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Version 1

ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE PROPOSED ECO CAMP ON PORTION 6 OF THE FARM 191, TIMBERLAKE, GEORGE

in terms of

Regulation 22 (b) of Government Notice No. R385 in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act 107 of 1998), July 2006 as amended 2008 and the Environmental Impact Assessment Regulations 2014



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PROPOSED ECO CAMP ON PORTION 6 OF THE FARM 191 TIMBERLAKE, GEORGE

Submitted for:

[Public Review and Comment](#)

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Author of the report

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1. INTRODUCTION

HillLand Environmental, independent Environmental Assessment Practitioners (EAP) have been appointed by the Applicant, **Cape Farm Store (Pty) Ltd**, to ensure compliance with the regulations contained in the *National Environmental Management Act* (NEMA, No 107 of 1998) and Environmental Impact Assessment Regulations, 2014 (as amended) for the proposed tented camp on portion 6 of the Farm 191, Timberlake, George.

The development proposal consists of the establishment of an Eco Camp on timber structures. The vision of the owners is to add an accommodation element to Timberlake that will complement the existing facilities and organic activities on the site. As such, the proposal constitutes as a listed activity in terms of NEMA and requires environmental authorisation prior to construction.

This EMPr is submitted as per the requirements of a Basic Assessment in terms of NEMA.

This EMPr must be included into the tender documents of all prospective contractors and must also be included in the final contract awarded. The EMPr must be regarded as binding on all contractors, sub-contractors, agents, consultants and construction staff on the property.

The full and approved EMPr will be made available to all contractors working on the project. Certain fundamental aspects are therefore of importance:

- The EMPr and these requirements are binding on all contractors and their sub-contractors.
- It is the responsibility of the contractor (main contractor) to ensure that any sub-contractor is made aware of the environmental requirements.
- The contractor will be required to make good any damage caused through their actions or the actions of their sub-contractors (in addition to any penalties for non compliance issued).

Please note that this EMPr is a dynamic document, which will grow and be changed with new developments in the field as the need arises.

2. THE DEVELOPMENT PROPOSAL

The development proposal consists of the establishment of an Eco Camp on the property. The vision of the owners is to add an accommodation element to Timberlake that will complement the existing facilities and organic activities on the site.

The Eco-Camp will consist of two Components:

- (i) Five (5) Dome Tents with communal hut on the first ridge;
- (ii) Five (5) Luxury Tents along the northern boundary overlooking lakes

It should be noted that the positioning of the tents will be done during the construction phase in areas that have been cleared of alien invasive plant species so as to ensure that little to no natural vegetation is disturbed by the proposal.

Luxury Tents

Five (5) Luxury Tents are proposed to be erected along the northern boundary (out of the 30m buffer area as prescribed by SANParks) on wooden decks within the north facing tree line for maximum views of the Langvlei Lake area.

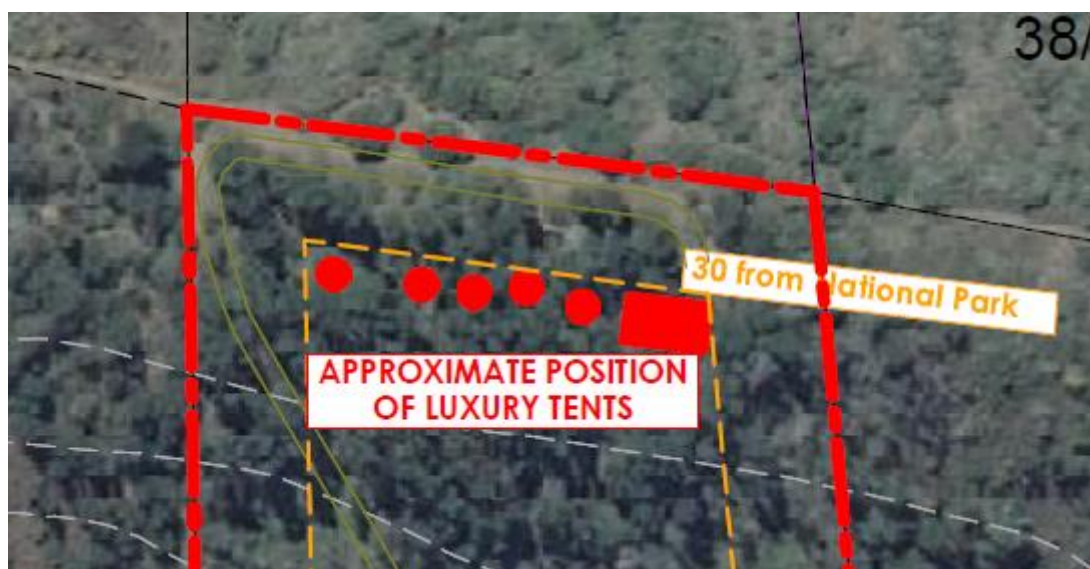


Figure 1 - Approximate position of the 5 luxury tents, spa gazebo and main building.

The decks will not exceed 50m² and the luxury tents will be en-suite with toilets and outside showers. A self-filtering swimming pool with a Spa Gazebo and Main building are proposed to complement these tents. The Spa Gazebo will comprise a simple wooden structure with a canvas roof and the main building will be approximately 200m² in extent and consist of a dining room, lounge and reception areas.

Dome Tent Camp

Five (5) dome tents are proposed to be erected on the first ridge that runs through the approximate middle of the property.



Figure 2 - Approximate position of the five dome tents and communal facilities.

The dome tents are to be erected and each tent is to be placed on a wooden deck which will not exceed 50m². A central hut is to be created which will provide visitors with a communal facility where meals may be prepared with two large tables for seating and a Dover stove. A second hut is to be created that will provide 4 composting toilets and 5 outside showers. The dome tents are to be situated on the north facing slope of the first ridge on the property to ensure that it is shielded from traffic noise, will not change or impact upon the visual character of the area and are close enough to the existing facilities at Timberlake.



Figure 3 - Example of proposed dome tents to be erected.

Lighting will be provided by small LED's and a basic solar installation. The camp is to be carbon neutral with the option of tree planting being offered to guests in order to offset their carbon emissions. The guests will be able to utilise the adjacent Garden Route National Park for day hikes and trips.

