

DRAFT

CONSTRUCTION PHASE ENVIRONMENTAL MANAGEMENT PLAN

for the

**CONSTRUCTION AND MANAGEMENT OF
ACTIVIES RELATING TO THE PROTECTION
OF THE NATURAL ENVIRONMENT DURING
THE CONSTRUCTION OF THE**

MIER MUNICIPALITY

LOW COST HOUSING PROJECT & ASSOCIATED INFRASTRUCTURE

This EMP is a condition as set out in the Environmental Authorization (EA)

And is to be presented to contractors at the On Site Start-Up Meeting

compiled by
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ENVIRONMENTAL MANAGEMENT PLAN OF CONSTRUCTION AND MANAGEMENT OF ACTIVITIES RELATING TO THE PROTECTION OF THE NATURAL ENVIRONMENT DURING THE CONSTRUCTION PHASE OF THE MIER MUNICIPALITY LOW COST HOUSING PROJECT & ASSOCIATED INFRASTRUCTURE

1. INTRODUCTION

This CEMP forms part of the conditions as set out in the **MIER MUNICIPALITY LOW COST HOUSING PROJECT & ASSOCIATED INFRASTRUCTURE** Environmental Authorization (EA) and Recommendations detailed in the original Basic Assessment Report.

The **MIER MUNICIPALITY LOW COST HOUSING PROJECT & ASSOCIATED INFRASTRUCTURE** CEMP binds all contractors, sub-contractors and other persons working on the site to adhere to the terms and conditions of the CEMP throughout the construction of the **MIER MUNICIPALITY LOW COST HOUSING PROJECT & ASSOCIATED INFRASTRUCTURE**.

Any other Site Specific additional activities decided and agreed upon at the On Site Start-Up Meeting must be included in to form part of the CEMP.

2. COMMENCEMENT OF WORKS

The site project contractors must timeously receive a copy of the site CEMP and any other further additional information that pertains to site conditions/amendments or deviations from original site plan.

A copy of the CEMP must be on site at all times and available for presentation to any authority requesting to see such document.

No work on site may take place until:

- CEMP has been approved by the relevant authority
- Environmental Control officer (ECO) be appointed to enforce & manage the conditions as per EA as well as to manage and implement the EMP
- ECO to be appointed before construction starts
- One week's written notice to DENC before construction starts (Condition G 2 as per EA).
- On-Site Start-Up Meeting has been held.
- Site and No-Go areas has been demarcated.
- Contractors are in possession of the CEMP and other relevant documentation.

- And signed the Declaration Of Understanding
- All mandatory site equipment is in place
-

NB: Work refers to: Camp Establishment, Earthmoving activities and any pre-liminary construction activities.

3. ENVIRONMENTAL CONDITIONS OF APPROVAL:

- EA Conditions Of Approval. (See appendix)
- Basic Assessment Report Recommendations. (See appendix)

4. ISSUES OF CONCERN:

Issues of concern that were identified during the EIA Basic Assessment Report process, and addressed in the EA include but not restricted to the following;

The pre-determined environmental issues and respective activities must be addressed during the On Site Start-Up Meeting and reflect in the On-Site Start-Up Report.

The Site Specific recommendations as per the original Basic Assessment Report and conditions as per the EA are to be included and reflect in the On-Site Start-Up Report.

They are but not restricted to;

- Power supply
- Access route
- Demarcation
- Waste management
- Mandatory site equipment
- Ablution & Toilet Facilities
- Refuse Management
- Fire Fighting Equipment
- Concrete works & batching proposals.
- Ground Erosion Control.
- Fire Reaction Plan

5. SITE SPECIFIC ARRANGEMENTS & CONSTRUCTION PROCEDURES:

ON-SITE START-UP MEETING REPORT to be attached as Appendix 1 to the **MIER MUNICIPALITY LOW COST HOUSING PROJECT & ASSOCIATED INFRASTRUCTURE CEMP**. The Start-Up Meeting Report to include all site-specific issues and arrangements as discussed and agreed on at site start-up meeting.

The On-Site Start-Up Meeting additional information pertains to specific site construction agreements that was discussed on site by all the relevant parties and agreed on must be included in the On Site Start-Up Meeting Report. (The arrangements and agreements must fall within the conditions as set out in **the MIER MUNICIPALITY LOW COST HOUSING PROJECT & associated infrastructure EA**)

6. STARTUP MEETING:

The mandatory on-site start-up meeting that is conducted prior to commencement of any site/camp establishment, earthworks and/or construction activities and will relate to additional discussed information that must be complied with during the entire construction phase.

At the on-site start-up meeting the following issues must be addressed:

- The Construction EMP & other relevant site documents.
- Project to be discussed and all uncertainties are cleared.
- Method statement/s to be discussed.
- Power line installation access routes.
- Road and construction area to be demarcated
- Materials stockpile and lay down areas to be demarcated
- Method of stockpiling to be discussed
- Fire fighting procedures
- Mandatory fire fighting equipment & fire preventative measures.
- Solid waste removal intentions.
- Placement, type and service of toilets to be agreed on.
- Placement and type of rubbish bins and removal of rubbish to be agreed on.
- Labour overnight camp to be demarcated and services agreed on.

The following people must attend the pre-start-up meeting:

- The Applicant.
- Main contractor's representative.
- Site supervisor/foreman
- Environmental consultant (EC)
- Environmental site officer (ESO)

An on-site start-up meeting report will be drawn up by the EC / ECO / ESO after the start-up meeting the report must be circulated to all attendees of the Start-up meeting for response and acceptance of the contents. No response is deemed to be an acceptance of the contents of the report. (**Appendix 1**)

The main contractor must provide (i) a list of all sub-contractors and their scope of work for the contract and (ii) a time schedule of works.

The On-site Start-up Meeting report will also form part of this Environmental Management Plan. If any discrepancies between the start-up checklist and the EMP arise then the EMP will take precedence until clarification on the discrepancy is clarified. If any discrepancies between the EMP and EA then the EA will take precedence until clarification on the discrepancy is clarified.

NB: IT IS THE RESPONSIBILITY OF THE MAIN CONTRACTORS TO ENSURE THAT ALL HIS SUB- CONTRACTORS, THAT WORK ON THE SITE DURING AND AFTER THE CIVILS CONTRACTOR, ARE INFORMED OF THE ENVIRONMENTAL CONDITIONS PERTAINING TO THE SITE.

NB!! NO WORK WILL START UNTIL THE ABOVE IS IN PLACE AND AGREED ON.

7. METHOD STATEMENT:

Method statements from the contractor will be required for specific sensitive actions on request of the authorities, the applicant or ECO/ESO. A method statement forms the base line information on which sensitive area work takes place and is a “live document” in that modifications are negotiated between the Contractor and ESO/APPLICANT, as circumstances unfold. All method statements will form part of the EMP documentation and are subject to all terms and conditions contained within the EMP main document.

These documents must be available to the authorities for inspection or on request.

A method statement describes the scope of the intended work in a step-by-step description in order for the ESO and The applicant to understand the contractor’s intentions. This will enable them to assist in devising any mitigation measures, which would minimize environmental impact during these tasks.

The Contractor must submit the method statement before any particular construction activity is due to start. Work may not commence until the ECO/ESO and APPLICANT have approved the method statement.

Method statements need to be compiled by the contractor for approval by applicant and the ECO/ESO. The contractor must submit written method statements to the applicant for the purposes of the environmental specification, a “Method Statement” is defined as a written submission by the contractor to the applicant setting out the plant, materials, labour and method the contractor proposes using to carry out an activity, in such detail that the applicant and the ECO/ESO is able to assess whether the contractor’s proposal is in accordance with the specifications and/ or will produce results in accordance with specifications.

The contents of the Method statement cannot be changed or altered.

The method statement must cover applicable details with regard to:

- Construction procedures,
- Materials and equipment to be used,
- Getting the equipment to and from site,
- How the equipment/ material will be moved while on site,
- How and where material will be stored,
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur,
- Timing and location of activities,
- Compliance/ non-compliance with the Specifications, and
- Any other information deemed necessary by the The Applicant and ECO/ESO.

The Contractor must abide by these approved method statements, and an activity covered by a method statement must not commence until the Applicant and the ECO has approved of such method.

Explanation of method statements and a pro forma method statement sheet that must be completed by the Contractor for each activity requiring a method is attached as **appendix 4 & appendix 5**.

8. PENALTIES

The Applicant (on recommendation by the ECO) reserves the right at all times for the duration of this agreement to impose restrictions and associate penalties on the contractor with respect to the specific nature, timing and extent of construction activities on environmentally sensitive sites.

In instances of non-compliance with the EMP by the contractor (or any of their employees) or sub-contractor/s (or any of their employees) that move on or off the site, the on-site ECO must issue a written warning indicating the non-conformance to the contractor.

The Applicant in consultation with the Environmental Consultant/ECO must determine the amount of the penalty applicable in accordance with the Penalties for Non-Compliance Schedule of Tariffs (**Appendix 2**).

Such penalty amount must be reduced in writing and presented to the contractor within seven (7) days of the written warning.

The Applicant may recover penalties by deducting the fine from the offending contractor.

In serious cases, at the discretion of The Applicant and the Environmental Consultant/ECO, any multiple offences can be added together.

The ECO/ESO (after consultation with Environmental Consultant/The Applicant) may also *stop the works or part thereof until the situation is resolved; no extension of time is claimable by the contractor.*

These penalties do not preclude any prosecution under any law or regulation.

This set of procedures must be understood by all relevant onsite project managers / project managers and site workers.

See **appendix 2** for the The Applicant Penalties for Non- Compliance

9. RESPONSIBILITY OF OWNER/DEVELOPER/APPLICANT

The applicant must be responsible for ensuring compliance with the conditions contained in the EA by any person acting on his behalf, including but not limited to an agent, servant, employee or any person rendering a service to the applicant in respect of the activity, including but not limited to contractors and consultants.

