waste from chemical toilets to be disposed of by a registered contractor.
- All chemical spills to be contained, cleaned up and disposed of at a licensed hazardous disposal facility.
- Certificates of safe disposal to be kept on site for ECO inspection.
- The Contractor to provide adequate sanitary facilities (e.g. chemical toilets) as per building guidelines (SABS 0400). There should be one toilet for every 15 workers on site.
- The ablution sanitary facilities to be easily accessible and to be secured in order to prevent them from blowing over.
- Chemical toilets to be placed at strategic points (away from any watercourse, with minimal visual impact).
- Ablution facilities to be maintained in a clean and sanitary condition.
- Chemical toilets to be serviced on a weekly basis or as often as necessary.
- Certificates of safe disposal from ablution facilities to be retained.
- Performing ablutions outside of established toilet facilities is prohibited.

Hazardous Waste:

- A register of all hazardous waste must be kept by the contractor and form part of project documents.
- All waste containers designated for off site transport to be secured and labelled with the contents and associated hazards, be properly loaded and be accompanied by a shipping paper (i.e. manifest) describing the load and its associated hazards.
- Hazardous waste disposal to be done at a registered landfill site.

- Certificates of safe disposal to be kept on site for ECO inspection.

13.2.16. Safety

Management Objective:

To provide safety on site.

Actions:

- Demarcated construction servitude to be fenced off.
- Compliance with Occupational Health and Safety Act (Act No. 85 of 1993).
- Contractor to provide an Occupational Health and Safety Management Plan to the Construction Manager for approval prior to the commencement of works in terms of the Construction Regulations (2003).
- Barrier tape to be erected around open trenches.
- Proper supervision of employees at all times. Employees to be clearly identifiable.
- Undertake a risk assessment to identify hazards.
- All staff to be made aware of the health risks associated with hazardous substances and be provided with adequate protective equipment and training.
- All waste containers designated for off site transport to be secured and labeled with the contents and associated hazards, be properly loaded and be accompanied by a shipping paper (i.e. manifest) describing the load and its associated hazards.
- Hazardous waste disposal to be done at a registered landfill site.
- Certificates of safe disposal to be kept on site for ECO inspection.

13.2.17. Rehabilitation

Management Objective:

To undertake rehabilitation upon project completion.

Actions:

- On completion of the works the Contractor shall clear away and remove from the site all constructional plants, surplus of materials, foundations, plumbing and other fixtures, rubbish, waste, hazardous materials and temporary works of every kind.
- Areas thus cleared shall be graded and scarified to restore the ground to its original profile as near as practicable before topsoil placement.
- All structures, equipment, materials, waste, rubble and fencing to be removed with minimum damage to the surrounding area.

- The site to be returned to its original state (i.e. prior to construction) as far as is reasonable practical. Reinstatement tasks include (but not restricted to) the following:
- Any damage caused by construction-related activities to be repaired.
- The site to be cleaned and all construction-related material and waste to be removed from site.
- All cement residue to be cleaned.
- Areas where spillages of liquid waste (e.g. oil, fuel) occurred must be cleaned appropriately and the contaminated soil to be disposed of at a licensed hazardous waste disposal facility.
- Temporary buildings to be demolished and the concomitant material to be removed from site.
- Contents from the chemical toilets to be drained and transferred to a permitted disposal facility.
- Burying of waste at the camp or working area is prohibited.
- The site to be clean and tidy upon project completion.
- The site to be rehabilitated to the satisfaction of the RE and ECO.

13.3. Operation Phase

13.3.1. Job Creation

Management Objective:

Employment creation is a positive impact therefore no mitigation measures are required

Actions:

The proposed development will result in employment creation on a permanent basis.

13.3.2. Local Economic Development

Management Objective:

Local economic development is a positive impact therefore no mitigation measures are required.

Actions:

The proposed development will boost local economic development through job creation and increase in the number of tourists and visitors to the area.

13.3.3. Increased Tourism Potential of the Area

Management Objective:

Increased tourism potential is a positive impact therefore no mitigation measures are required.

Actions:

The proposed development will increase the tourism potential of the area though the number of tourists and visitors to the area.

13.3.4. Increase in Property Value**Management Objective:**

The increase in property value is a positive impact therefore no mitigation measures are required.

Actions:

The proposed development will bring about an increase in property value in the area.

13.3.5. Use of Land**Management Objective:**

Making use of the study area which currently is and has been vacant and unutilized is a positive impact therefore no mitigation measures are required.

Actions:

The proposed development will make use of the land as the study area is currently vacant and the land is currently not utilized.

13.3.6. Surface and Groundwater**Management Objective:**

Pollution prevention during maintenance activities.

Actions:

- During maintenance activities the following mitigation measures should be implemented to prevent surface and ground water pollution:
- Management, handling, use and storage of hazardous substances (i.e. fuel and oil). Hazardous substances to be stored safely and in secondary containers within a bunded area and personal protective equipment to be used when handling these substances.
- All staff to be aware of emergency procedure in case of spillages.
- Vehicles and machinery to be in good working order to avoid oil and fuel leaks.
- Drip trays to be provided for stationary plant (i.e. compressors, pumps, generators) and for parked equipment
- Drip trays to be used during servicing of equipment.

- Vehicles to be serviced only in the designated area.
- Pollutants (i.e. cement, concrete, fuels) to be prevented from entering any watercourse.