As the units proposed are small the SDP (Appendix A) and above extracted figures show only an indication of the positioning of the units. The final positioning of the units will be

done on site in such a way as to ensure that little to no natural vegetation is to be removed or damaged. The site is presently highly transformed through alien invasive plant species.

Infrastructure

The idea of this development is to keep it as self-sustaining as possible. In order to achieve this, solar and wind power systems are planned for the electricity requirements. For water usage, rain water from a 200 meter stretch of the N2 highway is harvested into an existing dam with a capacity of 1,8 million litres which will be utilised primarily for the resort. Timberlake has a borehole and the general authorization is for usage up to 10,000 litres per day. This equates to 300,000 litres per month. As part of the development it is proposed to create a self filtering swimming pool which will serve the dual purpose of swimming dam and additional water storage/supply. No municipal infrastructure for providing services currently exists and no requirement for such service provision will be required as the development proposal aims to be self-sustaining through the use of alternative energy sources

The intent of this EMP is to ensure that there is no environmental degradation to the area as a result of the construction phase impacts.

3. TERMS OF REFERENCE

The main terms of reference of this EMPr is to identify and mitigate any potential negative environmental impacts that may be associated with the construction of 5 dome tents and 5 luxury tents and its associated infrastructure.

The full and approved EMPr must be made available to all contractors working on the project and must be included in all tender documentation. Certain fundamental aspects are therefore of importance:

The EMPr and these requirements are binding on all contractors and their sub-contractors.

It is the responsibility of the main contractor to ensure that any sub-contractor is made aware of the environmental requirements.

The contractor will be required to make good any damage caused through their actions or the actions of their sub-contractors (in addition to any penalties for non compliance issued).

3.1 Environmental Control Officer

An environmental control officer (ECO) must be appointed to oversee construction on site, ensure compliance with the EA and the EMPr and to assist with issues as they may arise on site.

It will be the ECO's responsibility to ensure that the mitigation / rehabilitation measures and recommendations referred to in the Environmental Authorisation (still to be issued) are implemented and to ensure compliance with the provisions of this EMPr.

The applicant will be responsible for the remuneration of the ECO and any other expenses encountered in the process of environmental monitoring of the construction.

3.1.1 Selection of the ECO

The appointed ECO must be able to demonstrate that (s)he is of sufficient competency to undertake the required task. This includes:

- Previous experience of environmental control of similar sites.
- Working experience with contractors.
- Intimate knowledge of the particular upgrade and expected areas of concern.

3.1.2 Roles and Responsibilities of the ECO

The ECO will undertake the following tasks:

- Ensure compliance with the EMPr at all times during the construction phase;
- Ensure compliance with relevant management conditions of the EA during the construction phase;
- Meet with the contractors in order to set out the environmental parameters within which they must work;
- Provide an Environmental Induction with all contractors;
- Indicate where all no-go areas are to be demarcated and to ensure adherence to these delimitations at the induction BEFORE any construction commences on site;
- Attend site meetings to report on and assess the success of the environmental control and to determine any further environmental control measures which may be necessary;
- The ECO should visit the site twice a month during the construction phase. The ECO is to be available at any time as required by the contractors, resident engineer or authorities;
- The ECO has the discretion to undertake more frequent visits if he/she feels this is justified due to the actions of the contractors and to make ad hoc visits in order to ensure compliance;
- ECO to ensure good liaisons with the public

- Indicate where plant rescue may be necessary, and what species should be rescued on this site;
- Indicate where erosion protection and siltation prevention measures are required, or need to be supplemented, and to ensure correct implementation;
- Advise on rehabilitation measures according to the different areas;
- Check up on general environmentally friendly construction practices (e.g. no littering, safe and secure environment, contamination risks, etc.);
- Ensure that the correct earthworks practices are adhered to (e.g. no encroachment into surrounding vegetation, separation of topsoil and subsoil, correct stockpiling and stripping of topsoil);
- ECO to produce monthly reports to the client and DEADP during the construction phase.
- The ECO is to keep a site diary; photographic record of activities taking place on site as well as copies of all monthly reports submitted to the Department, a schedule of current site activities including the monitoring of such activities and a complaints register of all public complaints and the remedies applied to such complaints;
- It must be noted that the ECO HAS THE AUTHORITY TO SUSPEND WORK ON SITE FOR ANY ACTION BEING UNDERTAKEN THAT DOES NOT COMPLY WITH THE ENVIRONMENTAL REQUIREMENTS OF THE SITE. Such a stop order has immediate effect and will be communicated to the contractor responsible;
- The ECO is to attend construction site meetings where programming issues are discussed to ensure proactive inclusion of the environmental requirements.

4 IMPACT MANAGEMENT OUTCOMES

The following impacts were assessed during the Basic Assessment process:

The following impacts to the surrounding environment have been identified as potentially occurring through the development of the Eco-Camp

Ecological Impacts

- Disturbance of Vegetation

The construction of the five dome and five luxury tents as well as the associated communal facilities will result in the clearance and disturbance of vegetation found on site totalling approximately 900m². The sites that have been and will be chosen for the positioning of the tents and facilities will however be within areas that are clear of indigenous vegetation. The site is quite heavily infested with alien invasive plant species and is continually undergoing clearing and management thereof. Thus, the tents and facilities will be placed within areas that have been previously disturbed. The tents are also built on wooden decks which will allow for some vegetation to re-establish beneath them (i.e. shade tolerant indigenous plant species such as grasses and creepers). As such the impact on indigenous vegetation of value is limited. This impact on vegetation is limited to the construction phase and is site specific.

Physical Impacts

- Potential for erosion

The construction of the five dome and five luxury tents as well as the associated communal facilities may result in the potential for erosion of the disturbed soil during the excavations required for the installation of the poles that the decks will be built upon. Erosion will result in the loss of valuable topsoil and the cumulative impact of increasing the amount of sediment found within surrounding watercourses. During the operational phase of the proposed tents and communal facilities the potential for erosion also exists in areas where water may be concentrated such as during rain periods i.e. stormwater or the release of grey water into the surrounding area. Mitigation and management measures are to be specified in order to ensure that areas susceptible to potential erosion are protected both during the construction and operational phase of the development.

