



DRAFT

**ENVIRONMENTAL
MANAGEMENT PROGRAMME
(EMPR)**



OCEAS |

ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES

**PROPOSED RESIDENCE AT LIDO AVENUE ON NAHOON RIVER
ESTUARY, BUFFALO CITY METROPOLITAN MUNICIPALITY, EASTERN
CAPE PROVINCE**

DEDEAT REF: EC/7/A/LN1/M/21-21

**ENVIRONMENTAL MANAGEMENT PROGRAMME
(EMPR)**

Prepared for:
Andrew and Kim Braun

Prepared by:



CES
EAST LONDON
39 Harewood Drive
Nahoon, East London, 5241
087 830 9809

*Also in Grahamstown, Port Elizabeth, Cape Town, Johannesburg
and Maputo (Mozambique)*

www.cesnet.co.za

NOVEMBER 2021



REVISIONS TRACKING TABLE

CES Report Revision and Tracking Schedule

Document Title:	Proposed residence at Lido Avenue on Nahoon River Estuary		
Client Name & Address:	Andrew and Kim Braun 1 Lido Avenue, Nahoon Valley		
Status:	Draft		
Issue Date:			
Lead Author:	Lunga Mbulana		
Reviewer:	Robyn Thomson Alan Carter		
Study Leader/ Registered Environmental Assessment Practitioner – Approval:	Alan Carter		
Report Distribution	<i>Circulated to</i>	<i>No. of hard copies</i>	<i>No. electronic copies</i>
	DEDEAT		
Report Version	<i>Date</i>		
	September 2021		

This document has been prepared in accordance with the scope of CES's appointment and contains intellectual property and proprietary information that is protected by copyright in favour of CES. The document may therefore not be reproduced, used or distributed to any third party without the prior written consent of CES. This document is prepared exclusively for use by CES's client. CES accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared. No person other than the client may copy (in whole or in part) use or rely on the contents of this document, without the prior written permission of CES. The document is subject to all confidentiality, copyright and trade secrets rules, intellectual property law and practices of South Africa.



Info@cesnet.co.za
www.cesnet.co.za



TABLE OF CONTENTS

<u>1</u>	<u>INTRODUCTION</u>	<u>2</u>
1.1	OBJECTIVES OF AN EMPR.....	2
1.2	STRUCTURE AND FUNCTION OF AN EMPR.....	3
1.3	LEGAL REQUIREMENTS	4
<u>2</u>	<u>DETAILS OF THE ENVIRONMENTAL ASSESSMENT TEAM.....</u>	<u>6</u>
2.1	ENVIRONMENTAL CONSULTING COMPANY:.....	6
2.2	PROJECT TEAM:.....	6
2.2.1	<i>Dr Alan Carter</i>	6
2.2.2	<i>Ms Lunga Mbulana</i>	7
<u>3</u>	<u>PROPOSED ACTIVITY.....</u>	<u>8</u>
3.1	DESCRIPTION OF PROPOSED ACTIVITY	8
3.1.1	<i>Project Location and Description</i>	8
<u>4</u>	<u>SCOPE OF THE EMPR.....</u>	<u>11</u>
4.1	LAYOUT OF THE EMPR.....	11
4.1.1	<i>Planning and Design Phase</i>	11
4.1.2	<i>Construction Phase</i>	11
4.1.3	<i>Operational and Maintenance Phase</i>	11
<u>5</u>	<u>MITIGATION AND/OR MANAGEMENT MEASURES.....</u>	<u>12</u>
<u>6</u>	<u>ENVIRONMENTAL MONITORING.....</u>	<u>17</u>
<u>7</u>	<u>ROLES AND RESPONSIBILITIES.....</u>	<u>18</u>
7.1	PROJECT COORDINATOR.....	18
7.2	CONTRACTOR.....	18
7.3	ENVIRONMENTAL CONTROL OFFICER.....	19
<u>8</u>	<u>COMPLIANCE WITH THE EMPR.....</u>	<u>20</u>
8.1	NON-COMPLIANCE	20
8.2	EMERGENCY PREPAREDNESS	21
8.3	INCIDENT REPORTING AND REMEDY	22
8.4	PENALTIES.....	22
<u>9</u>	<u>REPORTING</u>	<u>25</u>



9.1 ADMINISTRATION 25

9.2 GOOD HOUSEKEEPING 25

9.3 RECORD KEEPING 25

9.4 DOCUMENT CONTROL 26

10 ENVIRONMENTAL AWARENESS..... 27

10.1 MONITORING OF ENVIRONMENTAL TRAINING 28

11 CLOSURE PLANNING 29

11.1 POST-CONSTRUCTION AUDIT 29

11.2 GENERAL REVIEW OF EMPR 29

12 CONCLUSIONS 30

13 APPENDIX A..... 31

APPENDIX B..... 41

APPENDIX C..... 42

APPENDIX D: SENSITIVITY MAP..... 43

APPENDIX E: C.V'S 44

LIST OF TABLES

Table 8-1: List of fines for transgressions or resultant environmental damage 23

LIST OF FIGURES

Figure 1 Location of the proposed Lido Avenue residential development..... **Error! Bookmark not defined.**

Figure 3-2 Layout Plan for the Lido Avenue Development (recommended location of retaining wall is in green) 10



1 INTRODUCTION

1.1 OBJECTIVES OF AN EMPr

This EMPr has been compiled to provide recommendations and guidelines according to which compliance monitoring can be done during the construction and operation of the proposed residence at Lido Avenue on Nahoon River Estuary. The objective of the EMPr is also to ensure that all relevant factors are considered to ensure environmentally responsible development (Figure 1). The purpose of the EMPr is to provide specifications for "good environmental practice" for application during these phases.

