

**APPENDIX G:  
ENVIRONMENTAL MANAGEMENT  
PROGRAMME**

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***ENVIRONMENTAL MANAGEMENT PROGRAMME***

**Proposed housing project on portions 85 & 86 of  
Friedenheim 282JT, City of Mbombela**

March 2020

Version 20200324

DARDLEA Reference: 1/3/1/16/1E-246

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## 1. Introduction

### 1.1 Background information

The applicant proposes to construct much needed affordable housing facilities on the property. The Environmental Assessment Practitioner (EAP), Afrika Enviro & Biology (environmental and biodiversity consultants) was appointed to obtain authorization in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations as published in 2014. The Environmental Management Programme (EMPr) is formulated in order to manage and mitigate potential environmental impacts in order minimize their magnitude. This EMPr is formulated to comply with section 24N of National Environmental Management Act, 1998 (Act No. 107 of 1998) and must be submitted to the Provincial Authority for approval as partial requirement of the Environmental Authorization. The proponent is a well-known developer in the Nelspruit area:

Collfin Projects (Pty) Ltd, PO Box 30033, Nelspruit, 1213  
Contact: Mr. Hugo van Coller

The regulated activities that are applicable to this project are presented in the following table:

Government Notice R983 Activity No.	Describe the relevant Basic Assessment Activity in writing as per Listing Notice	Describe the aspect of the development that relates to the listed activity
Notice R985 LN1 activity 9:	The development of infrastructure exceeding 1000m in length for the bulk transportation of water or storm water: (i) with an internal diameter of 0,36m or more; or (ii) with a peak throughput of 120L per second or more;	Infrastructure pipelines may exceed these specifications.
Notice R985 LN1 activity 12:	The development of (ii) infrastructure or structures with a physical footprint of 100m <sup>2</sup> or more; where such development occurs (a) within a watercourse; (c) if no development setback exists, within 32m of a watercourse, measured from the edge of a watercourse.	Road crossings will be constructed across watercourses and residential erven will encroach to within 32m of watercourses.
Notice R985 LN1 activity 19:	The infilling or depositing of any material of more than 10m <sup>3</sup> into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10m <sup>3</sup> from a watercourse;	Several erven will encroach into an ephemeral watercourse and will need infilling to create construction platforms.
Notice R985 LN1 activity 24:	The development of (ii) a road with a reserve wider than 13,5m, or where no reserve exists where the road is wider than 8m;	Road constructions will exceed these thresholds.
Notice R985 LN1 activity 27:	The clearance of an area of 1Ha or more, but less than 20Ha of indigenous vegetation.	Total development area is 19Ha.
Notice R985 LN1 activity 28:	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1Ha.	Total development area 19Ha. The zoning is agriculture.

### 1.2 The Environmental Assessment Practitioner (EAP)

Afrika Enviro & Biology is the appointed EAP and conducted the EIA process for this project and compiled the Environmental Management Programme (EMPr). The lead EAP has been practicing in environmental services since 2002 and details are as follows:

Danie van der Walt: M.Sc. Natural Sciences and has successfully completed EIA and SHEQ accredited courses as well as several accredited ecological, wetland

and biodiversity orientated courses. Curriculum vitae of the lead EAP is included with Appendix F of the EMPr.

The contact details of the EAP are as follows:

Afrika Enviro & Biology  
 PO Box 2980, White River, 1240  
 Tel: 072 623 1845;  
 Fax: 086 603 8875;  
 E-mail: [danie.aeb@gmail.com](mailto:danie.aeb@gmail.com)

### 1.3 Site location and description

The applicant proposes to construct much needed affordable housing on the properties. The development site is located to the north of Nelspruit and the Crocodile River, adjacent to the suburb known as Kamagugu. The site and its environment are described in detail in section 6 of this report. The objective of the activity will be to construct a new residential suburb with the following zones and land uses (Table 1.2):

Table 1.2 Proposed project specifications

Zoning	Land use	Erf number	Area (ha)	Number of erven
Residential 1	Residential	1-515	12.92	515
Residential 3	High density residential	516-518	0.99	3
Private open space	Park	520-527	7.97	8
Special	Bus stop	519	0.08	1
Roads and widenings	Public access road		4.56	
Total			26.52	527
Total area subject to environmental authorization			18.55	

The actual phased activities that will take place during the project lifetime are summarized below:

- **Planning and design:** Conduct site investigations and specialist studies in order to provide recommendations and objectives for the construction and operational phases.
- **Pre-construction:** Vegetation clearing and site preparation, levelling, cut and fill activities in order to provide construction platforms.
- **Construction:** Excavating and instalment of series infrastructure, construction of roads and buildings.
- **Rehabilitation:** Removal of temporary structures, site clean-up, landscaping and establishing vegetation.
- **Operational:** Occupation, maintenance of infrastructure, erosion and alien invasive vegetation control.