The Owner is responsible for appointing the ECO, Site Engineer and Contractor for the duration of the construction contract and for ensuring that the Site Engineer and Contractor fulfil their obligations in terms of this CEMP.

The owner and or his representative must notify DEADP and any other relevant authority, in writing, within 24 hours thereof if any condition of this authorisation is not adhere to.

10. THE SITE ENGINEER

The Site Engineer is responsible for ensuring that the construction contract is implemented in terms of the construction EMP.

The Site Engineer and the ECO are expected to develop a close working relationship and to stay in contact with each other. The Site Engineer issues site instructions to the Contractor and all requests and communications between the ECO and Contractor are via the Site Engineer.

The only exception to this is where the ECO needs to issue a “stop works” order on the Contractor or the Site Engineer if serious environmental harm is about to happen or is happening as a result of construction activity. This “stop-order” must be confirmed by the ECO as soon as practically possible to all affected construction personnel.

When the ECO is not on site, the Site Engineer will be responsible for the Construction Phase EMP. Any problems that might lead to damage to the environment should be immediately brought to the attention of the site ECO, the Site Engineer (or his representative) refer to the “**ENVIRONMENTAL DAILY CHECKLIST**” (see **Appendix 6**).

11. THE CONTRACTOR

The Contractor must ensure that all of its sub-contractors, employees, suppliers, agents, etc., are fully aware of the environmental issues detailed in the site CEMP. The Contractor must liaise closely with the Site Engineer and the ECO and must ensure that the works on site are

Conducted in an environmentally sensitive manner and fully in accordance with the requirements of the CEMP, at all times.

Main bulk service providers such as Telkom and Eskom must be advised of the construction activities as well as the requirements of this EMP and the Contractor must be responsible for their activities conducted within their work areas.

ALL CONTRACTORS MUST SIGN THE “DECLARATION OF UNDERSTANDING” (Appendix 3) IN THIS CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN BEFORE CONSTRUCTION COMMENCES

All contractors working on site must have proper and competent contractor supervision during their time of contract.

If more than one contractor work on the site simultaneously then the responsibility lies on each contractor to adhere to the conditions of the EMP and related documents.

This is for the duration of the contract.

The supervisors must work closely with the ESO and discuss the daily programme with the ESO. Any problems that might lead to damage to the environment must be discussed with the ESO.

12. SITE PERSONNEL: ENVIRONMENTAL AWARENESS TRAINING

All operational personnel must undergo an on-site environmental awareness course together with any specific environmental training they may require to carry out their duties.

All contractor teams involved in work on the development are to be briefed on their obligations towards environmental controls and methodologies in terms of this EMP prior to work commencing. The briefing will usually take the form of an on-site talk and demonstration by the ESO. The education / awareness programme must be aimed at all levels of management within the contractor team (See **appendix 7**)

13. ECO/ESO

ECO might also mean the ESO but the ESO does not mean the ECO. The ESO reports to the ECO

Frequency of site visits:

An ECO/ESO must be appointed for the duration of the construction phase (as required by EA). The ECO/ESO must:

- Conduct a **start-up meeting** before construction commences
- ECO to visit the site on a **bi-weekly** basis while construction is in progress
- ECO to monitor the development until development is completed
- Conduct a **closing down** visit ASAP after completion of the Development
- Conduct an **Environmental compliance audit within 6 months** after completion of the civil contract.

Requirements for the Posts:

Environmental Control Officer: [ECO]

A recognised environmental practitioner with a sound knowledge of the environment and a diploma or degree in environmental management with 5 years relevant experience.

Environmental Site Officer:[ESO]

An independent person with 5 or more years of environmental site management and able to ensure EMP compliance monitoring experience on construction projects.

ECO/ESO must understand and implement the Construction Phase Environmental Management Plan (CEMP).

Monitoring responsibilities of the ECO:

- Is to ensure that the mitigation/rehabilitation measures and recommendations referred to in the record of Decision are implemented and to ensure compliance with the provisions of the CEMP
- Must notify DENC and any other relevant authority, in writing, within 24 hours thereof if any condition of the EA is not adhere to.
- Is responsible for the environmental issues involved with the construction phase of the project;
- Co-ordinating any aspect of site activity that may have an effect on the environment;
- Must work in close conjunction with the Applicant/Site representative, contractors and sub-contractors;
- Must demarcate the necessary areas for storage of materials, ablutions, eating areas of contract workers, etc.;
- Must identify 'No go' areas and areas sensitive to erosion and have these areas demarcated. Environmental awareness of the workers is essential. This must be in the form of an on-site talk and must be conducted at an appropriate technical level;

- The ECO/ESO will keep a SITE VISIT diary. The purpose of these entries is to record. Record keeping in the form of a checklist and/or diary entries and photographic records for visual reference. (Appendix 8). These documents must be available to the authorities for inspection or on request. The diary must include meetings/discussions with the contractor and must reflect environmental queries, agreed actions and dates of eventual compliance. These must form part of the official environmental record

Authority of the ECO/ESO:

The ECO/ESO has the authority to stop works if in his opinion there is a serious threat to or impact on the environment caused directly from the construction operations. This authority is to be limited to emergency situations where consultation with the Applicant/site representative is not immediately available. In all such work stoppage situations the ECO/ESO is to inform THE APPLICANT of the reasons for the stoppage as soon as possible.

A relevant reason should be supplied to the Applicant/Site representative as soon as possible after stoppage of such works.

Upon failure by the contractor or his employee to show adequate consideration to the environmental aspects of this contract, the ECO/ESO may recommend to the applicant/site representative to have the contractor's representative or any employee(s) removed from the site or work suspended until the matter is remedied. No extension of time will be considered in the case of such suspensions and all costs will be borne by the contractor

Duration of ESO site inspections

The ESO is appointed prior to commencement of construction activities, site inspections are as per EA depending on the environmental sensitivity of the construction areas and site location.

The frequency of site inspections can change if the need arises.

14. CHANGES TO THE MANAGEMENT PLAN

Although care has been taken to address all known relevant environmental issues for the construction phase, it might become necessary to add or amend certain procedures or instructions to improve the efficiency of the EMP.

Changes have to be motivated in writing (Method statement). The same procedures as for a method statement has to be followed

Any additions or amendments will be submitted by the ECO to DENC (if so requested), after the ECO has consulted the Applicant.

No deviation from the contents of the EMP is allowed without following the prescribed procedures.

15. RECORD KEEPING

All records relating to the implementation of this management plan (e.g. Declaration of Understanding, ECO Checklist and/or diary, Method Statements, etc.) must be kept together and can be retrieved easily. These records must be available for scrutiny by any relevant authorities.

Photographs

Photographs are to be taken of the site prior to, during and immediately after construction, as a visual reference. These photographs must be stored with other records related to this EMP.

EMP Circulation List

Full copies of this CEMP will be made for the ECO, Site Engineer and Contractor. Appendices will also be made and circulated where relevant.

16. ENVIRONMENTAL COMPLETION STATEMENT

An Environmental Completion Statement is a report by the ECO to the relevant authorities stating completion of the project and compliance with the EMP and conditions.

17. ENVIRONMENTAL AUDIT REPORT

ENVIRONMENTAL AUDIT REPORT

An Environmental Audit Report by the EC must be submitted by the Applicant to the satisfaction of the Chief Directorate Environmental Affairs, within six months after construction has been completed and also after the sites have been rehabilitated.

18. MANAGEMENT SPECIFICATIONS for the CONSTRUCTION of THE MIER MUNICIPALITY LOW COST HOUSING PROJECT BOREHOLES & ASSOCIATED INFRASTRUCTURE

(This EMP is additional to conditions as set out in the EA)

18.1. Fauna and Flora

The Contractor must not deface, paint, damage or mark any natural features, if these should occur (e.g. trees, rock formations, buildings, etc.) situated in or around the Site for survey or other purposes unless agreed beforehand with the Engineer and the ECO. Any features affected by the Contractor in contravention of this clause must be restored/rehabilitated to the satisfaction of the Engineer and the ECO

Except to the extent necessary for the carrying out of the works, flora must not be removed, damaged or disturbed nor must any vegetation be planted. Trapping, poisoning and/or shooting of animals is strictly forbidden. No domestic pets or livestock are permitted on Site. Where the use of herbicides, pesticides and other poisonous substances are to be used, the Contractor must submit a Method Statement.

All incidents of harm to any animal or natural vegetation (apart from the agreed areas) must be reported to the ESO.

18.2. Protection And Rescue Of Fauna And Flora

The removal of fauna from the site must be done in accordance with the requirements of the Nature Conservation Ordinance regulating these activities.

All flora identified by the Environmental consultant, Botanist, Cape Nature and/or ECO to be rescued must be removed and placed in an area specifically allocated for these plants to ensure that the necessary care thereof will take place until being planted in designated areas.

The areas of vegetation that are to be protected during construction must be indicated on a site plan and this should conform to the decision reached between the Botanist, the Local Authority, the Engineer, Cape Nature, the Contractor and the ECO. A method statement is to be submitted to the ECO by the Contractor, detailing the method of fencing for protection of the conservation areas.

18.3. Clearing of Vegetation, Stripping & Conservation of Topsoil

Prior to construction or earthworks commencing on site, top material must be stripped from work sites and separately stockpiled for later use in rehabilitating damaged areas or for landscaping purposes.

A Method Statement must be submitted detailing the methods to be used for vegetation clearing. All cleared areas must be stabilised as soon as possible. Burning of cleared vegetation is prohibited in terms of the Environmental Conservation Act. The burying of

cleared vegetation or use as part of backfill or landscape shaping is prohibited unless written approval is obtained from the ECO.

Cleared vegetation may be used for mulch or slope stabilisation of the Site.

Any area where the topsoil will be impacted by construction activities, including the construction offices and storage areas, must have the topsoil stripped with herbaceous vegetation (other than alien species), overlying grass and other fine organic matter and stockpiled for subsequent use in rehabilitation after the area has been cleared of vegetation.

