

DRAFT
ENVIRONMENTAL MANAGEMENT PROGRAMME

OSNER RESIDENTIAL DEVELOPMENT

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1 INTRODUCTION

1.1 Objectives of an EMPr

The EMPr has been compiled to provide recommendations and guidelines according to which compliance monitoring can be done during the construction and operation of the fourth phase of the Brickfield Park development. The objective of the EMPr is also to ensure that all relevant factors are considered to ensure for environmentally responsible development. The purpose of the EMPr is to provide specifications for "good environmental practice" for application during this phase.



Figure 1: Map indicating the location of the proposed Osner Residential Development.

This EMPr informs all relevant parties, which are in this case, the Project Coordinator, the Contractor, the Environmental Control Officer (ECO) and all other staff employed by W F Osner Investments (Pty) Ltd at the site (Figure 1) as to their duties in the fulfilment of the legal requirements for the construction and operation of the proposed infrastructure with particular reference to the prevention and mitigation of anticipated potential environmental impacts.

The objectives of an EMPr are to:

- Ensure compliance with regulatory authority stipulations and guidelines which may be local, provincial, national and/or international;
- Ensure that there is sufficient allocation of resources on the project budget so that the scale of EMPr-related activities is consistent with the significance of project impacts;
- Verify environmental performance through information on impacts as they occur;
- Respond to unforeseen events;
- Provide feedback for continual improvement in environmental performance;
- Identify a range of mitigation measures which could reduce and mitigate the potential impacts to minimal or insignificant levels;

- Detail specific actions deemed necessary to assist in mitigating the environmental impact of the project;
- Identify measures that could optimize beneficial impacts;
- Create management structures that address the concerns and complaints of I&APs with regards to the development;
- Establish a method of monitoring and auditing environmental management practices during all phases of the activity;
- Ensure that safety recommendations are complied with;
- Specify time periods within which the measures contemplated in the final environmental management programme must be implemented, where appropriate;

1.2 Structure and Function of an EMPr

An EMPr is focused on sound environmental management practices, which will be undertaken to minimise adverse impacts on the environment through the lifetime of a development. In addition, an EMPr identifies what measures will be in place or will be actioned to manage any incidents and emergencies that may occur during operation of the facility.

As such the EMPr provides specifications that must be adhered to, in order to minimise adverse environmental impacts associated with the construction and operation of the proposed infrastructure. Although this EMPr is not legally binding in terms of the EIA regulations (2014), the content of the EMPr is consistent with the requirements as set out in Appendix 4 of the EIA regulations stated below, for the construction and operation phases.

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

- (a) Details of –
 - (i) The EAP who prepared the environmental management programme; and
 - (ii) The expertise of the EAP to prepare an environmental management programme, including a curriculum vitae;
- (b) A detailed description of the aspects of the activity that are covered by the draft environmental management programme as identified by the project description;
- (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;
- (d) A description of the impact management objectives, 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;
- (e) A description and identification of impact management outcomes required for the aspects contemplated in (d).
- (f) a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (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;
 - (iv) Comply with any provisions of the Act regarding financial provisions for rehabilitation,

where applicable;

- (g) The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);
- (h) The frequency of monitoring the implementation of the impact management actions contemplated in (f);
- (i) An indication of the persons who will be responsible for the implementation of the impact management actions;
- (j) The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;
- (k) The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);
- (l) A program for reporting on compliance, taking into account the requirement as prescribed by the regulations;
- (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
- (n) Any specific information that may be required by the competent authority.

1.3 Legal requirements

Construction must 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/her 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 approved EMPr are not legally binding in terms of environmental statutory legislation, but if not implemented may lead to environmental damage that could be in direct contravention of environmental legislation, and should therefore form part of 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 Contractor must identify and comply with all South African national and provincial environmental legislation, including associated regulations and all local by-laws relevant to the project. Key legislation currently applicable to the construction and implementation phases of the project must be complied with. The list of applicable legislation provided below is intended to serve as a guideline only and is not exhaustive:-

- Constitution Act (No. 108 of 1996)
- EIA Regulations (2014)
- National Environment Management Act (No. 107 of 1998)
- National Environmental Management: Biodiversity Act (No. 10 of 2004)
- National Water Act (No. 36 of 1998)
- National Environmental Management: Waste Management Act (No. 59 of 2008)
- National Environmental Management: Waste Act (2008): National Norms and Standards for the assessment of waste for landfill disposal.
- National Heritage Resources Act (No. 25 of 1999)
- Informal Land Rights Act (No. 109 of 1996)
- National Environmental
- Management: Air Quality Act (No. 39 of 2004)

2 DETAILS OF THE ENVIRONMENTAL ASSESSMENT TEAM

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

- (a) Details of –
- (i) The EAP who prepared the environmental management programme; and
 - (ii) The expertise of the EAP to prepare an environmental management programme, including a curriculum vitae;

Environmental Consulting Company:

CES Environmental And Social Advisory Services
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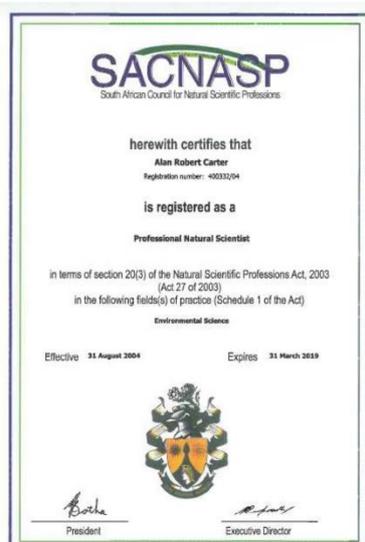
Project Team:

- Dr Alan Carter
- Mr Sibusiso Sinuka

CES Environmental And Social Advisory Services was established in 1990 as a specialist environmental consulting company and has considerable experience in terrestrial, marine and freshwater ecology, the Social Impact Assessment (SIA) process, State of Environment Reporting (SOER), Integrated Waste Management Plans (IWMP), Environmental Management Plans (EMPs), Spatial Development Frameworks (SDF), public participation, as well as the management and co-ordination of all aspects of the Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) processes.