## **2. Impact management objectives and statement**

The objectives of environmental management are to oversee that the potential environmental impacts are managed and mitigated to a satisfactory level and also to ensure that the terms as set in the RoD are complied with. The Environmental Management Programme (EMPr) will form the basis as tool to measure compliance by the owner. It is also this tool that gives guidance during monitoring, auditing and taking corrective actions during its implementation, thereby ensuring continuous monitoring of the environment. An EMP is developed after an environmental assessment, depending on the level of such assessment. It can also be drawn after the authorization by the environmental authority, to incorporate the conditions thereof.

An EMPr is normally implemented throughout the project life-cycle, i.e. during planning, construction, rehabilitation, operation and decommissioning, in order to minimize negative impacts and enhance positive ones. An effective EMP will be a practical working document that sets out the requirements and the goals required in mitigation.

General measures are prescribed for the activities, which will entail that some potentially occurring impacts are minimised or prevented. This project/activity does not have any decommissioning or closure aspects. Some general measures have been included with regards to the farming of the areas that are to be cleared. The impact management statement that describes the impact management objectives identifies the impacts and risks that need be avoided/managed/mitigated is presented in Table 1.

## **3. Legal requirements & responsibilities**

Legislation and guidelines that were considered for the EMPr are as follows:

- Constitution of the Republic of South Africa (No 108 of 1996)
- National Environmental Management Act (No 107 of 1998)
- National Environmental Management: Waste Act (No 59 of 2008)
- National Environmental Management: Air Quality Act.
- National Environmental Management: Biodiversity Act (No 10 of 2004)
- National Environmental Management: Protected Areas Act (No 31 of 2004)
- Environmental Conservation Act (No 73 of 1989)
- National Water Act (No 36 of 1998)
- Conservation of Agricultural Resources Act (No 43 of 1983)
- National Heritage Resources Act (No 25 of 1999)
- Occupational Health and Safety Act (No 85 of 1993)
- Promotion of Access to Information Act (2000)
- National Roads Act (No. 7. 1998)
- Advertising on Roads and Ribbon Development Act (No. 21, 1940)
- EIA regulations and guidelines (2010)
- Mpumalanga Biodiversity Conservation Plan (Systematic conservation plan adopted by the Province)
- Environmental Management Framework for the Olifants and Letaba Rivers Catchment Areas (DEAT; 2009).
- Relevant Provincial regulations and Municipal bylaws

Construction activities will be according to the best industry practices, as identified in the project documents. This EMPr, which forms an integral part of the contract documents, informs the Contractor as to his duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. The Contractor should note that obligations imposed by the EMPr are legally binding in terms of environmental statutory legislation and in terms of the additional conditions to the general conditions of contract that pertain to this project. In the event that any rights and obligations contained in this document contradict those specified in the standard or project specifications then the latter shall prevail. The tasks and responsibilities are set out in the following sections:

### **3.1 Owner**

The owner of the authorization is responsible for ensuring that the activity is implemented according to the requirements of the EMPr. The owner must ensure that relevant professionals are appointed to perform functions as required by the authorities and legislation. The owner will have the following responsibilities:

- To ensure there is sufficient allocation of resources to the professional role players to perform their tasks in terms of the EMPr;
- In event that the environment is significantly negatively affected, the owner will be responsible for rehabilitation and restoring the affected areas to an acceptable level;
- The owner must include the EMPr with all tender and contractual documents in order to ensure that all parties involved are bound to the terms of the EMPr;
- An Environmental Control Officer (ECO) must be appointed to oversee the environmental aspects of the development and audit compliance with the EMPr.
- The owner or developer must provide the contractors with a copy of the EMPr and any other relevant documentation or supporting documents.

### **3.2 Contractor**

The contractor is bound to the terms and conditions of the EMPr by way of the contract with the developer. The contractor must be familiar with the terms of the EMPr before commencement of the activities on site and must request clarification on any issues that is unclear. The main responsibilities to this regard are as follows:

- The contractor must comply with all the terms and conditions of the EMP and must ensure that all sub contractors are initiated with the EMP and comply with the terms of the EMP;
- The contractor must attend a site inspection and orientation session with the ECO to identify and be informed of the sensitive elements of the site and take cognizance of the boundaries of the construction area. The ECO must point out any particular site-specific elements of importance;
- The contractor must ensure that the construction crew attends an environmental briefing and training session presented by the ECO prior to commencing activities on site;

- The contractor must adhere to all verbal all written orders given by the Environmental Control Officer (ECO) or other responsible persons (project manager or site engineer) in terms of the EMP.