Socio-Economic Impacts

- Short term employment during construction phase

The construction of the five dome and five luxury tents as well as the associated communal facilities will result in the creation of short-term employment opportunities. Employment will ensure that funds are transferred to the community and will result in a benefit to the surrounding area during the construction phase of the development.

- Increased tourism to the area

The operation of the five dome and five luxury tents as well as the associated communal facilities will result in the creation of tourist accommodation for tourists who wish to visit the surrounding areas of Wilderness Lakes. It is the natural beauty of the area that draws tourists to Wilderness Lakes and providing accommodation will increase the time spent and proportionally the amount of money spent within the area. As such the proposed tourist accommodation can be seen to be a benefit to the local area.

Heritage Impacts

- Potential for uncovering and disturbing heritage resources

The construction of the five dome and five luxury tents with the associated communal facilities could potentially result in the uncovering and discovery of a potential heritage resource or artefacts. As limited excavation will be required for the installation of the poles and the tents are to be situated within a previously disturbed area as well as the fact that no heritage resources have been identified on site this probability is seen as highly unlikely. Management and mitigation measures is included within the EMP to ensure that all eventualities are prepared for however and to ensure that no loss of irreplaceable resources takes place.

Visual Impacts

- Impact on the sense of place

The construction of the five dome and five luxury tents as well as the associated communal facilities will result in a short term, site specific negative impact on the sense of place due to the construction activities that will be occurring. However, after the construction is completed the proposed Eco-Camp will add to and form part of the existing character of the area and will enhance it. The area and surrounding land uses are currently comprised of tourist related activities and accommodation and the development will not subtract from that.

- Visibility from N2.

Portions of the proposed tented camps along the first ridge in the centre of the property may be visible from the N2. However, the development proposal consists of tented units which will blend into the surrounding vegetation and also form a coherent part of the surrounding land uses of the property. The property is surrounded by tourism related activities and accommodation and as such the accommodation elements proposed for the property will not be out of place even if some parts of it is visible.

Noise Impacts

- Construction phase noise generation

The construction of the five dome and five luxury tents as well as the associated communal facilities will result in a short term, site specific negative impact through the generation of construction related noise. The noise impact will be minimal and will only be a nuisance to the users of the tourist facilities currently on the property. The appointed contractor is to comply with the national regulations pertaining to noise (SANS 10400). Work should only be permitted Mondays to Fridays (08:00 – 17:00). No work is to occur on public holidays or weekends to avoid disturbance to neighbouring property owners. As such this impact can be seen to be very low and classified as a potential nuisance.

4.1 Mitigation of Impacts

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Planning and Design							
Clearance of vegetation within an area mapped as Protected Area (Garden Route National Park).	Construction of the wooden decks for the 5 dome and 5 luxury tents with their associated infrastructure with approximate total size of 900m ² .	Area to be selected where alien vegetation has already been cleared.	During design and pre-construction of the proposed decks and infrastructure.	ECO, contractor and applicant to inspect site prior to setting out of decks and associated infrastructure on site to determine non-sensitive sites.	One inspection of position of proposed decks and infrastructure where after bi-monthly inspection of construction activities.	Applicant. Contractor. ECO.	ECO to monitor and sign off on positioning of units. To be included in monthly monitoring report and audit report.
Construction of proposed units resulting in a visual impact.	Construction of the wooden decks for the 5 dome and 5 luxury tents with their associated infrastructure with approximate total size of 900m ² .	Positioning of the site for the proposed tents and associated communal facilities should take the potential visibility from the N2 into account.	Prior to positioning of units on site, during design of the proposed units.	ECO to inspect proposed design of units to ensure mitigation measures are incorporated.	Once to determine compliance of designs with mitigation measures proposed.	Applicant. ECO.	ECO to monitor and sign off on visual mitigations. To be included in monitoring report and audit report.
Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Pre-Construction							
Clearance of vegetation within an area mapped as Protected Area (Garden Route National Park).	Construction of the wooden decks for the 5 dome and 5 luxury tents with their associated infrastructure.	Area to be selected where alien vegetation has already been cleared.	During design and pre-construction of the proposed decks and infrastructure.	ECO, contractor and applicant to inspect site prior to setting out of decks and associated infrastructure on site to determine non-sensitive sites.	One inspection of position of proposed decks and infrastructure where after bi-monthly inspection of construction activities.	Applicant. Contractor. ECO.	ECO to monitor and sign off on positioning of units. To be included in monthly monitoring report and audit report.
Indigenous plant species rescue	A plant rescue at each unit site should be conducted before	Any indigenous plant species should be rescued and/or	During pre-construction of the proposed decks and infrastructure.	ECO, contractor and applicant to inspect site prior to construction of	One site inspection followed by indigenous plant species rescue to	Applicant. Contractor. ECO	ECO to assist with species identification and transplant

	construction of timber decks commence.	transplanted into black plant bags or into a suitable location outside of construction area.		decks and associated infrastructure on site to assess the indigenous vegetation on sites	be transplanted or used in rehabilitation phase		specifications and sign of the area post transplant contractor/sub-contractor to do plant rescue.
Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction							
Potential of soil erosion during excavations for timber deck poles.	Construction of the wooden decks for the 5 dome and 5 luxury tents with their associated infrastructure with approximate total size of 900m ² .	The contractor is to comply with the EMP requirements regarding erosion prevention. Emergency erosion protection materials (sandbags, geotextile fabric, shade cloth and/or biddum) are to be kept on site to treat erosion area as soon as it appears. All storm water collection areas are to be identified and if necessary are to be managed through the use of SUDS principles to ensure that storm water is dissipated slowly into the surrounding area without causing erosion	During construction phase of the timber decks and associated infrastructure.	ECO and site agent to continually monitor the site during construction for signs of potential erosion	ECO conduct bi-monthly inspection of construction works.	ECO and contractor to monitor site.	ECO to monitor during construction phase. To be included in monthly monitoring report and audit report.
Construction of proposed wooden decks and associated infrastructure resulting in increased short term and site	Construction of the wooden decks for the 5 dome and 5 luxury tents with their associated infrastructure with approximate total	Contractor to comply with SANS 10400 regulations pertaining noise creation. The contractor is only permitted to work	During the entire construction of the proposed units and associated infrastructure.	ECO inspections. Timberlake management to ensure that no permission is granted for work outside approved	Bi-monthly inspections.	Timberlake management. Contractor. ECO.	ECO to monitor. To be included in monthly monitoring report and audit report upon completion of construction.