Dr Alan Carter,

Alan is the executive of the CES East London Office. He holds a PhD in Marine Biology and is a Certified Public Accountant, with extensive training and experience in both financial accounting and environmental science disciplines with international accounting firms in South Africa and the USA. He has 25 years' experience in environmental management and has specialist skills in sanitation, coastal environments and industrial waste. Dr Carter is registered as a Professional Natural Scientist under the South African Council for Natural Scientific Professions (SACNASP). He is also registered as an EAP with the Environmental Assessment Practitioners of South Africa (EAPSA) interim EAP certification body.



Mr Sibusiso Sinuka

Sibusiso is an Environmental Consultant and has completed a Bachelor of Science and Bachelor of Science (Honours) degree, majoring in Geography and with coursework in Integrated Environmental Management, Geographical Information Systems, Geomorphology, and Theory of Human Geographies. The Honours Programme also entailed a research project that looked at the Socio-environmental impacts on sewage spills on communities in East London, Eastern Cape. Both degrees were obtained from the University of Fort Hare. Sibusiso has also completed a Master of Science degree majoring in Geography where he focused on the Thermal dynamics of mire ecosystems (bogs) on Marion Island, also at the University of Fort Hare. Sibusiso is currently involved in numerous ECO projects of different disciplines including the construction of roads and schools as well as Environmental Impact Assessments.

3 PROPOSED ACTIVITY

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

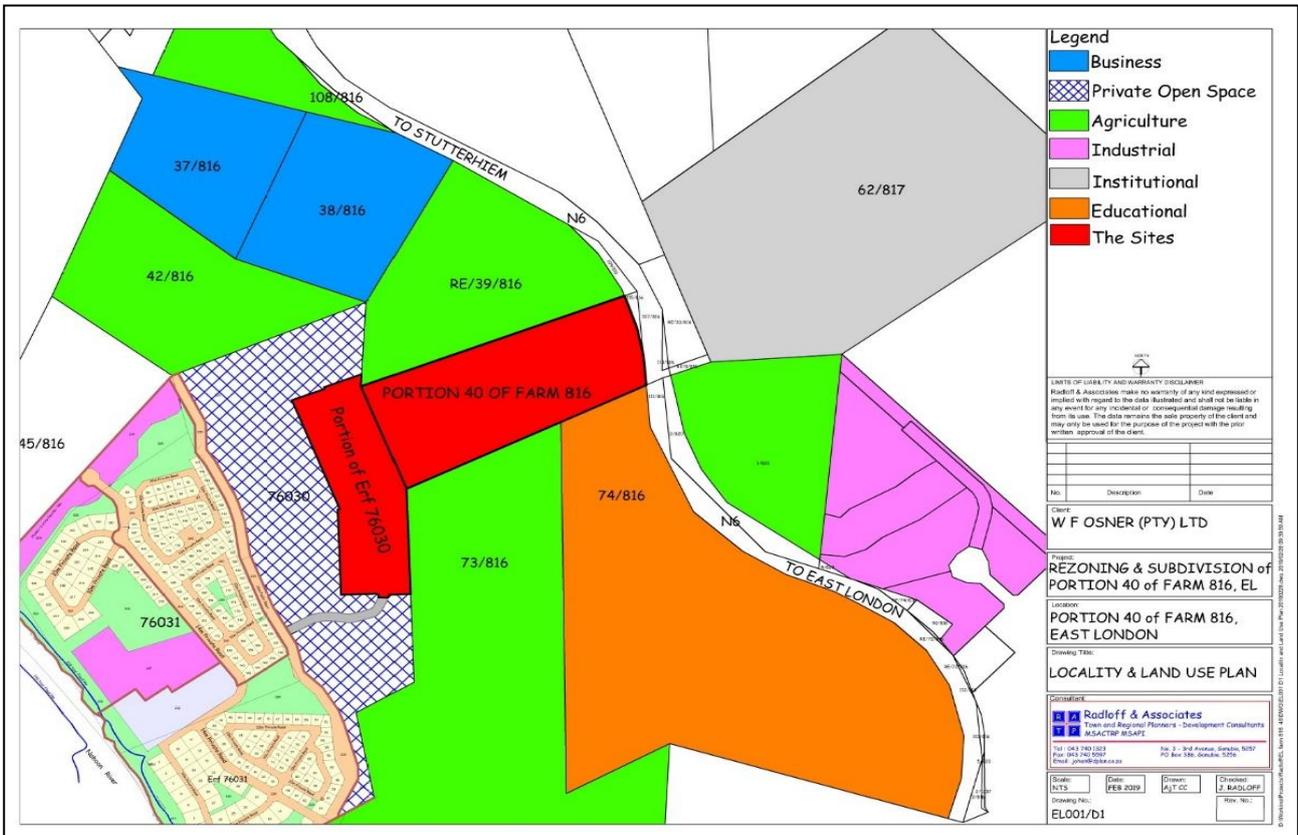
- (b) A detailed description of the aspects of the activity that are covered by the draft environmental management programme as identified by the project description;
- (c) A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;

3.1 Description of proposed activity

The project is based on the concept of creating a number of separate, private, high-density residential estates and other infrastructure on portion 40 of Farm 816. The infrastructure include:

- Private parking bays
- Water and sewage infrastructure
- Transport infrastructure
- Site clearance
- Landscaping and Maintenance.

To date, three (3) phases of the project development have been completed, and this assessment is only concerned with activities proposed for the fourth phase of development. The construction of infrastructure proposed for the fourth phase of the Brickfields Park project is to be undertaken in five phases referred to as Phases 4.1 – 4.5.