Topsoil storage areas must be convex and should not exceed 2m in height. The Contractor must ensure that the material does not blow or wash away. Topsoil must be treated with care, must not be buried or in any other way be rendered unsuitable for further use (e.g. by mixing with spoil) and precautions must be taken to prevent unnecessary handling and compaction. In particular, topsoil must not be subject to compaction greater than 1 500 kg/m² and must not be pushed by a bulldozer for more than 50 m. Trucks may not be driven over the stockpiles.

Topsoil from different soil types must be stockpiled separately and replaced in the same areas from which they were taken if this proves to be the case. Specific attention should be given to the areas that may house rare and threatened species. Topsoil areas must be demarcated in order to ensure the safekeeping of topsoil and to separate different stockpile types.

18.4. Protection of Archaeological & paleontological remains

If remains or artefacts are discovered on Site during earthworks, work in the vicinity must cease and the Contractor must immediately inform the Engineer and the ECO who must

Contact the South African Heritage Resources Agency (SAHRA) for information on the appropriate course of action to be taken

In the event that previously unknown archaeological features are exposed during the construction phase, the Contractor should inform the Engineer and the ECO who will advise the Applicant on the necessary course of action.

Note that the Contractor may not, without a permit issued by the responsible heritage resource authority; destroy, damage, excavate, alter, deface or otherwise disturb any archaeological site or archaeological material. The latter is a criminal offence under the Heritage Resources Act.

18.5. Appropriate use of Machinery

Contractor must at all times carefully consider what machinery is appropriate to the task while minimizing the extent of environmental damage.

The contractor may not operate any machinery including a fuel driven compressor outside the demarcated area.

Where practical, all maintenance of plant on Site must be performed in workshops. If it is necessary to do maintenance outside of a workshop area, the Contractor must obtain the approval of the Engineer and the ECO prior to commencing activities

All vehicles and equipment must be kept in good working order and serviced regularly. Leaking equipment must be repaired immediately or removed from the Site. When servicing equipment, drip trays must be used to collect the waste oil and other lubricants. Drip trays must also be provided in construction areas for stationary plant (such as compressors) and for "parked" plant (such as scrapers, loaders, vehicles). Drip trays will be kept free of water that will float the oil to overspill.

18.6. Demarcating and fencing

Final site demarcation must be carried out with all relevant parties (who will be responsible) present for the day-to-day activities on the site, they include;

The Applicant	Representative
Environmental Consultant	Environmental Consultant (EC)
Main Contractor	Project Site Manager
Sub-contractor	Project contractor
ECO/ESO	Environmental Control Officer or Site Officer

The proposed site will be demarcated prior to the commencement of any construction whatsoever, this includes site establishment, the moving of construction material or any other items onto the site, ect.

The site will be demarcated with appropriate strong steel dropper poles. A single strand of orange baler twine is to be attached to the dropper poles to indicate boundaries and no-go

Areas for site personnel and vehicular movement. (Alternative fencing may be decided upon dependent on site requirements)

The construction area i.e. road, stockpile areas etc. must be demarcated and fenced off with steel dropper poles and orange baler twine approximately 1m high is considered adequate. The demarcation will be agreed on during the start-up meeting.

All fencing and fence placement / positioning must be approved by the ESO on site.

Work areas and access routes must be clearly demarcated to minimise environmental impact.

NB Steel dropper poles and orange baler twine has proven to be the most environmentally friendly means of on-site demarcation.

In the event that sensitive features are threatened by construction activities, temporary fencing off of these areas (for individual areas such as trees or rocks) or the construction area (when working in a mainly natural environment) is recommended.

The Contractor must maintain in good order all demarcation, fencing and barriers for the duration of construction activities, or as otherwise instructed. Any temporary fencing removed for the execution of any portion of the works is to be reinstated by the Contractor as

soon as practicable. The Contractor at the end of the contract must remove all demarcation, fencing or barriers not forming part of the final works on Site.

Once in place the demarcation barriers may not be moved or altered without consultation with the site ESO and the main contractor

18.7. "NO-GO" Areas

Areas if so required by the CEMP, EA or ON SITE START-UP MEETING are certain pre-determined or as a result of the OSS MEETING must be "NO-GO" areas. The contractor must ensure that no person, machinery, equipment enter the "NO-GO" areas at any time.

If so required by specifications in the CEMP, certain areas must be "No go" areas. The Contractor must ensure that, insofar as he has the authority, no person, machinery, equipment or material enters the "No go" areas at any time.

Areas of special importance will be decided upon between the Engineer, Contractor and the ECO and demarcated as "No go" areas on a site plan and fenced off. Such areas are out of bounds to the Contractor and his staff, sub-contractors and their staff or suppliers and their staff and to any other person involved in the construction, without the written permission specified by the ECO.

18.8. Storm water, Erosion & Sedimentation Control

The Contractor must take appropriate and active measures to prevent erosion resulting from his own works, operations and activities as well as storm water control measures to the satisfaction of the ESO.

During construction the Contractor must protect areas susceptible to erosion by installing all the necessary temporary and permanent drainage works as soon as possible.

Other measures as may be necessary must be taken to prevent the surface water from being concentrated in streams and from scouring the slopes, banks or other areas. All such measures must be discussed with and approved by the ESO.

18.9. Fuel, Tar Compounds and Oil

No Fuels and flammable materials are to be stored on the site.

Basic guidelines to follow if any fuels are to be stored are as follows:

- These areas must comply with general fire safety requirements.
- All vehicles, equipment, fuel and petroleum services and containers must be maintained in a good condition that prevents leakage and possible contamination of soil or water supplies. Drip trays to be used in these storage areas to prevent contamination of the ground in the event of spillages or leaks
- Quantities of fuels must never be more than 2 x 200 litres at any time.
- All must have a drip tray present to use in the event off accidental spillage of oils and fuels.

- A suitable leak proof container for the storage of oiled equipment (filters, drip tray contents and oil changes etc.) must be established.
- Fuels and oils must be safely located out of harm's way from the elements and safety and fire prevention must be strictly adhered to.
- All spills are to be recorded in the ESO diary.

Fuel Storage proposals must be cleared by the ECO/ESO before any storage or stockpiling takes place.

18.10. Hazardous Substances

If potentially hazardous substances are to be stored on site, the Contractor must provide a Method Statement detailing the substances/materials to be used, together with the storage, handling and disposal procedures of the materials to the Engineer and the ECO.

Paints: - No paint products may be disposed of on Site and brush/roller wash facilities must be established to the satisfaction of the Engineer and the ECO. Oil based paints and chemical additives and cleaners such as thinners and turpentine must be strictly controlled. A Method Statement detailing the paint management procedures is required.

Hazardous building materials: -Hazardous building materials (e.g. asbestos, fibre claddings, refrigerants, coolants, substation cooling oils, etc) must be identified and dealt with in accordance with the relevant safety and health legislation. All such material must be separated on Site and disposed of at appropriate licensed disposal sites. The Contractor must supply the ECO with a certificate of disposal.

18.11. Concrete works

The Engineer (in collaboration with the ECO) must indicate the permitted location of batching plants (including the location of cement stores and sand and aggregate stockpiles), if these are to be present on Site, on a site plan. A Method Statement indicating the layout and preparation of such facilities must be submitted

Cleaning of equipment and flushing of mixers must not result in pollution of the surrounding environment. All wastewater resulting from batching of concrete must be disposed of via the contaminated water management procedure. Used cement bags must be stored in weatherproof containers to prevent wind dispersion and water contamination. Used bags

Must be disposed of on a regular basis via the solid waste management system, and must not be used for any other purpose.

All visible remains of excess concrete must be physically removed and disposed of on completion of cement work. Washing the remains into the ground is not acceptable. All excess aggregate must also be removed.

The following recommendations must be implemented to minimise impact.

- The concrete mixing must take place on top of boarding and/or sheeting as so as to protect the ground. This board and or sheeting must be removed from the site once the mixing is complete

- Concrete batching to place at demarcated areas
- Cement contaminated water may not enter a natural or man-made (e.g. trench / sloop or dam) water system. Preventative measures include establishing sumps from where contaminated water can be either treated in situ or removed to an appropriate waste site.
- Mixing areas to be carefully placed in consultation with the ESO.
- If possible/appropriate ready mix concrete must be used.
- Cement bags are to be stored securely out of harms way from the elements (wind and rain). Bags has to be covered and placed on plastic sheeting
- Sand and stone to be stored on plastic if it is stored outside the future fenced off site.
- Excess or spilled concrete must be confined within the works area and then removed to a waste site.
- Wash down areas must be confined to within the concrete batching area only.

18.12. Blasting / drilling

In the event where blasting or rock drilling is required, the following recommendations must be implemented:

- A Method statement must be provided for each case separately **prior** to commencement of works.
 - The contractor must take all necessary precautions to prevent damage to special features and the general environment, which includes the removal of fly rock.
 - The contractor must ensure that no pollution results from drilling operations, either as a result of oil and fuel drips, or from drilling fluid. The contractor must take all reasonable measures to limit dust generation as a result of drilling operations.
 -
- The ESO must be given 24-hour notice before blasting events.

18.13. Fires and smoking

No fires are allowed.

If Smoking is allowed on sites then arrangements to be made for disposal of cigarette buds. No smoking will be allowed outside the demarcated areas.

Adequate fire fighting equipment according to the fire hazard during the construction period must be available on site in good working order (at least one type ABC (all purpose) 12.5 kg extinguisher and 3 fire beaters per working area). The persons on site must be trained in the use of such equipment.

The main contractor must provide a list of all authorities involved in fire fighting in the region. This list must include emergency contact numbers.

Welding, gas cutting or cutting of metal will only be permitted inside the working areas.

The Contractor must pay the costs incurred to organizations called to put out any fires started by him. The Contractor must also pay any costs incurred to reinstate burnt areas as deemed necessary by The Applicant.

It is required that contractors have available [if there is cell phone reception] the emergency telephone numbers of the nearest local Fire Fighting Station and that an emergency fire fighting action plan has been drawn up with on-site workers and the property owner or resident farmer.