13.3.7. Soil

Management Objective:

Pollution prevention during maintenance activities

Actions:

- During maintenance activities the following mitigation measures should be implemented to prevent soil pollution:
- Adequate sedimentation control measures to be implemented in areas susceptible to erosion.
- The top layer of soil to be removed and stockpiled in a designated area and to be later reused in rehabilitation.
- Management, handling, use and storage of hazardous substances (i.e. fuel and oil). Hazardous substances to be stored safely and in secondary containers within a bunded area and personal protective equipment to be used when handling these substances.
- All staff to be aware of emergency procedure in case of spillages.
- Vehicles and machinery to be in good working order to avoid oil and fuel leaks.
- Drip trays to be provided for stationary plant (i.e. compressors, pumps, generators) and for parked equipment.
- Drip trays to be used during servicing of equipment.
- Vehicles to be serviced only in the designated area.

13.3.8. Vegetation

Management Objective:

Minimize vegetation disturbance and degradation during maintenance activities.

Actions:

- During maintenance activities the following mitigation measures should be implemented to minimize the impact on vegetation:
- Access to the site to be adequately controlled.
- The impact on flora to be kept to a minimum.
- The impact on flora to be within the development footprint.

- Permanent marking of natural features such as trees and harvesting of wood or plants from the area is prohibited.
- All personnel to stay within the construction footprint.
- The existing access roads to be used to minimize impact on the environment.
- Rehabilitation after maintenance must occur.

13.3.9. Fauna

Management Objective:

Minimize fauna disturbance during maintenance activities.

Actions:

- During maintenance activities the following mitigation measures should be implemented to minimize the impact on fauna:
- Use of existing roads to minimize the impact on fauna.
- No trapping, poaching or killing of animals is allowed.
- All incidents regarding disturbance of animals to be recorded.
- Employees to be encouraged not to disturb fauna on site and to report the presence of fauna so it can be safely removed.
- Work to be restricted to 07h00 - 18h00 to minimise interactions with wild animals.
- All personnel to be inducted on protection of animals.
- Waste receptacles to be scavenger proof.
- Domestic animals or livestock on site are prohibited.
- The mitigation measures provided in the Flora and Fauna Assessment undertaken by Nema Consulting in July 2012 to be implemented.

13.3.10. Aesthetic Value

Management Objective:

Visual impact associated with a 7-storey hotel complex and associated facilities.

Actions:

- The development will be designed in such a way that will compliment the natural surrounding environment, with appropriate landscaping to mitigate this impact.

13.3.11. Noise

Management Objective:

Minimize noise impact during maintenance activities.

Actions:

- During maintenance activities the following mitigation measures should be implemented to minimize the noise impact:
- All heavy vehicles to be maintained to reduce noise levels.
- Silencers to be fitted on noise generating equipment.
- No amplified music allowed on site.
- Plant equipment and machinery to be inspected and maintained to ensure that they are effectively muffled.

13.3.12. Waste

Management Objective:

Land, air and water pollution through poor waste management practices.activities.

Actions:**Solid Waste:**

- Bins to be wind and scavenger proof.
- Bins to be emptied on a weekly basis or as often as required.
- Waste management measures such as waste reduction, recycling, reuse, treatment and adequate safe disposal to be undertaken. Separate receptacles for glass, paper, metals and plastics shall be provided.
- Separate receptacles for recycling of different types of waste to be provided.
- All receptacles for different types of waste to be clearly marked to indicate the type of waste it contains.
- Site to be cleared of litter at the end of each working day.
- Waste disposal to be done at a registered landfill site.
- Receipts of safe disposal to be kept on site for Environmental Control Officer (ECO) inspection.
- All waste (i.e. domestic refuse, surplus spoil material, building rubble, etc.) removed from site to be disposed at a licensed landfill site and certificates of safe disposal to be kept on site.
- Site to be cleared of litter at the end of each working day.

Liquid Waste:

- The Contractor to install and maintain mobile toilets at work site.
- Sewage waste to be appropriately routed to avoid contamination of the stormwater system.
- Waste water from kitchens, showers and sinks to be discharged into conservancy tanks prior to disposal at a licensed disposal facility.
- Runoff from fuel depot, workshop and truck washing area to be routed to an oil separation system before being released or directed into a conservancy tank.
- Certificates of safe disposal to be kept on site for Environmental Control Officer (ECO) inspection.
- Waste from chemical toilets to be disposed of by a registered contractor.
- All chemical spills to be contained, cleaned up and disposed of at a licensed hazardous disposal facility.
- Certificates of safe disposal to be kept on site for Environmental Control Officer (ECO) inspection.
- The Contractor to provide adequate sanitary facilities (e.g. chemical toilets) as per building guidelines (SABS 0400). There should be one toilet for every 15 workers on site.
- The ablution sanitary facilities to be easily accessible and to be secured in order to prevent them from blowing over.
- Chemical toilets to be placed at strategic points (away from any watercourse, with minimal visual impact).
- Ablution facilities to be maintained in a clean and sanitary condition.
- Chemical toilets to be serviced on a weekly basis or as often as necessary.
- Certificates of safe disposal from ablution facilities to be retained.
- Performing ablutions outside of established toilet facilities is prohibited.

Hazardous Waste:

- All waste containers designated for off site transport to be secured and labelled with the contents and associated hazards, be properly loaded and be accompanied by a shipping paper (i.e. manifest) describing the load and its associated hazards.
- Hazardous waste disposal to be done at a registered landfill site.
- Certificates of safe disposal to be kept on site for ECO inspection.