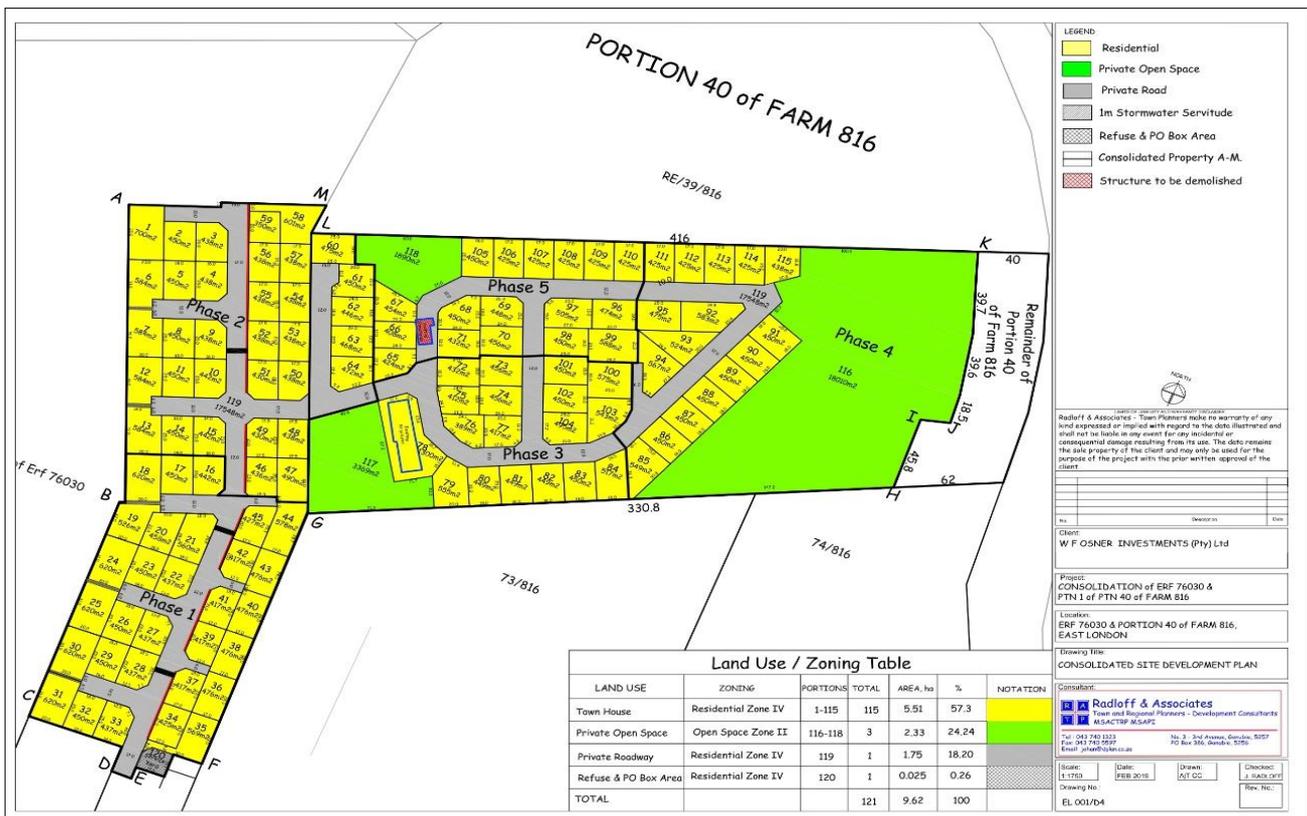


Figure 2: Phase 4 location of the Osner residential development and the layout plan.

Infrastructure development associated with Phase 4.1 of the Osner residential development project includes:

- The construction of thirty (30) townhouses;
- The construction of private parking bays for town house owners and dedicated visitor parking areas; and
- The construction of private roads, including a 14m wide access road to the estate, and a 12m wide private main road within the estate.

Infrastructure development associated with Phase 4.2 of the Osner residential development project includes:

- The construction of thirty-four (34) townhouses;
- The construction of private parking bays for town house owners and dedicated visitor parking areas; and
- The construction of private roads, including a 12m wide private main road within the estate.

Infrastructure development associated with Phase 4.3 of the Osner residential development project includes:

- The construction of eighteen (18) townhouses;
- The construction of private parking bays for town house owners and dedicated visitor parking areas;
- The construction of private roads, including a 12m wide private main road within the estate; and
- The construction of 3369m² private open space.

Infrastructure development associated with Phase 4.4 of the Osner residential development project includes:

- The construction of sixteen (16) townhouses;
- The construction of private parking bays for town house owners and dedicated visitor parking areas;

- The construction of private roads, including a 12m wide private main road within the estate; and
- The construction of 18010m² private open space.

Infrastructure development associated with Phase 4.5 of the Osner residential development project includes:

- The construction of seventeen (17) townhouses;
- The construction of private parking bays for town house owners and dedicated visitor parking areas;
- The construction of private roads, including a 12m wide private main road within the estate; and
- The construction of 1890m² private open space.

Additional activities required to complete both the fourth phase of the Osner residential development project include the construction of:

- Water and sewage infrastructure,
- Transport infrastructure,
- Site clearance as well as
- Landscaping and maintenance

4 SCOPE OF THE EMPr

In order to ensure a holistic approach to the management of environmental impacts during the construction and operation of the proposed housing development this EMPr sets out the methods by which proper environmental controls are to be implemented by the Contractor and all other parties involved.

The EMPr is a dynamic document subject to influences and changes as are wrought by variations to the provisions of the project specification.

4.1 Layout of the EMPr

The EMPr is divided into three phases of development. Each phase has specific issues unique to that period of the construction and operation of the housing development. The impacts are identified and given a brief description. The three phases of the development are then identified as below:

4.1.1 Planning and design phase

This section of the EMPr provides management principles for the planning and design phase of the project. Environmental actions, procedures and responsibilities as required from WF Osner Investments (Pty) Ltd during the planning and design phase are specified. These specifications will form part of the contract documentation and therefore the Contractor will be required to comply with these specifications to the satisfactory of the Project Coordinator and ECO.