18.14. Emergency Procedures

Fire: The Contractor must advise the relevant authority of a fire as soon as one starts and must not wait until he can no longer control it. The Contractor must ensure that his employees are aware of the procedure to be followed in the event of a fire.

Spills: The Contractor must ensure that his employees are aware of the procedure to be followed for dealing with spills and leaks, which must include notifying the Engineer, the ECO and the relevant authorities. Treatment and remediation of the spill areas must be undertaken to the reasonable satisfaction of the ECO and Local Authority.

18.15. Dust

The Contractor must take all reasonable measures to minimize the generation of dust as a result of construction activities (including dust generated on haul roads) to the satisfaction of the ECO and Local Authority

18.16. Solid Waste Management

No on-site burying or dumping of any waste materials, vegetation, litter or refuse must occur. The Contractor must provide vermin and weatherproof bins with lids of sufficient number and capacity to store the solid waste produced on a daily basis. The lids must be kept firmly on

The bins at all times. Bins must not be allowed to become overfull and must be emptied at least once a day. Waste from bins may be temporarily stored on Site in a central waste area that is weatherproof and scavenger-proof and which the Engineer and the ECO has approved.

All solid waste must be disposed of off-site at an approved landfill site in terms of section 20 of the Environment Conservation Act (Act No. 73 of 1989).. The Contractor must supply the ECO with a certificate of disposal. All hazardous waste must be disposed of at a licensed hazardous waste site.

The Contractor must make provision for workers to clean up the Contractor's camp and working areas every day so that no litter is left lying around and so that the site is in a neat and tidy state. The Contractor must remove from site the refuse collected at least once a week.

The Contractor must be responsible for the establishment of a refuse control system that is acceptable to the ESO.

Disposal arrangements must be made in advance and cleared with the ESO before construction starts.

18.17. Toilets & Ablution Facilities

A minimum of one toilet must be provided per 15 persons at each working area or as stipulated in the Management plan. The Contractor must provide suitable sanitary arrangements near the construction sites.

The toilet must be within easy reach (max 200-m) of the working area and be cleaned on a daily basis. Toilet paper must be provided. The toilets must be emptied on a weekly basis or when full or when instructed by the ESO on site.

Disposal arrangements must be made in advance and cleared with the ESO before construction starts. Sanitation provision and servicing must be to the satisfaction of the ESO. The Contractor must ensure that toilets are emptied before any builders' holidays.

Toilets must be of a neat construction and must be provided with doors and locks and must be secured to prevent them blowing over.

If a long drop toilet system is the preferred system the catchment ditch must be a suitable depth to sustain use over the construction period and upon removal of the system adequate rehabilitation measures must be applied to the satisfaction of the ESO.

NB NO BURYING OF ANY WASTE MATERIAL ON OR NEAR THE CONSTRUCTION SITE NOR ANYWHERE ON THE SURROUNDING PROPERTY IS PERMITTED.

18.18. Stockpiling

Any stockpiling of gravel, cut, fill or any other material including spoil must only be allowed in degraded areas or areas below the future cover of buildings and tar or paved parking surface. The Contractor must indicate the proposed areas for such operations and method of undertaking such operations in a Method Statement to be submitted to the ECO for approval before any such activity begins. Any area used for stockpiling and not covered by building

Development must be returned to at least the state they were in before stockpiling and it must be ensured that the erosion potential of these areas is not increased.

The Contractor must ensure that the material does not blow or wash away or mix with each other. If the stockpiled material is in danger of being washed or blown away, the Contractor must cover it with a suitable material, such as hessian, netting or plastic.

18.19. Preparation of Building Material

The Contractor must ensure that any delivery drivers are informed of all procedures and restrictions (including "no go" areas) required to comply with the Specifications. The Contractor must ensure that these delivery drivers are supervised during off-loading, by someone with an adequate understanding of the requirements of the Specifications

All manufactured and/or imported material must be stored within the demarcated area, and, if so required, out of the rain. All lay down areas outside of the construction camp must be subject to the Engineer and the ECO's approval in such a way as not to cause a nuisance or environmental damage.

All building materials are to be prepared at the batching plant, to enable the effects of cement and other substances, and the resulting effluent to be more easily managed

18.20. Discharge of construction water

Potential pollutants of any kind and in any form must be kept, stored, and used in such a manner that any escape can be contained and the water table not endangered. This

Particularly applies to water emanating from runoff from fuel depots/workshops/truck washing areas. Wash down areas must be placed and constructed in such a manner so as to ensure that the surrounding areas are not polluted.

Contaminated water includes water that is carrying excess sediment due to construction activities. Contaminated water storage facilities must not be allowed to overflow and appropriate protection from rain and flooding must be implemented. Contaminated water that is removed from site must be disposed of at a facility approved by the ECO and Local

Authority. No contaminated water that does not meet the water quality standards and criteria under the National Water Act may be released into a natural system, whether it is to surface or groundwater

All cement effluent from mixer washings, and run-off from batching areas and other work areas must be contained in suitable sedimentation ponds. Sedimentation ponds must be allowed to dry out on a regular basis to allow for solid material to be removed. This material must be disposed of in a suitable manner, depending on the nature of the material, and to the discretion of the ESO.

18.21. Treating of Pipelines (if required)

Cleaning/sterilization/flushing of pipelines shall not impair surrounding environmental quality. Any contaminated water from such activities shall be contained until it complies with the standards contained in the National Water Act or other relevant Acts, as well as those laid down by the Local Authority or else it shall be removed from site and disposed of at an approved waste disposal site.

18.22. Contractors Temporary Camping site & Eating Areas

The Contractor must designate eating areas to the approval of the ECO, which must be clearly demarcated. No eating of meals must take place outside these designated areas

Without the approval of the Contractor. The feeding, or leaving of food for animals are strictly prohibited. Sufficient waste bins must be present in this area and emptied regularly.

No overnight camping/stay on site allowed. If overnighting is necessary for security purposes then it must be cleared with the ESO on site.

No washing in dams or streams are allowed.

18.23. Traffic, Access Routes & Haul Roads

The Contractor must control the movement of all vehicles and plant including that of his suppliers so that they remain on designated routes. In addition such vehicles and plant must be so routed and operated as to minimise disruption to regular users of the routes not on the Site. On gravel or earth roads on Site, the vehicles of the Contractor and his suppliers must not exceed a speed of 25 km/h. On public roads adjacent to the Site vehicles will adhere to municipal and provincial traffic regulations.

As far as possible any access routes/haul roads must utilise existing roads or tracks. Any new access roads/haul roads must be designed so as to minimise erosion and must run across slopes and not directly up them.

All temporary access routes must be rehabilitated at the end of the contract to the satisfaction of the ECO.

Method Statements for any new access/ haul roads must be submitted

18.24. Site Clean Up and Rehabilitation

The Contractor must ensure that all structures, equipment, materials and facilities used or created on site for or during construction activities are removed once the project has been completed. The construction site must be cleared, and cleaned to the satisfaction of the ESO.

18.25. Land Management

Visiting vehicles must be driven carefully in hazardous road conditions, sharp bends, narrow roads, bad weather, children on or near a road or domestic animals on or near the road.

Vehicle movements should be kept to a minimum during rain to avoid damage to access roads.

No fences or gates of property owners must be damaged. The condition of all-user gates must be closed upon access and exit to construction areas to prevent animals from getting out or access by unauthorised personnel. The access gates to the construction areas must always be closed.

Soil erosion must be prevented at all times along the access roads and around construction areas.

No bush or brush clearing to be undertaken without the knowledge of the ESO and landowner.

18.26. Socio-Cultural Issues

Property owners or property occupiers must be treated with respect and courtesy at all times.

The cultural lifestyles of the communities living in close proximity to the construction areas must be respected.

18.27. Additional Associated Installations

18.27.1 Construction of new access roads

In the event of the construction of a new access road to the site the access route is pre-determined prior to the On Site Start-Up Meeting.

Discussed at the Access Road Start-Up Meeting include the following but not restricted to;

- CEMP and contents thereof
- Demarcation of the access route
- Containment of soil and rock from excavation
- Transit areas of excess excavation road materials
- Stockpile areas for sub-base and surface material
- Earthmoving machinery for specific tasks
- Mandatory Site Equipment
- Placing of on-site toilet facilities
- Specific requests from farmers or property owners
- Dust Pollution
- Post construction erosion methods
- Site Specific agreements emanating from the Start-Up Meeting

18.27.2 Installation of Power lines & trenching of AC cables (if required)

In the event of the installation of an electrical overhead power line or the trenching of AC cable the proposed route has been pre-determined prior to the On Site Start-Up Meeting.

Discussed at the power line installation Start-Up Meeting include the following but not restricted to;

- CEMP and contents thereof
- Establishing the location of the “TAP-OF” point
- Arranging a time for the physical “Walk-In” and inspection of the power line route with the contractor, and the site ECO/ESO. [If required a representative from The Client may be present as well as the property owner or farmer]
- Establishing suitable stockpile areas for poles, machinery and accessories.
- Placing of poles on heavy duty plastic.
- Exit and entry points along the power line route
- Method of Pole Drilling. Pole Planting and Stringing phases
- Method of approach to pole hole location [i.e. Drive in Reverse out]
- Specific requests from farmers or property owners
- Mandatory Site Equipment
- Placing and method of site toilets.
- AC cable trenching
- Site Specific agreements emanating from the On Site Start-Up Meeting

19. TERMS AND ABBREVIATIONS:

The following definitions are applied:

Audit - [Site Completion] Environmental Site Inspection and verification of construction activities to CEMP

Bund - enclosure under / around a storage facility to contain any spillage.

Batch plant - a concrete or plaster mixing facility and associated equipment and materials.

Contractor - the principal persons / company and all other sub-contractors involved in the construction of the project.

Construction phase - The construction phase period of a cellular communications Construction site is defined as from the commencement of site establishment up to and including the practical site handover.