specific noise levels which may disturb users of the tourist facilities currently on the property.	size of 900m ² .	Mondays to Fridays (08:00 – 17:00). No work on public holidays or weekends permitted.		timeframes.			
Socio-economic benefits through the creation of short term employment.	Construction of the wooden decks for the 5 dome and 5 luxury tents with their associated infrastructure with approximate total size of 900m ² .	The use of local labour to maximise positive benefit and financial funds to local area.	During the entire construction of the proposed units and associated infrastructure.	ECO inspections and Timberlake management to confirm compliance with section 8.1 of the EMPr.	Monthly reporting	Timberlake Management. Contractor. ECO.	ECO to monitor. To be included in monthly monitoring report and audit report upon completion of construction.
Potential for uncovering cultural or heritage resource.	Construction of the wooden decks for the 5 dome and 5 luxury tents with their associated infrastructure with approximate total size of 900m ² .	Environmental induction to include briefing on what a heritage resource might constitute. Immediate ceasing of all construction activities should an artefact be discovered and the contacting of HWC to determine the procedure to follow.	During the clearance of vegetation, entire construction of the proposed timber decks and associated infrastructure.	ECO inspections of construction activities and construction area.	Bi-monthly inspections.	Contractor. ECO.	ECO to monitor. To be included in monthly monitoring report and audit report upon completion of construction.
Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Rehabilitation							
Indigenous plant species rescued	All rescued plant material from deck positioning should be replanted into the surrounding area.	All rescued plants species to be replanted surrounding the units.	After completion of construction of the wooden decks with tents and the associated infrastructure.	ECO inspections. Written approval/sign-off of rescue phase required.	Bi-monthly, and after rehabilitation is completed.	Timberlake management. Contractor. ECO	ECO to monitor and sign off on positioning of units. To be included in monthly monitoring report and audit report.
Potential of soil erosion during excavations for timber deck poles.	Construction and operation of the wooden decks for the 5 dome and 5 luxury tents with	The contractor is to comply with the EMP requirements regarding erosion prevention.	During construction and operational phase of Timberlake Eco-Camp.	ECO and site agent to continually monitor the site during construction for signs of potential	ECO conduct bi-monthly inspection of construction works. Timberlake	ECO and contractor to monitor site during construction phase. Timberlake	ECO to monitor during construction phase. To be included in monthly monitoring report

	their associated infrastructure with approximate total size of 900m ² .	Emergency erosion protection materials (sandbags, geotextile fabric, shade cloth and/or biddum) are to be kept on site to treat erosion area as soon as it appears. All storm water collection areas are to be identified and if necessary are to be managed through the use of SUDS principles to ensure that storm water is dissipated slowly into the surrounding area without causing erosion		erosion	management to do bi-monthly inspections during operational phase to monitor potential erosion risks.	management to monitor during operational phase.	and audit report.
Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Operational							
Potential of soil erosion during excavations for timber deck poles.	Construction and operation of the wooden decks for the 5 dome and 5 luxury tents with their associated infrastructure with approximate total size of 900m ² .	The contractor is to comply with the EMP requirements regarding erosion prevention. Emergency erosion protection materials (sandbags, geotextile fabric, shade cloth and/or biddum) are to be kept on site to treat erosion area as soon as it appears. All storm water collection areas are to be identified	During construction and operational phase of Timberlake Eco-Camp.	Timberlake management to continually monitor the site during operational life for signs of potential erosion	Timberlake management to do monthly inspections during operational phase to monitor potential erosion risks. Monitoring records to be kept on file (Annexure G)	ECO and contractor to monitor site during construction phase. Timberlake management to monitor during operational phase.	ECO to monitor during construction phase. To be included in monthly monitoring report and audit report.

		and if necessary are to be managed through the use of SUDS principles to ensure that storm water is dissipated slowly into the surrounding area without causing erosion					
Ongoing alien vegetation clearing and removal	Operation of the wooden decks for the 5 dome and 5 luxury tents with their associated infrastructure with approximate total size of 900m ²	Ongoing removal and clearance of alien vegetation surrounding the units and remainder of the property	During operational life of Timberlake Eco-Camp.	Timberlake management to continually monitor the site during operational life for emerging alien vegetation for eradication	Timberlake management to continually inspections during operational phase to monitor emerging alien vegetation for eradications	Timberlake management	Timberlake management to keep record of alien vegetation cleared and removed from site.

5 CONDITIONS OF AUTHORISATION

The Environmental Authorisation (EA) will be inserted at this point once issued. It is binding on the contractors, sub-contractors, agents, consultants and construction staff on the property.

6 SPECIFICALLY REQUIRED ENVIRONMENTAL MANAGEMENT PRACTICES

Pre-construction Phase

6.1 Environmental Induction

All construction staff should be briefed by the ECO in an environmental education programme regarding the environmental status and requirements of the site, prior to any activities commencing on site. This will include providing general guidelines for minimizing environmental damage during construction, as well as education with regards to basic environmental ethics, such as prevention of littering, lighting of fires, etc. The induction is also to include information regarding what a potential heritage artefact may look like and that all work is to cease should one be discovered. Records of the environmental training (attendance register and training content) must be kept. An example is included in Annexure B attached to this EMPr.

Environmental induction required for all contractors prior to them commencing on site.

6.2 Demarcation of No-Go Areas

All people working on site must be made aware of the boundaries in which work is to be done. Those areas, in which no work is required, are to be considered as no-go areas. The following applies:

- Timber structure contractors - all areas outside that of the defined works is deemed a no-go area.
- Accommodation units (Tents) - The total footprint of the proposed tents should be demarcated with 1.5m (height) shade cloth for the entire period of the establishment to prevent unnecessary disturbance. All areas outside this demarcation must be considered **no-go areas for all construction staff**.