4.1.2 Construction Phase

This section of the EMPr provides management principles for the construction phase of the project. Environmental actions, procedures and responsibilities as required during the construction phase are specified. These specifications will form part of the contract documentation and therefore the Contractor will be required to comply with these specifications to the satisfaction of the Project Coordinator and ECO, or ESO if an ECO is not appointed.

4.1.3 Operational Phase

This section of the EMPr provides management principles for the operation and maintenance phase of the project. Environmental actions, procedures and responsibilities as required from WF Osner Investments (Pty) Ltd during the operation and maintenance phase are specified.

5 MITIGATION AND/OR MANAGEMENT MEASURES

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

- (d) A description of the impact management objectives, 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;
- (e) A description and identification of impact outcomes required for the aspects contemplated in (d).
- (f) A description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (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;
 - (iv) Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;

Table 5.1: Impacts and Mitigation Measures associated with the proposed residential development.

PLANNING AND DESIGN PHASE	
Impact Description	Mitigation
ENVIRONMENTAL POLICY	
Legal and policy compliance	<ul style="list-style-type: none"> • All legal matters pertaining to permitting must be completed prior to any construction activity. • In particular, all necessary Water Use Licenses must be in place for any construction activities within 32 m of a watercourse and within 500 m of a wetland.
Eastern Cape Biodiversity Conservation Plan (ECBCP)	<ul style="list-style-type: none"> • The footprint of the development has been limited to less sensitive areas. Since the site falls within a CBA area, the remainder of the site must be zoned for Private conservation.
National Environmental Management: Biodiversity Act: Threatened or Protected Species	<ul style="list-style-type: none"> • The housing development design must avoid areas where plant and animal SCC have been identified. Permits must be obtained from the relevant departments in order to remove plant and animal SCC from the development area prior to construction.
Buffalo City Metropolitan Municipality (BCMM) Spatial Development Framework (SDF)	<ul style="list-style-type: none"> • The proposed development has been assessed and is compliant with the relevant SDF.
BUILT ENVIRONMENT	
Site establishment	<ul style="list-style-type: none"> • The design of the construction site must ensure minimal impacts to the aquatic environment and residential houses surrounding the site, preferably on degraded land. • The construction site must be demarcated and

PLANNING AND DESIGN PHASE	
Impact Description	Mitigation
	<p>communicated with the contractor prior to commencement of construction.</p> <ul style="list-style-type: none"> • All No-Go areas must be clearly demarcated during the planning and design.
Stormwater management	<ul style="list-style-type: none"> • A Stormwater Management Plan must be developed by the Engineer or Contractor prior to construction to control runoff and prevent erosion of the site and its surroundings. • Appropriate stormwater structures described in the stormwater management plan must be designed to minimise erosion of the surrounding environment and sedimentation of surrounding watercourses. • All infrastructure situated on slopes must incorporate stormwater diversions. • Flood attenuation and stormwater management plans must be drawn up by a qualified engineer. • Stormwater designs must be in line with DWS requirements.
Waste management	<ul style="list-style-type: none"> • An appropriate waste management plan for handling onsite general and hazardous waste during the construction phase must be developed and implemented.
AQUATIC ENVIRONMENT	
Stormwater Management	<ul style="list-style-type: none"> • A Stormwater Management Plan must be compiled by a registered engineer during the planning and design phase of the proposed housing development and must be implemented during the construction phase.
Material Stockpiling	<ul style="list-style-type: none"> • No construction material must be stored within 50m of a watercourse. • If erosion and mobilisation of materials from stockpiles towards watercourses is noted by the ECO, then suitable cut-off drains, or berms should be placed between the stockpile area and the nearest watercourse.
Water Quality	<ul style="list-style-type: none"> • ECO to ensure the Storm Water Management Plan as well as Waste Management Plans are developed prior to construction.
VEGETATION	
Species of Conservation Concern	<ul style="list-style-type: none"> • During the planning and design phase, the construction footprint must be clearly demarcated and must be designed to avoid the loss of indigenous vegetation as far as possible.
Control of alien plant species	<ul style="list-style-type: none"> • All necessary permits must be obtained for the removal of any identified SCC prior to the commencement of construction activities • Planning for any search and rescue operations must be conducted prior to the commencement of construction activities.
SOCIO-ECONOMIC	

PLANNING AND DESIGN PHASE	
Impact Description	Mitigation
Cultural environment	
Heritage and paleontological environment	<ul style="list-style-type: none"> • A qualified heritage assessment practitioner must conduct a survey of the site prior to construction to identify any heritage or paleontological resources. • The relevant permits must be obtained from ECPHRA should any heritage resources need to be relocated or demolished prior to construction or appropriate buffers around these resources must be adopted.
Rehabilitation and maintenance	
Rehabilitation and maintenance	<ul style="list-style-type: none"> • During the planning and design phase, a Rehabilitation Plan must be developed and implemented during construction. • Regular monitoring of implementation of this plan for the rehabilitation of disturbed areas must be conducted throughout the duration of the phase.