### **3.3 Environmental Control Officer**

The applicant must appoint an independent environmental officer (ECO) whom will have the responsibility of implementing the EMP and ensuring compliance with the conditions of this environmental authorization. The main responsibilities and duties of the ECO are as follows:

- The priority of the ECO is to ensure that the site environment is not significantly negatively affected by the proposed activities and that minimal environmental damage is done during construction and adequate measures is emplaced to ensure that future operations and maintenance does not significantly impact on the environment.
- The ECO shall liaison with relevant authorities and keep record of all correspondence with external interested and affected parties;
- To ensure that the proponent, construction team, the operational and maintenance workers are acquainted with their responsibilities.
- To ensure compliance with regulatory authorities requirements.
- To respond to changes in the project implementation not considered during the assessment phase, and respond to unforeseen events.
- To verify environmental performance through information on impacts as they occur.
- To establish proper communication channels and provide feedback for continual improvement.

### **3.4 Environmental Incidents**

In order for the EMP to be efficient in case of any environmental incidents, the following criteria should be adhered to:

- In event of a significant environmental incident occurring the contractor must notify the ECO and/or the authorities within 24 hours of occurrence;
- Investigate the cause of the incident and compile an environmental incident report;
- Take corrective measures to mitigate the incident;
- Rehabilitate any residual damage to the environment;
- Introduce alternative operating procedures and/or technology to prevent a recurrence of the incident;

## **4. Environmental Monitoring and Reporting**

The ECO appointed will be responsible to monitor compliance with the conditions of the authorization, environmental legislation and this EMP for the duration of the planning, construction and rehabilitation phases of the project and must submit compliance reports to the regulating authority on a monthly timeframe. After completion of the



rehabilitation phase a post construction audit must be carried out and submitted. The services of the ECO will terminate as soon as an acceptable level of rehabilitation has been reached.

The ECO shall review the environmental management performance of the Holder of the Authorisation/ designated person on a regular basis. The party shall be deemed not to have complied with the EMPr if:

- There is evidence of the contravention of any of the conditions of the EMPr.
- The person fails to comply with corrective or other instructions by the Environmental Control Officer.
- The person fails to respond to complaints from the public.
- The personnel are found removing vegetation, entering neighbouring areas or cause disturbances due to unacceptable behaviour.

The ECO should document the nature and magnitude of the non-compliance in a designated register, the action taken to discontinue the non-compliance, the action taken to mitigate its effects and the results of the actions.

The Holder of the Authorisation/designated person shall advise the ECO of any emergencies on Site, together with a record of action taken, within 24 hours of the emergency occurring. Such emergency shall be reported to the holder of the EA.

Any non-compliance with the agreed procedures of the EMPr is a transgression of the various statutes and laws that define the manner by which the environment is managed. Failure to redress the cause shall be reported to the relevant authority. The responsible provincial or national authorities shall ensure compliance and impose penalties relevant to the transgression as allowed for within its statutory powers. A proposed monitoring program is as follows:

<b>Task</b>	<b>Frequency</b>	<b>Responsibility</b>
Visual Inspections	Daily	Owner/Designated person on owner's behalf
Compliance inspections & Reports	Monthly	Environmental Control Officer

## **5. Environmental awareness plan and training**

The Holder of the Authorisation/Contractor shall ensure that adequate environmental training takes place. All employees must have been given an induction presentation on environmental awareness to understand the obligations in terms of the EMPr. Where possible, the presentation needs to be conducted in the language of the employees. The Environmental Control Officer must with the holder of the authorisation put together a plan that aims to:

- Inform all the staff/workers of the environment they will work in and the sensitivity with regards of certain areas and/or aspects;
- Employees and personnel must be initiated with the potential environmental risks/impacts as described in the EIA Report and EMPr must be informed on the measures necessary to avoid or manage the consequences as described in the EMPr.
- Explain aspects and the general measures that should be implemented in order to meet the requirements of the EA and EMPr.
- Training must be recorded and an attendance register kept.

The environmental awareness plan will involve the complete structure of the management and labour hierarchy and the plan and requirements are presented in the following sections:

### **5.1 Responsibilities and target personnel**

#### **5.1.1 Management and administration**

An environmental initiation session will be conducted to inform all the management sectors of the environmental risks associated with the project. The risks for all aspects will be explained (as included with EMPr Table 1) and the appropriate management options will be discussed. The monitoring programmes that will be implemented to identify and monitor the magnitude of impact on the environment shall be explained as well as the various remediation actions. The monitoring process is integral in the assurance that the project reduces the potential of any possible environmental risks. The initiation will be conducted prior to the construction phase to ensure that all potential impacts and risks are understood before commencement of activities. Initiation sessions may be repeated at certain stages during the life of the project, in the case of new management or change of ownership.