DEADP Department Environmental Affairs & Development Planning

DTEC – Department Of Tourism, Environment And Conservation [Northern Cape Province]

Declaration of Understanding – Form that is signed by all contractors involved in the construction works of their understanding and acceptance of the CEMP and site-specific additions to the CEMP.

Development site - boundary and extent of development works and infrastructure.

ECO - Environmental Control Officer: - Must be a suitably qualified independent site environmental consultant appointed to ensure compliance to the CEMP.

ESA – Environmental Site Agent

ESO - Environmental Site Officer - . Must be a person with adequate environmental knowledge to understand and implement the CEMP by conducting on-site inspections determined by the ECO and The Applicant.

ECO vs ESO - ECO might also mean the ESO but the ESO does not mean the ECO. The ESO is responsible to the ECO

ER – Engineers representative or Main contractors representative

On Site Start-Up Meeting – The OSSM held at site to discuss CEMP and determine Site Specific additions that will be included as the basis for the CEMP.

EA – Record Of Decision issued by DEADP or DTEC for the authorisation to commence construction under certain environmental compliances.

CMC	Cape Metropolitan Council
DTEC	Department of Tourism Environment and Conservation
DEA&T	Department of Environmental Affairs and Tourism
DWA&F	Department of Water Affairs and Forestry
EIA	Environmental Impact Assessment
EMP	Environmental Management Programme, although the term Environmental Management <i>Plan</i> is often used interchangeable with <i>Programme</i> .
EMS	Environmental Management System
IEM	Integrated Environmental Management
*ECO	Environmental Control Officer
*ESO	Environmental Site Officer
ER	Engineer's Representative
I&AP	Interested & Affected Party
SAHRA	South African Heritage Resources Agency

Environment means the surroundings within which humans exist and that are made up of:

- the land, water and atmosphere of the earth;
- micro-organisms, plant and animal life;
- any part of the combination of the above two bullets and the interrelationships between them;
- the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Potentially hazardous substance is a substance, which, in the reasonable opinion of the Engineer, can have a deleterious effect on the environment.

Method Statement is a written submission by the Contractor to the Engineer or relevant responsible person such as the Project Leader, in response to the Specification, or a request by the Engineer/Project Leader, setting out the plant, materials, labour, method, responsible persons and timeframe that the Contractor proposes using to carry out an activity, identified by the relevant specification or the Engineer/Project Leader when requesting the Method Statement, in such detail that

the Engineer/Project Leader is enabled to assess whether the Contractor's proposal is in accordance with the Specifications and/or will produce results in accordance with the Specifications.

The Method Statement shall cover applicable details with regard to:

- construction procedures;
- materials and equipment to be used;
- getting the equipment to and from site;
- how the equipment/ material will be moved while on site;
- how and where material will be stored;
- the containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- timing and location of activities;
- compliance/non-compliance with the Specifications;
- any other information deemed necessary by the Engineer/Project Leader.

reasonable means, unless the context indicates otherwise, reasonable in the opinion of the Engineer/Project Leader after he has consulted with a person, not an employee of the Applicant Directorate, suitably experienced in "environmental implementation plans" and "environmental management plans", both as defined in the Environmental Management Act (Act No 107,1998).

solid waste means all solid waste, including construction debris, chemical waste, excess cement/concrete, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).

contaminated water means water contaminated by the Contractor's activities, e.g. concrete water and runoff from plant/ personnel wash areas.

construction site means the area influenced and affected by the construction activities or under the control of the Contractor, often referred to as "the Site".

contractor's camp means the designated and suitably demarcated areas on the Site within which all site offices and staff facilities are situated and within which equipment will be stored, for instance, borrow areas, batching plant, crusher plant, sand washing plant, workshop, offices, rest areas, ablution areas, etc., whichever is applicable.

construction means the period of the project during which the actual works are carried out, deemed to include site establishment, site preparation, the works, maintenance period and decommissioning.

precautionary principle means the basic principle, that when in doubt or having insufficient or unreliable information on which to base a decision, to then undertake actions that will have minimum risk.

Applicant	The person/organisation (usually the landowner or holder of the servitude rights) with rights to undertake the development of the site.
Audit/Monitoring	Regular inspection and verification of construction activities for degree of compliance to the Environmental Management Programme.
Bund	Enclosure under/around a storage facility to contain any spillage.
Batch plant	Machinery used on site for the large-scale mixing and production of concrete or plaster and associated equipment and materials.
Contract	An accepted offer to execute specified work within a stated time for a monetary reward. It takes the form of all the documents and drawings issued when tenders are invited (in which the nature and quantity of the work to be executed are set out), the schedules of which documents have been priced by the contractor for completion within a stated time, and the acceptance, in writing, of the Contractor's price) (source: SABS 0120; 1986). OR The General Conditions of Contract and Special Conditions, Specifications, Drawings, Tender, written records of matters agreed after the submission of the Contractor's tender, Letter of Acceptance and Agreement, together with other documents which the parties have agreed in writing shall form part of the Contract and such amendments or additions to the Contract as may be agreed in writing

Contractor	<p>between the parties (source: GCC, 1990).</p> <p>The natural or juristic person or partnership whose tender has been accepted by, or on behalf of the Employer and where applicable, includes the Contractor's heirs, executors, administrators, trustees, judicial managers or liquidators, as the case may be.</p>
Developer	<p>The developer is the person/body responsible for the development of the project and could be the same as, or different to the applicant.</p>
Emergency	<p>A situation requiring immediate action and where failure to implement appropriate actions timeously may result in environmental damage.</p>
Engineer	<p>A person who represents the Applicant and is responsible for the technical, environmental and contractual implementation of the works to be undertaken.</p>
Engineer's Representative	<p>The person appointed from time to time by the Engineer in terms of the General Conditions of Contract. The Engineer's Representative shall:</p> <ul style="list-style-type: none"> • Observe the execution of the Works, examine and test materials and workmanship and receive from the Contractor such information as he shall reasonably require. • Have the authority: <ul style="list-style-type: none"> ○ Given to him by any provisions of the Contract. ○ Given to him by the Engineer. ○ To deliver to the Contractor oral or written communications from the Engineer. ○ To receive on behalf of the Engineer oral or written communications from the Contractor. <p>The powers and authority of the Engineer's Representative would be subject to certain conditions.</p>
Environmental Awareness Course	<p>An environmental education course for the Contractors management staff and labour force which informs them of the requirements of the EMP.</p>
Environmental Completion Statement	<p>A report document submitted to the relevant authority showing that the EMP environmental controls were appropriately implemented on a project.</p>
Environmental Completion Audit	<p>Similar to an Environmental Completion Statement but it is more detailed and will contain detailed information regarding controls and their effectiveness. This document would be required for large projects normally where a professional environmental scientist was appointed as the ECO.</p>
Environmental Management Programme:	<p>A programme for managing potential impacts identified during the approval process. It could consist of one or more of the following components, depending on necessity dictated by the nature of the development:</p> <ul style="list-style-type: none"> • Standard Environmental Specification • Detailed Environmental Specification • Guideline documents and tools for implementation by the different role players • The Environmental Education Course • Standard Revegetation Specification • Detailed Revegetation Specification <p>As mentioned earlier, the term Environmental Management <i>Plan</i> is often used interchangeable with Environmental Management <i>Programme</i>, and for the purposes of this document will be assumed to have the same definition.</p>
*ESO (Environmental Site Officer)	<p>Designation is reserved for suitably qualified environmental site managers, who are to be appointed by the Engineer, and are mainly associated with large and complex developments.</p>
*ECO (Environmental Control Officer)	<p>Designation is reserved for suitably qualified authority or officer acting on their behalf. The ECO is usually a professionally qualified Environmental Scientist..</p>
Environmental Specification	<p>For the purposes of this study, this designation is reserved for the combination of the Standard Environmental Specifications and the Detailed Environmental Specifications.</p>
General Conditions of Contract	<p>A document that sets out the general rights and obligations of the parties to a contract, on such matters as sureties, quality of work, program, supervision, insurance, co-operation with others, provision of plant, material and labour, the regulation of wages, samples, tests, examination, commencement and completion of work, penalties for delay, requirements for maintenance, methods of dealing with defects, variations, measurements and payments, and the settlement of disputes. In South Africa the most widely accepted general conditions of contract for general civil</p>

	<p>engineering works is the SAICE General Conditions of Contract for Works of Civil Engineering Construction (sixth edition, 1990).</p>
No Go Areas	<p>Areas identified as being environmentally sensitive in some manner and delineated on plan, and on the site with pegs or fencing and which are out of bounds to unauthorised persons. Authorisation must be obtained from the Engineer/Project Leader prior to entry.</p>
Particular Specification	<p>A specification that covers construction work involving a specialist type of operation that is not adequately covered in a Standardized Specification.</p>
Project Specification	<p>A specification that describes the Works in general terms (including the locality, the conditions on Site, the extent of the Contract, the construction programme, and the service facilities available and to be taken into consideration) and that may include clauses that amend or amplify or add to any requirement(s) of a standardized specification (or standard or particular specification) in the sequence in which the requirements and specifications occur in the contract documents.</p>
Reference Group:	<p>The funding body and major role-players (including the environmental authorities) who may resolve environmental disputes, which could arise between the different role-players on site.</p>
Revegetation Specification Site	<p>This designation is reserved for the combination of the Standard Revegetation Specifications and the Detailed Revegetation Specifications.</p>
Specification	<p>The boundary and extent of development works and infrastructure, including any areas off the main site on which works are to be carried out in order to allow the development to proceed successfully.</p>
Standard Specification	<p>A technical descriptions of the standards of materials and workmanship that the Contractor is to use in the Works to be executed, the performance of the Works when completed and may include the manner in which payment is to be made. It is essential for the specifications to be clear, concise and to the point, and use should not be made of ambiguous terms or phraseology.</p>
Standardized Specification	<p>An established or accepted model specification. In South Africa the most widely accepted standard specification for general civil engineering works is the set of SABS 1200 Standardized Specifications (refer to definition below), however, other Standard Specifications such as BS, AAWA and Standard Water Specifications are also used.</p>
Top material	<p>A specification that is published by the South African Bureau of Standards (SABS) and that so covers a particular class of civil engineering construction that the specification is generally applicable throughout the Republic of South Africa.</p>
Works	<p>This refers to any surface material in the construction area, whether it is soil, fine material or stones including vegetation.</p>
	<p>The works to be executed in accordance with a contract.</p>

20. APPENDICES:

Appendix 1: SITE START-UP REPORT

Appendix 2: PENALTIES FOR NON-COMPLIANCE

Appendix 3: DECLARATION OF UNDERSTANDING

Appendix 4: INFORMATION ON METHOD STATEMENTS

Appendix 5: EXAMPLE OF METHOD STATEMENT

Appendix 6: CONTRACTOR/S REPRESENTATIVE: ENVIRONMENTAL DAILY CHECKLIST

Appendix 7: BASIC RULES OF CONDUCT

Appendix 8: ESO DAILY REPORT/CHECKLIST

Appendix 9: EA.