CONSTRUCTION PHASE	
Impact Description	Mitigation
GENERAL CONSTRUCTION	
Air Pollution (Dust)	<ul style="list-style-type: none"> • Cleared surfaces must be dampened regularly, especially during dry and windy conditions, to avoid excessive dust generation. • Excavated soil that is not being utilised for rehabilitation must be removed from site or covered. Unused soil must be removed from site once construction is complete.
Noise Pollution	<ul style="list-style-type: none"> • Construction activity, which includes the movement of construction vehicles, must be restricted to normal working hours (7:00am – 17:00pm).
Site contamination due to hazardous substances	<ul style="list-style-type: none"> • Hazardous Chemical Substances Regulations promulgated in terms of the Occupational Health and Safety Act 85 of 1993 and the SABS Code of Practice must be adhered to. This applies to solvents and other chemicals possibly used during the construction process. • Cement must not be mixed directly on the ground, or mixed during rainfall events when the potential for transport to the stormwater system is the greatest. • Cement must only be mixed in the area demarcated for this purpose and on an impermeable surface. • Oil trays must be placed under construction machinery to avoid soil contamination. • The ECO and/or Contractor must determine the precise method of treatment of polluted soil. This could involve the application of soil absorbent materials, oil-digestive powders to the contaminated soil or the excavation of the contaminated soil depending on the nature of the spill.
Health and safety risk associated with fires	<ul style="list-style-type: none"> • The ECO and/or Contractor must ensure that operational firefighting equipment is always present on site as per the Occupational Health and Safety Act.

CONSTRUCTION PHASE	
Impact Description	Mitigation
	<ul style="list-style-type: none"> • All construction foremen must be trained in fire hazard control and firefighting techniques. • All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances. • No open fires must be allowed on site unless in a demarcated area identified by the ECO. • No smoking must be permitted near flammable substances.
Waste management	<ul style="list-style-type: none"> • A Waste Management Plan for handling onsite waste during the construction phase must be developed and implemented. • All general waste must be disposed of in bins/waste skips labelled “general waste”. • Sufficient waste bins must be provided throughout the construction site for collecting waste. • All general waste collected on site must be disposed of at a licensed general waste disposal site. • Adequate sanitary facilities must be provided for construction workers and they must be properly secured to the ground. • Maintenance of the chemical toilets should be done on a regular basis to prevent any leakages. • Construction rubble must be disposed of in predetermined, demarcated spoil dumps as instructed by the ECO and/or Contractor. • The ECO must monitor the Contractor’s campsite for litter and waste. • All waste must be removed from the site and transported to the closest licensed landfill site. • Construction rubble must be disposed of in predetermined, demarcated spoil dumps as instructed by the ECO and/or Contractor.
Sanitation and water	<ul style="list-style-type: none"> • Adequate sanitary and ablution facilities must be provided for construction workers during the construction phase. • The facilities must be serviced regularly to reduce the risk of surface or groundwater pollution. • Wastewater must be managed by the Contractor to ensure the existing water resources on the site are not contaminated. All wastewater from general activities in the camp must be collected and removed from the site for appropriate disposal at a licensed facility. • The ECO must monitor the sanitation of the work sites.
Stormwater Management	<ul style="list-style-type: none"> • A Stormwater Management Plan must be compiled by a registered engineer during the planning and design phase of the proposed housing development and must be implemented during the construction phase.
Material Stockpiling	<ul style="list-style-type: none"> • No construction material must be stored within 50m of a watercourse. • If erosion and mobilisation of materials from stockpiles towards watercourses is noted by the ECO then suitable cut-off drains or berms should be placed between the stockpile

CONSTRUCTION PHASE	
Impact Description	Mitigation
	area and the nearest watercourse.
Water Quality	<ul style="list-style-type: none"> • During the construction phase no machinery must be parked overnight within 50m of the rivers. • Chemicals used for construction must be stored safely on bunded surfaces in the construction site camp. • No ablution facilities must be located within 50m of any rivers. • Chemical toilets must be regularly maintained/ serviced to prevent ground or surface water pollution.
VEGETATION	
Control of alien plant species	<ul style="list-style-type: none"> • A Rehabilitation, Alien Vegetation and Erosion Management Plan must be implemented during the construction phase to reduce the establishment and spread of undesirable alien plants and other species. Alien plants must be removed from the site through appropriate methods such as hand pulling, application of chemicals, cutting, etc.
Control of alien plant species	<ul style="list-style-type: none"> • The area to be cleared of vegetation must be clearly demarcated and strictly limited to the construction boundary. • Animals must not be harmed, handled, or interfered with by construction staff during the construction phase. The ECO must survey the surrounding natural vegetation for the presence of snares. • Natural vegetation must not be harvested by construction staff.
SOCIO-ECONOMIC	
Job creation	<ul style="list-style-type: none"> • Where possible construction resources must be purchased from local companies. • Construction workers to be sourced from Ducats and/or Nompumelelo, if possible.
Rehabilitation and maintenance	
Rehabilitation and maintenance	<ul style="list-style-type: none"> • The rehabilitation plan must be implemented during and after the construction has been completed. • All temporarily disturbed areas must be rehabilitated with indigenous vegetation as soon as construction in the particular area or phase of work is complete, i.e. rehabilitation is on-going throughout construction as phases have been completed. • All impacted areas must be restored as per the EMPr requirements.

OPERATIONAL PHASE	
Impact Description	Mitigation
REHABILITATION	
Rehabilitation and maintenance	<ul style="list-style-type: none"> • A Rehabilitation, Alien Vegetation and Erosion Management Plan must be developed and implemented

OPERATIONAL PHASE	
Impact Description	Mitigation
	<p>during the operational phase.</p> <ul style="list-style-type: none"> • After construction, exposed areas must be rehabilitated with indigenous vegetation. • Disturbed areas of natural vegetation must be rehabilitated immediately to prevent further soil erosion. • Re-seeding of indigenous plant species must be done on disturbed areas as directed by the ECO. • Alien plants must be removed from site through appropriate methods such as hand pulling, application of chemicals, cutting, etc. This must be done under the supervision of the ECO.
ENVIRONMENTAL POLICY	
Legal and policy compliance	<ul style="list-style-type: none"> • All relevant legislation and policy must be consulted and the proponent must ensure that the project is compliant with such legislation and policy. The operational conditions outlined in the EA must be adhered to.
BUILT ENVIRONMENT	
Bulk services and infrastructure	<ul style="list-style-type: none"> • Any bulk services or service infrastructure damaged during the construction must be rehabilitated immediately. • Regular maintenance and inspections of all infrastructure and services must be undertaken throughout construction phase. A close out inspection must be undertaken upon completion of construction.
AQUATIC ENVIRONMENTS	
Stormwater management	<ul style="list-style-type: none"> • A detailed stormwater management plan must be implemented on site in order to minimise stormwater runoff and soil erosion on site. • The ECO must provide detailed comment with regards to the Stormwater Plan and its implementation in the Final ECO/Site closure report.
Vegetation	
Establishment of alien vegetation	<ul style="list-style-type: none"> • Alien Management Plan must be implemented by the body corporate of the estate through the life of the project. Plan must include all private open space.
Socio- economic	
Housing Provision	<ul style="list-style-type: none"> • No mitigation required.