-
- The Northern property boundary is to be treated as a strict no-go area. A maximum penalty of R10 000 will be issued should this not be adhered to.
 - All construction activities must be restricted to the demarcated areas to ensure that no further disturbance into the surrounding vegetation.
 - No encroachment or activities may take place outside the work areas.
 - No-Go areas will be required to be demarcated by the contractor to ensure that they are visible at all times, to all personnel.
 - Methods of demarcation will be agreed with the ECO and may include danger tape, rope, fencing, shade cloth, mulch bags, wire fencing etc.
 - In light of the above, should access be required through a no-go area, permission must be obtained from the ECO in writing prior to the use of such an area.
 - Adjacent properties to the construction site may not be entered by any construction staff if permission is not granted by the owner.
 - The ECO should monitor adherence to the No-Go area policy.
 - Access into the No-Go areas by personnel is strictly forbidden (i.e. Work breaks such as lunch are not permitted outside the defined work area - no entry into the neighbouring properties or open space areas). A spot fine will be imposed against the contractor in the event of contravention of the no-go policy up to a maximum of R5 000 per incident).

Please see Appendix A – Figure 6 for a schematic representation of definite no-go areas as determined during the construction phase. Additional no-go areas are to be determined in conjunction with the appointed ECO on site and are to be adhered to by all contractor staff.

6.3 Method Statements

Before the contractor begins each construction activity the contractor and Site Agent shall, at least 5 days prior to commencement of such activity involving construction, maintenance or rehabilitation, give the ECO a written plan setting out the following:

- Location of construction camp
- Storage of construction materials and hazardous substances (if any)
- Solid waste
- Waste water
- Erosion and sedimentation control

-
- Drainage and/ or diversion of water
 - Fire control
 - Protection of natural features
 - Cement and concrete batching

The ECO is to approve the method statement before the works may commence. A pro-forma method statement showing what is required is attached in Annexure C.

6.4 Plant Rescue Programme

Prior to commencement of construction and clearing activities all building footprints is to undergo an indigenous plant rescue survey together with the ECO. Any plants that are deemed worth rescuing are to be properly bagged, stored and maintained in a temporary nursery established at the office or the plants in question are to be immediately transplanted out of the building footprint and kept for replanting around the units after construction has been completed. A record of each plant is to be maintained (See Annexure E). The bagged plants are to be used to rehabilitate and landscape the area once building activities are completed.

Endangered or protected plant species as determined by Schedule 3 and 4 of the Western Cape Nature Conservation Laws Amendment Act, 2000 (Act no. 3 of 2000) may only be transplanted once the relevant permit has been obtained from CapeNature. The ECO is to ensure that this process is adequately followed should any of these plant species be identified on site.

All cut vegetation shall be disposed of off-site at an approved disposal site. Stockpiling of cut vegetation shall only be permitted in areas indicated by the ECO. No cut vegetation shall be burnt on site.

The affected work area needs to be cleared of all listed invasive plants before construction is complete. Ongoing alien vegetation control should be implemented throughout the operational phase of the development.

6.5 Protection of Fauna and Flora

The removal, damage or disturbance of flora and fauna is forbidden outside the immediate construction area without the written approval of the ECO.

The Contractor shall be responsible for informing all employees about the need to prevent any harmful effects on natural vegetation on or around the construction site as a result of their activities. Clearing of natural vegetation shall be kept to a minimum. The removal,

damage and disturbance of natural vegetation without the written approval of the ECO is prohibited.

The Contractor shall ensure that no hunting, trapping, shooting, poisoning or otherwise disturbance of any fauna takes place. The feeding of any wild animals is prohibited. No domestic pets or livestock are permitted on site. Prior to the clearing of vegetation or use of equipment on areas that could be considered habitats or movement corridors for small animals (i.e. grassy verges, clumps of shrubs, trees), animal rescue of small, slow moving species is to be conducted in conjunction with the ECO. Any rescued animals including tortoises and other reptiles are to be safely relocated to a nearby undisturbed natural area that does not form part of the proposed construction area.

6.6 Discovery of a Heritage Resource

Should it be suspected that a object or structure of heritage value has been uncovered during earthworks or the clearing of vegetation (including but not limited to bones, burial sites, structures older than 50 years, stone tools, shell middens, pottery etc.), then all work is to immediately cease and the ECO is to be contacted to inform Heritage Western Cape (HWC). Work shall not recommence until HWC have visited the site, inspected the object in question and advised on how to proceed. If the object requires removal by a trained archaeologist, this process will be at the expense of the developer. It is the contractor's responsibility to ensure all staff on site are aware of this procedure.

6.7 Topsoil Stripping

- As topsoil is a valuable resource and may contain remnants of threatened ecosystems within its seed bank, it must be stripped from all construction areas before work commences. This topsoil should be stockpiled for use in rehabilitation and landscaping and must not be contaminated with other building materials.
- The vegetation roots are to be removed together with the top 20cm of topsoil is to be stockpiled for use during the rehabilitation phase. This topsoil is to be stockpiled in the designated topsoil stockpile areas, to be agreed on by the ECO.

During any trenching work topsoil must not be removed, but placed to the side of the trench, while the underlying sand is placed to the other side. The soil is returned in the same order with the vegetated topsoil closing the trench and stimulating re-growth

7 ESTABLISHMENT OF THE CAMPS

Construction Phase

The following key environmental management components are recommended and suggested during the establishment of the camps:

7.1 Site Agent

The contractor shall appoint a responsible site agent to ensure that they comply with this EMP and all its conditions. This party is to report directly to the ECO and will need to attend the induction and be briefed on the requirements by the ECO. This party is to be part of the site team and report directly to the ECO on all matters concerning the environment. It is recommended that this communication regarding queries, concerns and updates is done through phone calls, electronic photos, emails and reports.

7.2 Storage of Construction Material

The following must be adhered to:

- The location of storage area should be approved by the ECO, and out of sight from the general public.
- **All** stockpile sites (if any) is to be approved by the ECO, **prior** to commencement of stockpiling.
- No hazardous materials to be stored on site such as diesel, petrol or chemicals etc.
- The storage area should be demarcated with either bidim cloth or shade cloth to prevent encroachment into no-go areas.
- The storage area is to be kept neat and tidy at all times.