The communication of the environmental risks to the administrative sector will occur together with the environmental initiation session.

- Each environmental aspect will be explained as included with Table 1 as well as the Environmental Management Table (Table 2). Risk associated with each aspect will be discussed to ensure that there is an understanding of how each action of the project may impact on the environment and potential risks to personnel.
- The mitigation of the environmental risk will be elaborated on. It is important that each person understand these management objectives as it ensures that the impact on the environment is kept to a minimum. Data collection regarding each aspect will also be explained to ensure that each aspect is monitored according

to those protocols specified by regulating authority. Along with data collection the reporting of findings will be discussed.

- This environmental initiation session will take place before the construction phase begins, thus ensuring a full understanding of the project and its associated environmental risks before any construction activity is undertaken. The session will be repeated at the beginning of the operational phase and will be integrated in the induction for new personnel.

### **5.2.1 Contractors and labour**

The labour and contractors associated with the construction activities will attend a half day (minimum) induction session to ensure that each person is aware of the environmental risks associated with the project and their specific jobs. This induction may form part of the health and safety induction. This induction course will explain and describe the relevant phases of the project as well as those environmental risks that may occur during these phases. The environmental risks of each aspect as well as the mitigation will be elaborated on.

An environmental awareness section will be added to the contractors health and safety induction programme. The environmental induction will focus on activities that carry an environmental risk, actions to be taken to reduce these risks, and procedures to be followed in the event of an incident.

## **5.2 Induction and training**

### **5.2.1 Induction sessions**

The induction will be conducted in English, as well as the dominant local language. This induction may form part of the health and safety induction. Environmental issues and aspects related to the construction and operational phases will be addressed in condensed induction sessions. All environmental impacts and aspects and their mitigation measures will be discussed, explained and communicated to employees. The induction sessions will be modified according to the level of employee attending the induction session, so that all employees gain a suitable understanding of environmental issues and pollution. Environmental awareness forms part of the induction course. The outcome of the environmental component is to educate all employees and contractors of the concepts of sustainability and how this applies to the project as well as the individual. The following syllabus of environmental training is to be included within the induction course:

- Discuss the specific environmental goals and objectives and the benefits of achieving these objectives (EMPr Table 1).
- All environmental impacts and aspects and their mitigation measures will be discussed, explained and communicated to employees (EMPr Table 2).
- Ensure that each person is aware of the environmental risks associated with the project and their specific jobs.
- In case that these objectives change during the life of the project, the induction syllabus must be updated accordingly.
- Where possible, the objectives covered should be selected on the basis of topics that personnel can relate to.

All full time personnel and contractors are required to attend the abovementioned environmental induction session. Temporary employees and contractors will also be required to undergo condensed induction sessions before they are allowed to proceed on site.

### **5.2.2 Training**

In-house training sessions will be held with employees whom occupy a job with a significant environmental sensitivity (e.g. the operation of earthmoving machinery). The training sessions will be determined by the relevant section or department and will allow for employees to participate in determining what the environmental issues and concerns are with regard to their specific occupation. Education with regard to environmental incident reporting will be detailed at these sessions.

Job specific training is an essential tool in environmental awareness. Employees will be given details of the expected environmental issues and concerns specifically related to their occupation. Employees will be trained on how to respond if an environmental problem or source of environmental pollution arises. The training will be on-going, and all new employees will be provided with the same standard of training as existing employees.

### **5.2.3 General Training and Skills Development**

Human Resources Development Programmes will include appropriate training and skills development programmes as required by the workforce in support of operation specific plans (e.g. the operation of earthmoving machinery). Training will be offered in portable skills, being competencies that will enable employees to find jobs elsewhere within the mining industry, or to become self-employed. Basic environmental and pollution control skills will be included in this training.

### **5.3 Effectiveness evaluation of the Environmental Awareness Plan**

The environmental awareness plan will be evaluated on a continuous basis by the management of the project. This evaluation will entail the auditing of the operation in both the construction and operational phases once activities has commenced. The environmental awareness plan described above is sufficient to make all those involved in the project aware of those risks that may occur as well as the necessary mitigation required to minimize these risks. Environmental issues will be reported and assessed at monthly meetings scheduled by management.

## **6. Environmental Management Programme Table**

The EIA report and specialist reports were used as basis in order to compile the EMPr for this project. The impact management actions that have been formulated to achieve the impact management objectives and outcomes are presented in the EMPr Management Table (Table 2).