6 ENVIRONMENTAL MONITORING

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

- (g) The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);
- (h) The frequency of monitoring the implementation of the impact management actions contemplated in (f);

A monitoring programme must be implemented for the duration of the construction and operation of the project. This programme should include:

- Establishing a baseline of pre-construction site conditions validated with photographic evidence.
- Bi-monthly (fortnightly) monitoring during the first month of construction, where after monthly audits will be conducted by an independent ECO for the remainder of the construction phase to ensure compliance with the EMPr conditions, and where necessary make recommendations for corrective action. Compliance monitoring can be conducted randomly and do not require prior arrangement with the Project Manager.
- Compilation of an audit report with a rating of compliance with the EMPr. The ECO must keep a photographic record of the demarcated site and construction area. The Contractor will be held liable for all unnecessary damage to the environment. A register must be kept of all complaints from the community. All complaints / claims must be handled immediately to ensure timeous rectification / payment by the responsible party.
- Compilation of a final audit report after all site construction and rehabilitation is complete. A final report containing a summary of all compliance monitoring during construction must be compiled at the end of construction.

7 ROLES AND RESPONSIBILITIES

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

- (i) An indication of the persons who will be responsible for the implementation of the impact management actions;

7.1 Project Coordinator

W F Osner Investments (Pty) Ltd is the applicant and will therefore be the entity monitoring the implementation of the EMPr and compliance with the environmental authorisation. However, the Applicant's Project Manager may appoint a Contractor to implement the project and hence implement the proposed mitigation measures documented in this EMPr on their behalf.

The Applicant's Project Manager must:

- Ensure that all third parties who carry out all or part of the Applicant's obligations under the Contract comply with the requirements of this EMPr;
- Be responsible for obtaining any further environmental permits which are required for the design, construction and operation of the development; and
- Ensure that the infrastructure is maintained and functional during the operational phase of the development.

7.2 Contractor

The successful Contractor is responsible for:

- The finalisation of the EMPr in terms of methodologies (method statements) which are required to be implemented to achieve the environmental specifications contained herein and the relevant requirements contained in the environmental authorisation, if issued by DEDEAT;
- The overall implementation of the EMPr in accordance with the requirements of the environmental authorisation, if issued by DEDEAT;
- Ensuring that all third parties who carry out all or part of the Contractor's obligations under the Contract comply with the requirements of this EMPr;
- Obtaining any environmental permits which are required for the design, construction and operation of the development.

7.3 Environmental Control Officer

For the purposes of implementing the conditions contained herein, the Applicant's Project Manager must appoint an Environmental Control Officer (ECO) for the contract. The ECO will be the responsible person for ensuring that the provisions of the EMPr as well as the conditions of the environmental authorisation are complied with during the construction period. The ECO will be responsible for issuing instructions to the contractor where environmental considerations call for action to be taken. The ECO will submit regular written reports to the applicant, but not less frequently than once a month.

The ECO's duties in this regard will include, inter alia, the following:

- Confirming that all the environmental authorisations and permits required in terms of the applicable legislation have been obtained prior to construction commencing.
- Monitoring and verifying that the EMPr, Environmental Authorisation, other relevant permits and contract are adhered to at all times and taking action if specifications are not followed.
- Monitoring and verifying that environmental impacts are kept to a minimum.

- Reviewing and approving construction method statements, where necessary, in order to ensure that the environmental specifications contained within this EMPr, environmental authorisation and any other relevant permits are adhered to.
- Inspecting the site and surrounding areas on a regular basis regarding compliance with the EMPr, the Environmental Authorisation and the Contract.
- Monitoring the undertaking, by the Contractor, of environmental awareness training for all new personnel on site.
- Ensuring that activities on site comply with all relevant environmental legislation.
- Ordering the removal of or recommending spot fines for person(s) and/or equipment not complying with the specifications of the EMPr and/or environmental authorisation.
- Undertaking a continual internal review of the EMPr and submitting any changes to the Applicant's Project Manager for review and approval.
- Checking that the required actions are/were undertaken to mitigate the impacts resulting from non-compliance.
- Reporting all incidences of non-compliance to the Applicant's Project Manager.
- Keeping a photographic record of progress on site from an environmental perspective and recommending additional environmental protection measures, should this be necessary.
- Providing feedback on any environmental issues at site meetings.
- Conduct a final audit of all compliance monitoring conducted during construction.

The ECO must have:

- A good working knowledge of all relevant environmental policies, legislation, guidelines and standards;
- The ability to conduct inspections and to produce thorough, readable and informative reports;
- The ability to manage public communication and complaints;
- The ability to think holistically about the structure, functioning and performance of environmental systems; and
- Proven competence in the application of the following integrated environmental management tools:
 - Environmental Impact Assessment.
 - Environmental management plans/programmes.
 - Environmental auditing.
 - Mitigation and minimisation of impacts.
 - Monitoring and evaluation of impacts.
 - Environmental Management Systems.

The ECO must be fully conversant with this EMPr and the Environmental Authorisation (if issued) and all relevant environmental legislation.