Appendix 10: DRAWINGS (SEE BASIC ASSESSMENT REPORT).

Appendix 11: RECOMMENDATIONS AS PER BASIC ASSESSMENT REPORT

Appendix 12: Other documents.

APPENDIX 1: START-UP REPORT

TO BE INCLUDED AFTER START-UP MEETING

APPENDIX 2: PENALTIES FOR NON-COMPLIANCE

The contractors / sub-contractors must contact the ECO at any stage if unsure about any matter, or if a pollution incident occurs, or vegetation or animals are damaged.

ECO = Environmental Control Officer ESO= Environmental Site Officer

PHASE	Penalty for Non-compliance	
	Bottom range	Top Range*
PRE-CONSTRUCTION PHASE		
Construction area to be marked off before construction starts.		5000
The demarcated area must be maintained throughout the construction phase	500	1000
Site area for stock piling of building material must be demarcated	500	5000
Site area for storing of waste material must be demarcated	500	5000
Fencing off the construction site with mesh fencing of 1.8m, where necessary or other suitable material as agreed on by ECO	500	1000
Sitting of access road/s to be approved by ECO & demarcated with stakes before any construction starts (if applicable)		5000
Temporary route used for construction must be determined on site with ECO (if applicable)	1000	5000
Telecommunications & AC power routes must be determined with the ECO (if applicable)	1000	5000
Sensitive features that may be harmed must be clearly marked or demarcated.	500	2000
Vegetation that may not be removed must be clearly marked or demarcated.	500	5000
Contractor must make the Construction team and all sub-contractors aware of all environmental aspects that could lead to imposition of penalties	100	5000
Contractor to sign Declaration of understanding (DOU) before construction starts		5000
Contractor to assure that all subcontractors be informed and signed DOU	1000	5000
Method statements must be provided on request by the ECO. No work may commence until the Method Statement is accepted by the ECO and Engineer	1000	5000
CONSTRUCTION PHASE		
Information		
A copy of the CEMP & Record of Decision with all the conditions of approval, and the relevant Method Statements must be at site at all times.	200	5000
Construction crew behaviour		
Construction crews may not overnight on site.	200	5000
No amplified music allowed on site	100	200
Construction crew must stay within the demarcated construction area. (Applicable in sensitive sites)	50	500
Eating of meals only allowed in demarcated area	50	500
No pets permitted on site		100
Driving, Parking & Storing of machinery and vehicles are only allowed inside demarcated areas and existing roads	1000	5000
Machinery may only be used on the road and may not disturb the vegetation on the sides of the road except if cleared by ECO. Machinery used must be carefully considered to limit environmental damage	500	5000
No vegetation other than that agreed on may be damaged - i.e. no access to areas outside construction area.	500	2000
No individual may cause unnecessary damage to flora and fauna on,	20	2000

around or near the site		
No littering allowed (incl. cigarette butts)	50	500
Excavations		
No topsoil may be removed or altered outside the demarcated area and/or which was not specified.		2000
Commercial sources of sand, rock and gravel to be cleared with ECO	200	5000
All surplus material to be taken off-site and be disposed of at approved site	500	5000
Toilets		
Sufficient ablution facilities must be provided		3000
Toilets to be secured to prevent them from falling or blowing over.	100	1000
They must be serviced regularly, (according to the manufacturer's instructions) and kept clean.	100	1000
Everybody on site must make use of ablution facilities	50	1000
Fire Prevention		
All mandatory fire fighting equipment (as specified at start-up) must be on site at all times	500	4000
Fire fighting equipment to be in good working order and serviced.	500	2000
No fires, including cooking fires, allowed on site	1000	5000
Cement		
Concrete may only be mixed within the boundaries of the demarcated area and/or where was agreed on by the ECO.	500	5000
All excess cement & concrete mixes to be contained on construction site prior to disposal off site	200	5000
Any cement / concrete spillage to be cleaned up immediately.	500	5000
Mixing and storage areas must be appropriately located in demarcated area	500	1000
Dust pollution control		
Ensure that loose building material is covered to prevent dust pollution	100	1000
Water run-off		
Contamination of water bodies, rivers, dams or wetlands must be prevented at all cost	500	5000
Rainwater from construction & building site/s must be channelled, contained & allowed to dry out, so as not to transport any pollutants into the surrounding area. Temporary trenches, straw stabilising, brush cutting can be used	500	5000
Waste control		
Sufficient refuse bins must be placed on site	500	2000
Refuse bins must be cleaned on a regular basis	100	1000
General litter / building refuse must be cleaned up on a regular basis from the site	500	3000
Cement-contaminated water; paint; oil; cement slurries etc must be stored in watertight containers or as agreed with ECO	500	5000
Store all refuse & waste material in wind & animal proof containers	100	1000
Waste must be disposed of at an official waste deposit site on a regular basis.	500	5000
The absence of or inadequate drip trays or bunding facilities	500	5000
Failure to address oil/fuel leaks from on-site machinery	200	5000
Herbicides		
No herbicides or pesticides whatsoever may be used.	200	2000
Construction road		
Road must be upgraded to prevent degradation and erosion of the road and surrounds.	500	5000
Power and Telecommunications supply		
Demarcate power supply route	500	5000
No vehicles to drive through vegetation unless authorised by ECO	500	5000

Storage of equipment may only take place at an area demarcated by the ECO.	500	5000
Working must be done in phases to prevent trampling of vegetation	N/A	
Use of generators and fuel powered equipment		
A watertight cover must be placed under the power generator equipment to prevent accidental spillage of fuel & oil seeping into the soil.	500	5000
Drip tray must be able to take 120% of fuel on site	500	5000
All waste material generated from the use of this equipment must be contained and removed from the site	500	5000
Mobile fuel powered equipment must be well maintained and must not have any fuel or oil leaks.	200	5000
Soil Stabilisation		
Ensure that soil material for filling and stabilisation comes from a source that does not contain seeds alien to the area. The source must be cleared with the ECO.	100	2000
Rehabilitation		
Remove rocks and stones and stock pile in area recommended by ECO	500	5000
Remove all plants that can be used for rehabilitation and store on- or off-site in appropriate manner as agreed with ECO	200	5000
Removal of all old concrete and alien materials from site	500	5000
Site must be cleared of all waste and building material	500	5000

*(Large scale / repeated offence)

APPENDIX 3: DECLARATION OF UNDERSTANDING

DECLARATION OF UNDERSTANDING

I, _____

Representing _____

Declare that the conditions of the authorisation were brought under my attention and that I have read and understood the contents of the Environmental Management Plan (which includes all documents as per Record of Decision).

SITE: MIER MUNICIPALITY LOW COST HOUSING PROJECT

EA: ref. _____

Date: _____

I also declare that I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications as set out in the various documents for the aforementioned site.

I also undertake to inform all persons under my supervision of such specifications and contents of the documents.

Signed: _____

Place: _____

Date: _____

Witness 1: _____

Witness 2: _____

APPENDIX 4: INFORMATION ON METHOD STATEMENTS

Method Statements are to be completed by the person undertaking the work (i.e. the Contractor). The Method Statement will enable the potential negative environmental impacts associated with the proposed activity to be assessed.

The Method Statement can only be implemented once approved by the ESO.

The Contractor (and, where relevant, any sub-contractors) must also sign the Method Statement, thereby indicating that the works will be carried out according to the methodology contained in the approved Method Statement.

The ESO will use the Method Statement to audit compliance by the Contractor with the requirements of the approved Method Statement.

Changes to the way the works are to be carried out must be reflected by amendments to the original approved Method Statement; amendments require the signature of the ESO, denoting that the changed methodology or works are necessary for the successful completion of the works, and are environmentally acceptable. The Contractor will also be required to sign the amended Method Statement thereby committing him/herself to the amended Method Statement.

This Method Statement **MUST** contain sufficient information and detail to enable the ESO to apply their minds to the potential impacts of the works on the environment. The Contractor will also need to thoroughly understand what is required of him/her in order to undertake the works.

THE TIME TAKEN TO PROVIDE A THOROUGH, DETAILED METHOD STATEMENT IS TIME WELL SPENT. INSUFFICIENT DETAIL WILL RESULT IN DELAYS TO THE WORKS WHILE THE METHOD STATEMENT IS REWRITTEN TO THE ER'S AND ESO'S SATISFACTION. The page overleaf provides a *pro forma* method statement sheet, which needs to be completed for each activity requiring a method statement in terms of the EMP.

APPENDIX 5: EXAMPLE OF METHOD STATEMENT

METHOD STATEMENT

CONTRACT:..... **DATE:**.....