7.3 Fire protection

Due to the abundance of alien vegetation on and surrounding the site, there is a high risk of fires that could occur on the site.

The contractor should however take all reasonable and active steps to avoid increasing this risk. No open fires or naked flames for heating or cooking shall be allowed on site. The Contractor shall ensure that all personnel are aware of the fire risk and the need to extinguish cigarettes before disposal. Cigarettes may not be disposed of on the ground and must be disposed of properly in receptacles.

No burning of waste on **ANY PART** of the site is permitted.

The Contractor shall identify the authorities responsible for fighting fires in the area and shall liaise with them regarding procedures should a fire start. The Contractor shall ensure

that his staff are aware of the fire danger at all times and are aware of the procedure to be followed in event of a fire. The Contractor shall also ensure that all the necessary telephone numbers etc. are posted at conspicuous and relevant locations in the event of an emergency. The Contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it. This is especially important as the disaster management is located at a great distance away from the site.

7.4 Health and Safety

Health and safety applies to those working on site as well as those using / passing through the site. The following conditions are to be adhered to:

- The Occupational Health and Safety Act (Act number 85 of 1993) must be complied with.
- The main contractor is responsible for maintaining / ensuring safety on site.
- A first aid box is to be kept on the site in case of emergency.
- A member(s) of the main contractor's team must be adequately trained in first aid.
- The main contractor must erect and maintain suitable signage (to ensure public safety).
- Adequate demarcation of any dangerous excavations must be in place at all times.

7.5 Litter

The construction site must be kept clear of litter (Including off-cut construction material, wire, cement bags, lunch packs etc.) at all times. No unused construction material may be left on site. Litter to be removed from site on a daily basis and must be deposited at an approved site.

Suitable litter receptacles (scavenger proof dustbins; etc) must be put in place in the work area and removed at the close of works, daily.

The contract staff must be clearly briefed on the 'no litter policy'. **Site to be kept clean of litter, even if it is not caused by the contractor staff.**

7.6 Ablution facilities

Contractors must provide chemical abluion facilities for all construction personnel working on the site. One facility for every 15 persons on site is required.

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

Sanitation provision and servicing shall be to the satisfaction of the ECO. The contractor shall ensure that the toilet(s) are emptied regularly.

Failure to use the chemical toilet provided and making use of the vegetation either on or off site will result in **MAXIMUM** penalty fine being awarded in addition to requiring the contractor to clean up.

7.7 Access to the Site

Access to the site would be from the existing access road on the property. The road up to the hill sites will require minor repairs and the inclusion of passing points. Parking areas at each camp will be created between the alien trees.

The Contractor is to be held responsible to rehabilitate / repair any damage that will/may be caused by construction vehicles during the construction phase, on private land owner's roads/kerbs etc.

Movement of construction vehicles must be restricted to the designated roads only - no temporary haul roads to be established.

Access to the area is to be monitored during construction. A constant regard must therefore be taken to safety. Dangerous areas must be adequately cordoned off to prevent accidental injury.

The contractor will ensure that vehicles leaving the site are clean and, wherever possible, do not deposit mud and any other earth material on the road surface as this is a national road (N2).

7.8 Concrete & Cement Works

If concrete is to be used, all concrete must be mixed on trays and not on the direct soil unless the soil is to be covered by concrete/paving. Mixing area is to be demarcated. Bunding through the use of sand bag walls around any mixing areas is recommended.

Cement powder has a high alkalinity pH rating, which can contaminate and affect both soil and water pH dramatically. A shift in pH can have serious consequences on the functioning of soil, water organisms and plants. The following measures must be implemented to minimise impact:

-
- Cement contaminated water may not enter any water course.
 - Sumps from where contaminated water can be either re-used, treated *in-situ* or removed to an appropriate waste site should be established.
 - The contractor needs to ensure that the used cement bags do not create a litter and pollution problem.

7.9 Soil and Storm Water Management

The property is gently sloping and therefore the risk of erosion should be minimal. However, as alien vegetation clear occurs, large areas of the property could be disturbed and thus increasing the risk of erosion. The following is recommended:

- Stringent mitigation measures must be imposed during construction to minimize runoff, possible silt run-off and contamination of water leaving the site, with the use of silt-fencing, rows of onion bags, mulch, brushwood and deflection berms (the choice depending on the situation). These mitigation measures are essential in all exposed areas, especially adjacent to areas of natural vegetation.
- Alien clearing programme will be slow and systematic by hand pulling and not using any heavy machinery.
- Larger trees should be retained as shade trees to provide the correct microclimate for the planting of young indigenous trees. In time the mature alien vegetation must all be removed.
- Areas requiring erosion control mechanisms to be identified by the ECO. Instructions to be given to the contractor as required.
- Any vegetation that can be rescued within the building platform / footprint must be rescued and transplanted.

7.10 Building of the wooden decks for the tents

Care must be taken when placing the poles and the decking of the timber decks. Holes for the timber poles should be dug by hand to limit the total disturbance on the environment. There should be a limited impact and thus only the poles will create the disturbance to the ground.

7.11 Energy & Water Saving Techniques

The applicant has included the following techniques into the design of the ECO camp:

- Composting toilets
- Low volume taps and shower heads
- Use of small LED lights and basic solar installations
- Bio gas generator to recycle black water,
- Gas generated will be used as a fuel

- Rain water harvesting off road and roof surfaces,
- Green building accreditation by Green Building Council of South Africa

8 GENERAL CONSTRUCTION

8.1 Use of Local Labour

It is strongly recommended that a local contractor and local labour is used for the construction phase of this project. "Local" implies people within the Wilderness area, including Kleinkrantz.

Records are to be kept of all personnel and subcontractors employed by the contractor. The main contractor is to provide the breakdowns of their various sub-contractors. These are to be broken up into the following criteria:

Classification	Numbers & % Local to George Municipal area	Numbers and % from Southern Cape (excluding George)	Number & % from outside The Southern Cape
Semi skilled			
Operators			
Artisans			
Management			
Professionals			

The main contractor should strive to implement the following recommendations:

- The target would be to provide the work to a local contractor(s) where 100% of local labour to Wilderness / George is utilized. All records are to be kept and available.