- The Applicant's Project Manager will have the authority to replace the ECO if, in their opinion, the appointed officer is not fulfilling his/her duties in terms of the requirements of the EMPr or this specification. Such instruction will be in writing and will clearly set out the reasons why a replacement is required and within what timeframe.

8 COMPLIANCE WITH THE EMPr

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

- (j) The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;
- (k) The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);

A copy of the EMPr must be kept on site at all times during the construction and operation period. The EMPr will be binding on all staff operating on the site and must be included within the Contractual Clauses.

It should be noted that in terms of Section 28 of the National Environmental Management Act (No. 107 of 1998) those responsible for environmental damage must pay the repair costs both to the environment and human health and the preventative measures to reduce or prevent further pollution and/or environmental damage (The 'polluter pays' principle).

8.1 Non-compliance

The contractors must act immediately when notice of non-compliance is received from any government entity and corrective actions must be implemented. Complaints received regarding activities on the construction site pertaining to the environment must be recorded in a dedicated register and the response noted with the date and action taken.

The Contractor is deemed not to have complied with the EMPr if, *inter alia*:

- There is evidence of contravention of the EMPr specifications within the boundaries of the construction site, site extensions and roads.
- There is contravention of the EMPr specifications which relate to activities outside the boundaries of the construction site.
- Environmental damage ensues due to negligence.
- Construction activities take place outside the defined boundaries of the site.
- The Contractor fails to comply with corrective actions or other instructions issued by the Engineer within a specific time period.

It is recommended that the Contractor institutes penalties for the following less serious violations and any others determined during the course of work as detailed below:

- Littering on site.
- Lighting of illegal fires on site.
- Persistent or un-repaired fuel and oil leaks.
- Any persons, vehicles or equipment related to the Contractor's operations found within the designated "no-go" areas.
- Excess dust or excess noise emanating from site.
- Possession or use of intoxicating substances on site.
- Any vehicles being driven in excess of designated speed limits.
- Removal and/or damage to fauna, flora or cultural or heritage objects on site.
- Urination and defecation anywhere except at designated facilities.

8.2 Emergency preparedness

The Contractor must compile and maintain environmental emergency procedures to ensure that there will be an appropriate response to unexpected or accidental actions or incidents that will cause environmental impacts, throughout the construction period. Such activities may include, inter alia:

- Accidental discharges of polluting substances to water and land.
- Accidental exposure of employees to hazardous substances.
- Accidental fires.
- Accidental spillage of hazardous substances.
- Accidental toxic emissions into the air.
- Specific environmental and ecosystem effects from accidental releases or incidents.

These plans must include:

- Emergency organisation (manpower) and responsibilities, accountability and liability.
- A list of key personnel and contact details.
- Details of emergency services available (e.g. the fire department, spill clean-up services, etc.).
- Internal and external communication plans, including prescribed reporting procedures where required by legislation.
- Actions to be taken in the event of different types of emergencies.
- Incident recording, progress reporting and remediation measures required to be implemented.
- Information on hazardous materials, including the potential impact associated with each, and measures to be taken in the event of accidental release.
- Training plans, testing exercises and schedules for effectiveness.

The Contractor must comply with the emergency preparedness and incident and accident-reporting requirements, as required by the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), the NEMA, 1998 (Act No. 107 of 1998) and the National Water Act, 1998 (Act No. 36 of 1998) and/or any other relevant legislation.

8.3 Incident reporting and remedy

If a leakage or spillage of hazardous substances occurs on site, the local emergency services must be immediately notified of the incident. The following information must be provided:

- The location;
- The nature of the load;
- The extent of the impact; and
- The status at the site of the accident itself (i.e. whether further leakage is still taking place, whether the vehicle or the load is on fire).

Written records must be kept on the corrective and remedial measures decided upon and the progress achieved therewith over time. Such progress reporting is important for monitoring and auditing purposes.

8.4 Penalties

Where environmental damage is caused or a pollution incident, and/or failure to comply with any of the environmental specifications contained in the EMPr, the Project Applicant and/or contractor will be liable to pay a penalty fine.

The following violations, and any others determined during the course of work, should be penalised:

- Hazardous chemical/oil spill and/or dumping in non-approved sites.
- Damage to sensitive environments.
- Damage to cultural and historical sites.
- Unauthorised removal/damage to indigenous trees and other vegetation, particularly in identified sensitive areas.
- Uncontrolled/unmanaged erosion.
- Pollution of water sources.

9 REPORTING

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

- (l) A program for reporting on compliance, taking into account the requirement as prescribed by the regulations;

9.1 Administration

The Contractor must provide the Applicant's Project Manager and/or the ECO with a written method statement, prior to the commencement of the construction phase, setting out the following:

- The type of construction activity.
- Locality where the activity will take place.
- Identification of impacts that might result from the activity.
- Identification of activities that may cause an impact.
- Methodology and/or specifications for impact prevention for each activity or aspect.
- Methodology and/or specifications for impact containment for each activity or aspect.
- Emergency/disaster incident and reaction procedures.
- Treatment and continued maintenance of the impacted environment.

New submissions must be given to the Applicant's Project Manager and/or the ECO whenever there is a change or variation to the original.

The Applicant's Project Manager and/or the ECO should provide comment on the methodology and procedures proposed by the Contractor, but they will not be responsible for the Contractor's chosen measures of impact mitigation and emergency/disaster management systems.

9.2 Good housekeeping

The Contractor must undertake "good housekeeping" practices during construction. This will help avoid disputes on responsibility and allow for the smooth running of the contract as a whole. Good housekeeping extends beyond the wise practice of construction methods to include the care for and preservation of the environment within which the construction is situated.

9.3 Record keeping

The Applicant's Project Manager and/or the ECO will continuously monitor the Contractor's adherence to the approved impact prevention procedures and the ECO must issue the Contractor a notice of non-compliance whenever transgressions are observed. 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 non-compliance will be documented and reported to the Applicant's Project Manager in the monthly report. These reports must be made available to DEA when requested.