PROPOSED ACTIVITY (give title of method statement and reference number):

WHAT WORK IS TO BE UNDERTAKEN (give a brief description of the works):

WHERE ARE THE WORKS TO BE UNDERTAKEN (where possible, provide an annotated plan and a full description of the extent of the works):

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date:

End Date:

HOW ARE THE WORKS TO BE UNDERTAKEN (provide as much detail as possible, including annotated maps and plans where possible):

Note: please attach extra pages if more space is required

DECLARATIONS

1) ENVIRONMENTAL CONSULTANT AND/OR SITE OFFICER

The work described in this Method Statement, if carried out according to the methodology described, is satisfactorily mitigated to prevent avoidable environmental harm:

(Signed) (Print name)

(Signed) (Print name)

Dated: _____

2) PERSON UNDERTAKING THE WORKS

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to other signatories and that the ESO will audit my compliance with the contents of this Method Statement

(Signed) (Print name)

Dated: _____

3) THE APPLICANT

The works described in this Method Statement are approved.

(Signed) (Print name) (Designation)

Dated: _____

4) APPROVING AUTHORITY

The works described in this Method Statement are approved.

(Signed) (Print name) (Designation)

Dated: _____

APPENDIX 6: CONTACTOR/S REPRESENTATIVE: ENVIRONMENTAL WEEKLY CHECKLIST

CONTACTOR/S REPRESENTATIVE: ENVIRONMENTAL WEEKLY CHECKLIST

SITE: _____

PHASE OF WORK AND % OF COMPLETION: _____

ENVIRONMENTAL ASPECT	YES/ NO (✓ or X)	COMMENTS
• How many workers are on site		
• All new personnel on site are aware of the contents of the EMP and have been through the environmental awareness course.		
• Contractor's camp is neat and tidy and the labourers' facilities are of an acceptable standard.		
• Sufficient and appropriate fire fighting equipment is visible and readily available.		
• Waste control and removal system is being maintained.		
• Refuse bins in place and maintained		
• Toilets are in place and clean		
• Demarcation and other fences are being maintained.		
• What machinery are on site		
• Drip trays are being utilised where there is a risk of incidental spillage		
• Bunds/ drip trays are being emptied on a regular basis (especially after rain).		
• No leakages (oil & fuel) are visible from construction vehicles		
• No go areas, remaining natural features and trees have not been damaged.		
• Dust control measures (if necessary) are in place and are effectively controlling dust.		
• Noise Control measures (if necessary) is in place and is working effectively.		
• Erosion control measures (if necessary) are in place and are effective in controlling erosion. (Access road, site areas ect.)		
• Stockpiles are located within the boundary of the site, do not exceed 2 m in height and are protected from erosion.		

Completed by:..... Sign:..... Date:.....

To be submitted at the end of each week to the Environmental Site Officer (ESO)

Received by:

Environmental Site Officer: :..... Sign:..... Date:.....

APPENDIX 7: BASIC RULES OF CONDUCT

BASIC RULES OF CONDUCT

The following list represents the basic Do's and Don'ts towards environmental awareness, which all participants in this project must consider whilst carrying out their tasks. These are not exhaustive and serve as a quick reference aid.

NOTE: **ALL new site personnel must** attend an environmental awareness presentation. Please inform your foreman or manager if you have not attended such a presentation or contact the ESO.

DO:

- USE THE TOILET FACILITIES PROVIDED – REPORT DIRTY OR FULL FACILITIES
- CLEAR YOUR WORK AREAS OF LITTER AND BUILDING RUBBISH AT THE END OF EACH DAY – use the waste bins provided and ensure that litter will not blow away.
- REPORT ALL FUEL OR OIL SPILLS IMMEDIATELY & STOP THE SPILL CONTINUING.
- DISPOSE OF CIGARETTES AND MATCHES CAREFULLY. (Littering is an offence.)
- CONFINE WORK AND STORAGE OF EQUIPMENT TO WITHIN THE IMMEDIATE WORK AREA.
- USE ALL SAFETY EQUIPMENT AND COMPLY WITH ALL SAFETY PROCEDURES.
- PREVENT CONTAMINATION OR POLLUTION OF STREAMS AND WATER CHANNELS.
- ENSURE A WORKING FIRE EXTINGUISHER IS IMMEDIATELY AT HAND IF ANY “HOT WORK” IS UNDERTAKEN e.g. Welding, grinding, gas cutting etc.
- REPORT ANY INJURY OF AN ANIMAL.
- DRIVE ON DESIGNATED ROUTES ONLY.
- PREVENT EXCESSIVE DUST AND NOISE.

DO NOT:

- REMOVE OR DAMAGE VEGETATION WITHOUT DIRECT INSTRUCTION.
- MAKE ANY FIRES.
- INJURE, TRAP, FEED OR HARM ANY ANIMALS – this includes birds, frogs, snakes, lizards etc.
- ENTER ANY FENCED OFF OR MARKED AREA.
- ALLOW CEMENT OR CEMENT BAGS TO BLOW AROUND.
- SPEED OR DRIVE RECKLESSLY
- ALLOW WASTE, LITTER, OILS OR FOREIGN MATERIALS INTO THE STREAM
- SWIM IN THE DAM.
- LITTER OR LEAVE FOOD LAYING AROUND

Notes:

1. Must any animals such as tortoises, chameleons or snakes be encountered then do not harm them. The ESO or RE must be contacted to remove these safely. The harming of any animal will result in disciplinary action.
2. Construction and heavy machine operators must be particularly sensitive to staying within access routes and prevention of unnecessary damage. Dust and noise is also of particular concern. Ensure that vehicles and machinery do not leak fuel or oils. Refuelling or maintenance must be done within the maintenance camp area only.
3. Alien plant clearing and control work teams must be closely supervised.

BASIESE GEDRAGSKODES

Die volgende lys vertenwoordige die Moets en Moenies vir omgewingsbewustheid wat alle deelnemers aan hierdie projek in ag moet neem tydens die uitvoer van hul take. Hierdie lys is nie volledig nie en dien slegs as 'n vinnige verwysing.

NOTA: ALLE nuwe terreinpersoneel moet 'n aanbieding ten opsigte van omgewingsbewustheid bywoon. Indien u nog nie so 'n aanbieding bygewoon het nie, lig asseblief u voorman of bestuurder in of kontak die Omgewings Terreinbeampte.

MOETS:

- GEBRUIK DIE BESKIKBARE TOILET-GERIEWE – RAPPORTEER VUIL OF VOL GERIEWE.
- MAAK U WERKPLEK SKOON VAN ROMMEL OF BOUROMMEL AAN DIE EINDE VAN ELKE DAG – gebruik beskikbare vullisdromme en verseker dat rommel nie rondwaai nie.
- RAPPORTEER ALLE BRANDSTOF- EN OLIE STORTINGS ONMIDDELLIK – STOP VERDERE STORTING.
- WEES VERSIGTIG MET DIE WEGDOEN VAN SIGARETTE EN VUURHOUTJIES. (rommelstrooi is 'n oortreding.)
- BEPERK WERKAKTIWITEITE EN DIE SToor VAN TOERUSTING TOT DIE ONMIDDELLIKE WERKAREA.
- GEBRUIK VEILIGHEIDSTOERUSTING EN VOLDOEN AAN ALLE VEILIGHEIDS-MAATREËLS.
- VOORKOM BESOEDELING VAN STROME EN WATERBANE
- VERSEKER DAT 'N BRANDBLUSSER IN WERKENDE TOESTAND BYDERHAND IS WANNEER “WARM” WERK VERRIG WORD bv. Sweis, wegslyp, gasny, ens.
- RAPPORTEER BESEERDE DIERE.
- RY SLEGS OP AANGEWESSE ROETES.
- VOORKOM OORMATIGE STOF EN GERAAS.

MOENIE:

- PLANTEGROEI VERWYDER OF BESKADIG SONDER DIREKTE INSTRUKSIE NIE.
- ENIGE VURE MAAK NIE.
- ENIGE DIERE DOOD, BESEER, VANG OF VOER NIE, insluitende voëls, paddas, slange, akkedisse, ens.
- ENIGE OMHEINDE OF AFGESPERDE AREAS BINNETREE NIE.
- SEMENT OF SEMENTSASSE LAAT RONDWAAI NIE.
- VINNIG OF ROEKELOOS BESTUUR NIE.
- ENIGE ROMMEL, AFVAL, OLIE OR ENIGE VREEMDE MATERIAAL IN STROME LAAT BELAND NIE.
- IN DIE DAM SWEM NIE.
- ROMMELSTROOI OF KOS LAAT RONDLÊ NIE.

Notas:

1. Indien enige diere soos skilpaaie, verkleurmannetjies of slange teëgekomp word, moet hulle nie beseer of dood nie. Kontak die OTB of RI om hulle veilig te verwyder. Die besering van diere sal lei tot dissiplinêre optrede.
2. Operateurs van konstruksie- en swaar masjiene moet veral versigtig wees om binne toegangsroetes te bly en om enige onnodige skade te voorkom. Verseker dat voertuie en masjiene nie olie of brandstof lek nie. Brandstofaanvulling en voertuigonderhoud mag slegs binne die onderhoudsarea gedoen word.
3. Streng toesig moet gehou word oor indringerplantbeheerspanne.

EZIPPHAMBILI EKUNYANZELEKILEYO UKUBA ZENZIWE

Zonke ezi zinto zilandelayo zizinto ekufuneka zenziwe nekufuneka zingenziwanga.

Wonke umntu ofikayo kufuneka afundiswe ngemigaqo kupala. Neda yazisa iforman yakho ikuba awukhange uye kufundiswa.