8.2 Waste Management

It is recommended that an integrated waste management approach must be used that is based on waste minimization and must include reduction, recycling, re-use and disposal where appropriate. Disposal of **ALL** waste **MUST** only be taken to **licensed/registered** landfill sites. Approval must be obtained to dump rubble at an approved site.

Recycling must be encouraged on site and recycling bins must be provided and clearly marked.

No burning, on-site burying or dumping of waste shall occur. Used (empty) **cement bags** shall be collected and stored in **weatherproof containers** to prevent windblown cement dust and water contamination. Used cement bags may not be used for any other purpose and shall be disposed of on a weekly basis via the solid waste management system. No illegal dumping of construction material may take place.

8.3 Temporary Fuel Storage

It should not be necessary for the storage of any fuel on this site due to the simple construction method and close proximity to fuel stations. The temporary storage of fuel or any other hazardous substance is **not allowed on the construction site**. All equipment using oil, diesel etc. must be checked for spillage/leaks. Any fuel/oil should be cleaned up as soon as possible to avoid pollution of the environment and reported to the ECO as soon as possible.

9. OPERATIONAL PHASE

9.1 Alien Clearing

Initial alien clearing within and around each camp must take place during the construction phase of the property. However, continuous follow up will be required throughout the operational life on the property to prevent re-infestation. As this is a management activity that will be required both within the developed and open areas of the property.

The following is the alien clearing plan for Timberlake:



Figure 4: Manageable units for alien clearing

Node 1 - dominated by young pine trees and wattle - thin out pines trees by 50 % - cut and poison all wattle. 6 monthly clearing of all seedlings (wattle and pine and any other aliens that emerge) monitor the vegetation reestablishment and in year two thin the pines by another 50%. Continue with 6 monthly follow-up of seedling control. Remove all timber suited for firewood, pile remaining material cut into piles that will over time reduce to form compost. If chipping is possible this should be implemented as the branches are cut as it will stimulate more rapid decomposition.

Nodes 2 and 3 dominated by wattle and myrtle - remove all myrtle and young pine, keep firewood and stockpile the remainder in piles as indicated above. Thin the wattle by 50% and release biocontrol midge for Wattle to reduce seed production. 6 monthly seedling removal is essential. Annual reduction by 50 % of the mature trees until they are totally removed.

Nodes 4, 5 and 6 large mature pines to remain - remove all wattle and any pine under 20cm diameter. 6 monthly seedling removal. Larger pine that are not part of the adventure operation can be felled where they will not endanger the course. Obstacle course users to be encouraged to assist with seedling removal between the various activities. Each user to be given a young indigenous plant from the site nursery to plant at the end of their ride. Should the obstacle course be decommissioned the remaining large pine trees to be felled.

10m buffer along the edge of the sand mine - area to be thinned by 50% and all alien seedlings to be removed on a 6 monthly basis. Planting of *Virgilia*, *Chrysanthemoides* and *Searsia* seedlings to stimulate the rapid regrowth of indigenous vegetation. Once established the remaining Black wattle trees to be ring barked to continue to form a screen and nursery conditions for indigenous growth.

Process to start in node 1 and systematically move through the 7 nodes. Seedling removal in all 7 blocks to be undertaken on a rotational basis - commence in block 1 and do a new block each month and then return to the 1st block and start again. This is to continue regardless of when the full programme in each block commences.

Various methods exist for the control of alien plant species. The choice of the correct method will depend on various factors, namely;

- Species
- Density
- Age Class
- Presence of indigenous vegetation

Frilling - This is a very successful method of clearing which is particularly useful when large alien trees are found among the indigenous vegetation. With multi-stemmed trees, all stems must be frilled and herbicide must be applied to all stems. See diagram below showing frilling areas for single and multi-stemmed plants

Using an axe or bush knife. Make angled cuts downward into the cambium layer through the bark in a ring. Ensure to affect the cuts around the entire stem and apply herbicide into the cuts.

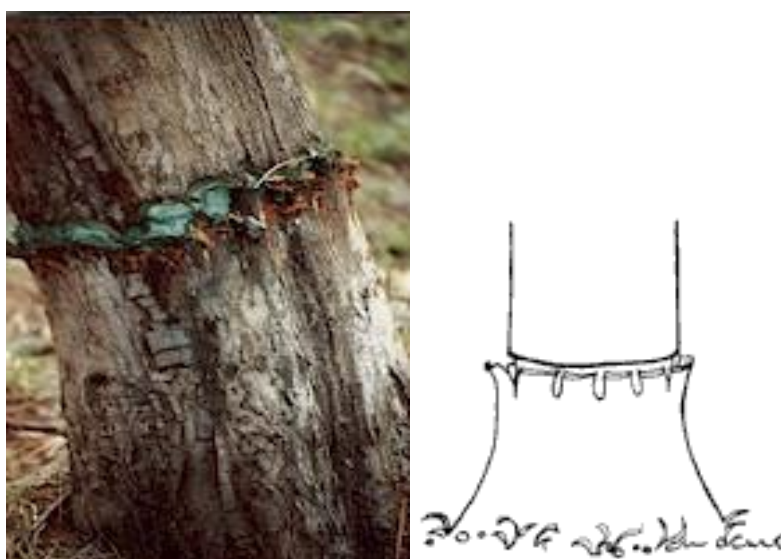


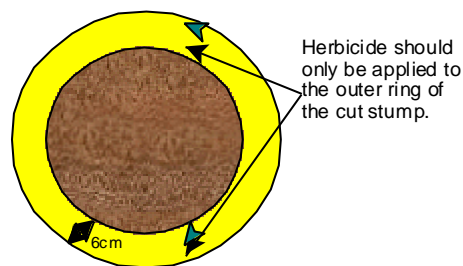
Figure 5: The Frilling Method

Felling and cut stump treatment - Trees should only be felled in areas where there is no risk of damaging the indigenous vegetation. The trees should be cut as close to the ground as possible (about 20cm).

Once the trees have been felled they must be logged and de-branched. The branches should be removed from the open space area so that they do not contribute to an added fuel load and fire risk. If the logs are not to be used as firewood, they can be stacked along contour lines to reduce erosion or can be chipped for use as road and parking area surface material.