9.4 Document control

The Applicant's Project Manager and/or the ECO will be responsible for establishing a procedure for electronic document control. The document control procedure should comply with the following requirements:

- Documents must be identifiable by organisation, division, function, activity and contact person.

- Every document must identify the personnel and their positions, who drafted and compiled the document, who reviewed and recommended approval, and who finally approved the document for distribution.
- All documents must be dated, provided with a revision number and reference number, filed systematically, and retained for a five year period.

The Applicant's Project Manager and/or the ECO must ensure that documents are periodically reviewed and revised, where necessary, and that current versions are available at all locations where operations essential to the functioning of the EMPr are performed. All documents shall be made available to the ECO (if appointed) and other independent external auditors.

10 ENVIRONMENTAL AWARENESS

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

- (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

Contractors must ensure that their employees and any third party that carries out all or part of the Contractor's obligations are adequately trained with regard to the implementation of the EMPr, as well as regarding environmental legal requirements and obligations.

Environment and health awareness training programmes should be targeted at three distinct levels of employment, i.e. project manager, supervisor and labour.

The appointed ECO must provide training and ensure that records of all training interventions are kept in accordance with the record keeping and documentation control requirements as set out in this EMPr.

The environmental training should, as a minimum, include the following:

- Environmental legal requirements and obligations.
- The importance of conformance with all environmental policies.
- The environmental impacts, actual or potential, of their work activities.
- The environmental benefits of improved personal performance.
- Their roles and responsibilities in achieving conformance with the environmental policy and procedures, including emergency preparedness and response requirements.
- The potential consequences of departure from specified operating procedures.
- The mitigation measures required to be implemented when carrying out their work activities.
- Details regarding floral/faunal species of special concern and protected species, and the procedures to be followed should these be encountered during construction activities.
- The importance of not littering.
- The importance of using supplied toilet facilities.
- The need to use water sparingly.
- Details of and encouragement to minimise the production of waste and re-use, recover and recycle waste where possible.

11 CLOSURE PLANNING

11.1 Final site restoration

The Contractor must clear and restore the site and ensure that all excess building material and construction debris is removed from site once the construction phase has been completed.

11.2 Rehabilitation

The Contractor (landscape architect/horticulturist) will be responsible for the rehabilitation and re-vegetation of all disturbed areas earmarked for conservation during construction to the satisfaction of the Applicant's Project Manager and/or the ECO.

11.2 Post-construction audit

A post-construction audit must be carried out for submission to the Applicant. Objectives should be to audit compliances with the key components of the EMPr, to identify the main areas requiring attention and recommend priority actions. The audit should be undertaken annually and should cover a cross section of issues, including implementation of environmental controls, environmental management and environmental monitoring.

Results of the audits should inform changes required to the specifications of the EMPr or additional specifications to deal with any environmental issues which arise on site and have not been dealt with in the current document.

12 CONCLUSIONS

Although all foreseeable actions and potential mitigations or management actions are contained in this document, the EMPr should be seen as a day-to-day management document. The EMPr thus sets out the environmental and social standards that would be required to minimise the negative impacts and maximise the positive benefits of the construction and operational activities.

All attempts should be made to have this EMPr available, as part of any tender documentation, so that the Engineers and Contractor are made aware of the potential cost and timing implications needed to fulfil the implementation of the EMPr, thus adequately costing for these.

The EMPr will be reviewed by the ECO on an on-going basis. Based on observations during site inspections and issues raised at site meetings, the ECO will determine whether any procedures require modification to improve the efficiency and applicability of the EMPr on-site.

Any such changes or updates will be registered in the ECOs records, as well as being included as an annexure to this document.

It is the responsibility of WF Osner Investments (Pty) Ltd to ensure that the Operational Phase mitigation measures in this document are followed in order to minimise the environmental impacts that may occur.

APPENDIX A

PROPOSED ENVIRONMENTAL EDUCATION COURSE OUTLINE



<http://www.webweaver.nu/clipart/environmental.shtml>

Reasons why should we look after the environment

-  We have a right to a clean environment
-  A clean environment is essential to healthy living
-  All our basic needs come from the environment
-  A contract has been signed – development vs the environment
-  Penalties / fines could be issued

How to look after the environment

-  Report issues
-  Teamwork
-  Follow the set rules and guidelines (EA, EMPr, Method statements etc.)
-  Conserve, reuse and recycle

Tips and Guidelines

-  Workers and equipment should not be allowed outside demarcated areas
-  No swimming or polluting of water bodies allowed
-  No damage / disturbance to vegetation or water bodies without consent / permits
-  No disturbance allowed in no-go areas
-  No hunting of animals
-  Report all fires
-  No burning or burying of waste
-  No smoking near hazardous materials
-  Training on fire fighting equipment
-  Hazardous materials to be stored in designated and bunded areas
-  Spill kits and drip trays a must
-  Report all spills
-  Control dust and Noise
-  Maintain construction vehicles
-  Availability and maintenance of sanitation facilities



Tips and Guidelines

- Only eat in designated areas
- Do not litter
- Vehicles to remain on approved tracks and adhere to speed limit
- Ensure emergency phone numbers are available
- Ensure PPE is worn
- Report fires, leaks and injuries
- Ask if unsure



APPENDIX B

EXAMPLE OF A METHOD STATEMENT

METHOD STATEMENT

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

PROPOSED ACTIVITY (give title of Method Statement and reference number from the EMPr):

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 sketches and plans where possible):

*** Note: Please attach additional pages should you require more space.**

DECLARATIONS

1) ENVIRONMENTAL CONTROL OFFICER (ECO)

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)

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 ECO will audit my compliance with the contents of this Method Statement

(Signed)

(Print name)

Dated: _____

APPENDIX C

Sensitivity Map