IZINTO EMAZENZIWE

- SEBENZISA IZINDLU ZANGASESE, YAZISA XA KUKHO UMONAKALO.
- ZAMA UKUCOCA APHO UBUSEBENZA KHONA.
- SEBENZISA IMIGQOMO YENKUKUMA UNGAYEKI IPHAPHTIEKE.
- YAZISA XA UBONA IOIL ECHITHSKALAYO OKANYE IPETROL.
- CIMA LOZOLI CIGARETTE XA UGQIBIBILE UKUTSHAYA
- ZONKE IZIXHOBO USEBENZA ZIBUYISELE APHO ZIHLAKA KHONA XA UCGIBILE APHO ZIHLALA KHONA XA UGQIBILE UKUZISEBENZISA.
- ZISEBENZISE IZIKHUSELIXA UZINKIWE.
- SUKUGALELA IZINTO EMLANJENI.
- MASIBEKHO ISICIMA MLILO XAUSEBENZA NGOMLILO.
- YAZISA MSINYANE XA UBONE ISILWANYANA EZONZAKELEYO.
- XAUQHUBA ISITHUTHI HAMBANDA ENDLELENI QHA UNGAFATHULINJE.
- NAPHINA ZAMAUNGENZI THULI OKANYE INGXOLO XA USEBENZA.

EMAZINGENZIWA

- SUKUSUSA NESIPHINA ISITYALO UNGAKHANGE UXELELWE
- SUKWENZA MLILO NOKUBA SEKUBANDA
- AMAGQARA UKUBULALA IZILWANYANA NOKUZIFIDA AKUVUMELEKANGA
- SUKUNGENA XA KUVALIWE NGAPHANDLE KWE MVUME
- INGXOWA ZESAMENTE MAZINCEDWE ZINGAL AHLWA NJE
- SUKUQHUBA NGESANTYA ESIPHAKAMILEYO
- SUKUGALELE NAYIPHI INTO PHAYA EMLANJENI
- SUKUQUBHA EDAMENI Q OQOSHA YONK INKUKUMA

APPENDIX 8: ECO/ESO SITE REPORT/CHECKLIST

ECO / ESO SITE VISIT CHECKLIST / REPORT:

PROJECT NAME: DATE

PROJECT & PHASE: LOCATION

ENVIRONMENTAL ASPECT		COMMENTS
1 = Poor, 2 = Average, 3 = Good NA = Not Applicable		
<p>DEMARCATATION</p> <p>METHOD STATEMENT</p> <p>Boundaries of “no go” areas, construction sites, offices, temporary storage areas as well as labourer’s facilities must be demarcated (EMP and ECO requirements) and maintained for the length of the construction period.</p>		
<p>NO-GO AREAS/PROTECTION OF FAUNA & FLORA</p> <p>Identified “No-Go Areas”, remaining natural veld and indigenous- or significant trees are protected features and must be demarcated for protection from construction damage (including secondary impact).</p> <p>All areas outside of the demarcated construction sites and access roads to be regarded as NO-GO areas unless otherwise agreed upon with the client and ECO.</p> <p>All flora identified to be rescued must be removed and placed in an area specifically allocated and taken care off until re-used in pre-approved way.</p> <p>Identified areas with significant vegetation must be protected as NO-GO areas.</p>		
<p>CLEARING OF VEGETATION & TOPSOIL REMOVAL</p> <p>METHOD STATEMENT</p> <p>Before any construction or earthworks, topsoil must be stripped (>150mm) and stockpiled for rehabilitation/ landscaping.</p> <p>Stockpiles:</p> <p>must be protected (may not blow or wash away or gets compacted) and stored separately.</p> <p>may not be moved further than 50m or mixed with any other soil.</p> <p>must be convex and should not exceed 2m in height.</p> <p>In addition:</p> <p>Cleared areas must be stabilized.</p> <p>Burning or burying of cleared vegetation is prohibited, but may be used for mulch or slope stabilisation on site.</p>		
<p>STOCKPILING</p> <p>METHOD STATEMENT</p> <p>Top- and subsoil’s from trenches must be located within site boundaries, stabilised and may not exceed 2m in height.</p>		

ENVIRONMENTAL ASPECT		COMMENTS
1 = Poor, 2 = Average, 3 = Good NA = Not Applicable		
TEMPORARY STORAGE FACILITIES METHOD STATEMENT Must be demarcated, organised, neat and tidy and of acceptable standards.		
CONSTRUCTION CAMP & SITE OFFICES METHOD STATEMENT Must be demarcated, organised and free of day-to-day litter (maintaining good housekeeping standards).		
FUEL STORAGE METHOD STATEMENT Fuel storage areas must be situated within the demarcated construction camp site (or an area approved by the ECO). Bunds must be built (EMP and ECO requirements) around larger fuel storage areas (accidental spillages). Drip trays must be used (in accordance with EMP) at all fuel and oil storage and refilling sites and must be cleaned regularly, especially after rain.		
LABOURER'S FACILITIES METHOD STATEMENT Facilities must be of acceptable standards suitably demarcated, well maintained, neat and tidy and with adequate ablution facilities.		
ENTRANCE AND HAUL ROADS METHOD STATEMENT Only approved entrance and haul roads may be used (existing roads and infrastructure). No new roads or parking areas may be developed without written approval from the ECO.		
MANDATORY SITE EQUIPMENT METHOD STATEMENT Mandatory site equipment must be in place, well maintained and in accordance with EMP and ECO requirements. Sufficient refuse bins must be on site (well placed and conspicuous) and must be cleaned regularly. Fire extinguishers must be readily available, maintained and functional. Drip trays must be used (in accordance with EMP) at all fuel and oil storage and refilling sites and must be cleaned regularly, especially after rain. Toilets and sanitation facilities must be kept clean neat and hygienic (toilet paper must be available).		

ENVIRONMENTAL ASPECT		COMMENTS
1 = Poor, 2 = Average, 3 = Good NA = Not Applicable		
<p>WASTE CONTROL</p> <p>METHOD STATEMENT</p> <p>The contractor is expected to control all construction related waste material and general litter on actual construction sites and its immediate surroundings.</p> <p>Waste management must be in accordance with the EMP, of acceptable standards, with regular removal of general waste, hazardous waste as well as construction waste (e.g. concrete waste and spoil).</p>		
<p>CEMENT MIXING & BATCHING AREAS</p> <p>METHOD STATEMENT</p> <p>Mixing areas must be approved by the ECO, suitably demarcated and may not result in pollution.</p> <p>Polluted cement water may only be released into sedimentation ponds.</p> <p>Sedimentation ponds must be maintained and cleaned regularly (and reinstated after use).</p>		
<p>CONSTRUCTION VEHICLE MAINTENANCE</p> <p>METHOD STATEMENT</p> <p>Construction vehicles must be in good working order and well maintained to prevent oil and fuel leakages and to reduce noise levels.</p> <p>Maintenance areas must be approved by ECO.</p> <p>Refuelling must be done in accordance with the EMP, using drip trays.</p>		
<p>HEAVY EARTHMOVING EQUIPMENT</p> <p>Construction vehicles and equipment may only operate <u>within</u> the demarcated site boundaries (and approved access roads), especially heavy earthmoving vehicles.</p>		
<p>DUST CONTROL</p> <p>METHOD STATEMENT</p> <p>Adequate control measures must be in place to prevent dust pollution as a result of construction activities (especially with regard to entrance-, haul roads and exposed surfaces).</p> <p>Areas of concern must be watered regularly during construction AND periods of strong winds, BUT must take water saving into account.</p>		

ENVIRONMENTAL ASPECT		COMMENTS
1 = Poor, 2 = Average, 3 = Good NA = Not Applicable		
<p>EROSION CONTROL</p> <p>METHOD STATEMENT</p> <p>Erosion resulting from works must be controlled.</p> <p>Temporary and permanent drainage works must be maintained.</p> <p>Erosion damage and damage in drainage courses must be reinstated.</p>		
<p>NOISE CONTROL</p> <p>METHOD STATEMENT</p> <p>Effective noise control measures must be in place and acceptable working hours must be kept (deviations must be approval by the ECO).</p>		
<p>ENVIRONMENTAL CONDUCT</p> <p>Environmental conduct of construction personnel must be acceptable (e.g. no burning or burying of refuse; no littering and no cement bags or other construction waste material lying around).</p>		
<p>ARCHAEOLOGICAL & HERITAGE FINDS</p> <p>METHOD STATEMENT</p> <p>Should any archaeological or heritage remains be exposed during excavations or any activity on site, these must immediately reported to The site agent/engineer, the ECO HWC or SAHRA.</p>		
<p>REHABILITATION</p> <p>METHOD STATEMENT</p> <p>On completion of the project or phase, all areas impacted by the construction activities must be reinstated and/or rehabilitated to the satisfaction of the ECO with emphasis on the following:</p> <p>Site offices must be removed and the areas rehabilitated or reinstated to the satisfaction of the ECO.</p> <p>Labourer's facilities must be removed and the areas rehabilitated or reinstated to the satisfaction of the ECO.</p> <p>All construction site areas must be rehabilitated or reinstated to the satisfaction of the ECO.</p> <p>All temporary fencing and demarcation must be removed and the areas reinstated to the satisfaction of the ECO.</p> <p>Temporary storage areas must be rehabilitated or reinstated to the satisfaction of the ECO.</p> <p>All remaining construction material must be removed and the areas rehabilitated or reinstated to the satisfaction of the ECO.</p> <p>Any additional disturbed areas must be rehabilitated or reinstated to the satisfaction of the ECO.</p>		

ENVIRONMENTAL ASPECT		COMMENTS
1 = Poor, 2 = Average, 3 = Good NA = Not Applicable		
ADDITIONAL METHOD STATEMENTS Method statements must be submitted and approved before commencement of the works and must be available at the site offices.		
ENVIRONMENTAL CHECKLIST The contractor must ensure that the weekly environmental checklist is completed at the end of each week and it must be available at the site offices.		
SPOT FINES & PENALTIES Spot fines and penalties must be recorded and documented by the ECO (in accordance with the EMP).		
FIXED POINT PHOTOS Photographs must be taken by the ECO, Site Engineer and or Site Manager, prior to, during and immediately after construction as visual reference. These photographs must be stored with other records relating to the EMP.		

ECO:

APPENDIX 9: ENVIRONMENTAL AUTHORIZATION.

APPENDIX 10: DRAWING/S

APPENDIX 11: RECOMMENDATIONS AS PER BASIC ASSESSMENT REPORT.

APPENDIX 12: ANY OTHER RELEVANT DOCUMENTS