Immediately after the trees have been felled, herbicide must be applied to the remaining cut stump (within 1 hour). To avoid herbicide wastage, herbicide should only be applied to an outer 6cm ring on the stump (This is the part of the plant which carries nutrients to the roots and thus where the herbicide is carried)

Diagram showing herbicide application area on a cut stump



Stumps should be cut as close to horizontal as possible. If the stump is cut at an angle, most of the herbicide runs off before it can be absorbed.

Slashing and cut stump treatment - Trees with a diameter of up to 10cm can be successfully slashed and the cut stump treated with herbicide. The tree should be slashed as close to the ground as possible (not higher than 10cm).

Hand Pulling - Hand pulling is a very effective method of controlling seedlings of the following plants;

- *Acacia mearnsii* (Black Wattle)
- *Acacia cyclops* (Rooikrans)
- *Pinus sp* (Pines)

The tree should be gripped near to the base and slowly pulled out, making sure that the entire root system is removed with it. All trees under 1 metre in height can be hand pulled. Hand pulling is best done after rain when the soil is moist.

Ringbarking - Ringbarking is similar to frilling except that a 20cm wide strip of bark around the base of the tree is completely removed. This method has proved most successful with pine trees. There is no need to apply herbicide when ringbarking pine trees or Rooikrans.

With multi-stemmed trees, each individual stem must be ringbarked.

Herbicide Usage - Only registered herbicides for each specific species may be used. All herbicides that have been recommended are selective non-residual herbicides which have been tested to have no detrimental effect to the environment if utilised correctly.

All herbicide applicators should be properly trained and experienced. All herbicide applicators must use all required personal protective equipment (PPE), namely;

- Rubber gloves
- Single filter breathing masks
- Overalls
- Waterproof boots.

Herbicide should never be sprayed on rainy days or when the plant is still wet from previous rain or dew. If rain is forecast for the day, herbicide should not be sprayed (most herbicides require 5 rain free hours to be properly absorbed).

9.2 Rehabilitation/Landscaping

Any landscaping must make use of locally occurring indigenous species. The area disturbed during the establishment of the camps must be rehabilitated. This area is to be replanted with locally indigenous species.

Any damage to private property must be reinstated to the state it was before construction commenced to the satisfaction of the landowner. The areas where the site offices were positioned are to be rehabilitated to a similar or improved state of that prior to their establishment.

10. DECOMMISSIONING PHASE

It is not foreseen that decommissioning of the ECO Camps would ever occur but should this ever be the case and the decks with tents ever need to be totally demolished – all material foreign to the site must be removed from the site and must be disposed of at an approved waste disposal site. Any constructed surface is to be stripped and disposed of appropriately and the area is to be covered in topsoil and seeded with locally indigenous vegetation as well as being protected from erosion.

Any material that can be recycled should be recycled.

11. LEGISLATIVE REQUIREMENTS

11.1 Noise

The contractor must comply with the regulations pertaining to noise. SANS 10400 is applicable. Contractor and staff are only permitted to work Mondays to Fridays (08:00 – 17:00).

11.2 Solid Waste

National Environmental Management: Waste Amendment Act 2014 (Act 26 of 2014), consists of the regulations regarding waste management. The developer must adhere to the regulations regarding solid waste management under this act.

11.3 Penalties for Non Compliance

Penalties in terms of Chapter 9 of the Western Cape Bill on Planning and Development as published in the Extraordinary Provincial Gazette No 5183, 3 October 1997, are applicable for any action, which leads to damage to the natural environment.

In addition to the penalties in terms of the Act (NEMA), spot fines up to a maximum value of R10 000 per offence can be instituted at the discretion of the ECO for any breach or non-compliance in terms of the EMP (FINES ISSUED WILL INCREASE EXPONENTIALLY FOR REPEAT OFFENCES).

In the event of damage being caused, the contractor will be responsible for the cost of cleanup, repair or rehabilitation as necessary, as well as being liable for the fine.

A fund is to be established for the collection of fines and the spending of this fund is to be at the discretion of the ECO for environmental rehabilitation of the area.

11.4 NEMA Environmental Impact Assessment Regulations Appendix 4

An EMPr must comply with Section 24N of NEMA and the Environmental Impact Assessment Regulations 2014 (GN 982 Appendix 4) which requires that it must include the following:

REQUIREMENTS	REPORT SECTION
1. An EMPr must comply with section 24N of the Act and include-	
(a) details of- (i) the EAP who prepared the EMPr; and (ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	Page 2 and attached in Annexure F of the EMPr
(b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Page 6-8
(c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Attached as Annexure A of the EMPr
(d) a description of the impact management [objectives] outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including- (i) planning and design; (ii) pre-construction activities; (iii) construction activities; (iv) rehabilitation of the environment after construction and where applicable post closure; and (v) where relevant, operation activities;	Section 4 Page 11 - 19
(e) a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	Section 4 Page 11 - 19
(f) a description of proposed impact management actions, identifying the manner in which the impact management [objectives and] outcomes contemplated in paragraph (d) [and (e)] will be achieved, and must, where applicable, include actions to – (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practices; (iii) comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable;	Section 4 Page 11 - 19
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 4 Page 11 - 19
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f)	Section 4 Page 11 - 19
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 4 Page 11 - 19
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 4 Page 11 - 19

(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 4 Page 11 - 19
(l) a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 11.5 Page 38
(m) an environmental awareness plan describing the manner in which- (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 6.1 Page 20
(n) any specific information that may be required by the competent authority.	N/A
2. Where a government notice <i>gazetted</i> by the Minister provides for a generic EMPr, such generic EMPr as indicated in such notice will apply.	N/A

11.5 Auditing and Monitoring

It is recommended that Environmental compliance monitoring takes place bi-monthly during the construction period and a monthly record kept by an ECO. An Environmental Audit should be compiled (six months) after construction has been completed and be submitted to the local authority and to DEA.

12. CONCLUSION

This EMPr is binding on all contractors on site and constitutes Best Practice for construction activities. This EMPr may be updated with specific conditions required by the Environmental Authorisation, once issued.