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 the Developer (Andrew and Kim Braun) at the site as to their duties in the fulfilment of the legal requirements for the construction and operation of the road upgrade with particular reference to the prevention and mitigation of anticipated potential environmental impacts.

All parties should note that obligations imposed by the EMPr are legally binding in terms of the environmental authorisation granted by the relevant environmental permitting authority.

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; and
- 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 the proposed residence at Lido Avenue on Nahoon River Estuary. 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 project.

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 residence at Lido Avenue on Nahoon River Estuary. 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) Information on any proposed management or mitigation measures that will be taken to address the environmental impacts that have been identified in a report contemplated by these Regulations, including environmental impacts or objectives in respect of –
 - (i) Planning and design;
 - (ii) Pre-construction;
 - (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;
- (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

The construction of the proposed residence at Lido Avenue on Nahoon River Estuary 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 (Edge to Edge) 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 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 must prevail.

The Contractor (Edge to Edge) 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 operation 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);
- National Environment Management Act (No. 107 of 1998, as amended, NEMA);
- National Environmental Management: Integrated Coastal Management Amendment Act (NEM:ICMA) (Act No. 36 of 2014).
- National Environmental Management: Biodiversity Act (No. 10 of 2004; NEMBA);
- Environmental Management: Protected Areas Act (Act No. 57 of 2003; NEMPAA);
- National Water Act (No. 36 of 1998; NWA);
- National Environmental Management: Waste Management Act (No. 59 of 2008; NEMWA);
- National Heritage Resources Act (No. 25 of 1999; NHRA);
- Informal Land Rights Act (No. 109 of 1996; ILRA) ; and



-
- National Forestry Act, 1998 (No. 84 of 1998; NFA)

Policy and plans

- Amathole District Municipality Integrated Development Plan (ADM IDP, 2018/2019);
- Buffalo City Metropolitan Municipality IDP (IDP, 2020/2021);
- BCMM Coastal Management Plan ((CMP, 2006);
- Eastern Cape Biodiversity Conservation Plan (ECBCP, 2020)



2 DETAILS OF THE ENVIRONMENTAL ASSESSMENT TEAM

According to APPENDIX 4 of GN R 982, 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;

2.1 ENVIRONMENTAL CONSULTING COMPANY:

CES

PO Box 8145, Nahoon, East London, 5210

Tel: 043 726 7809

Fax: 043 726 8352

e-mail: cesel@cesnet.co.za

www.cesnet.co.za

CES 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), EMPs, Spatial Development Frameworks (SDF), public participation, as well as the management and co-ordination of all aspects of the EIA and Strategic Environmental Assessment (SEA) processes.

2.2 PROJECT TEAM:

- Dr Alan Carter (EAP); and
- Ms Lunga Mbulana.

2.2.1 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 Association of South Africa (EAPASA).



2.2.2 Ms Lunga Mbulana

Lunga is an intern consultant in the East London branch of CES. In addition, Lunga holds a BSc degree with majors in environmental and water science, geology and biodiversity and conservation as well as a BSc Honours degree in Environmental and Water Science from the University of Western Cape. Lunga's research provided an understanding of geomorphic processes of hillslope-channel relationships in the Silvermine valley catchment, Western Cape. She is a candidate scientist with SACNASP (reg: 118375). Lunga is interested in all aspects of environmental quality management.



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

CES was been appointed by Andrew and Kim Braun (applicant to apply for Environmental Authorization (EA), in terms of the National Environmental Management Act (Act No. 107 of 1998; NEMA, as amended), for the proposed residence at Lido Avenue on Nahoon River Estuary.

3.1.1 Project Location and Description

The proposed residence at Lido Avenue on Nahoon River Estuary, is located in the area of Nahoon Valley in East London within the Buffalo City Metropolitan Municipality (BCMM), Province of the Eastern Cape.

The site is accessed via the Old Transkei road 700m from the R72 North East Expressway. The property that forms part of the development is located on Erf 72494 and falls within the jurisdiction of the Buffalo City Metropolitan Municipality (BCMM).

The proposed residential development is set to cover a total 497.7m² area of the footprint and consists of two levels, including:

- Ground floor with a total area of 324.7m² containing covered patios, dwellings, a staff area and double garage;
- First floor with a total area of 173 m²;
- A 3.5m by 5m pool will also be constructed within the development footprint; and
- A floating jetty will be installed along the riverbank.

Riverbank stabilization activities such as the installation of a concrete retaining wall in Appendix A (indicated with green lines), concrete backfilling and general bank rehabilitation mitigation measures will take place during the construction phase of the development. An environmental construction officer will be on site overseeing best practice implementation.

Co-ordinates

The centre point co-ordinate for the proposed site is: **32°58'13.28"S 27°55'28.94"E**



0 25 50 75 100 125 150 m

Legend

 Lido Avenue Property

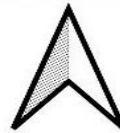


Figure 3-1 Location of the proposed Lido Avenue residential development

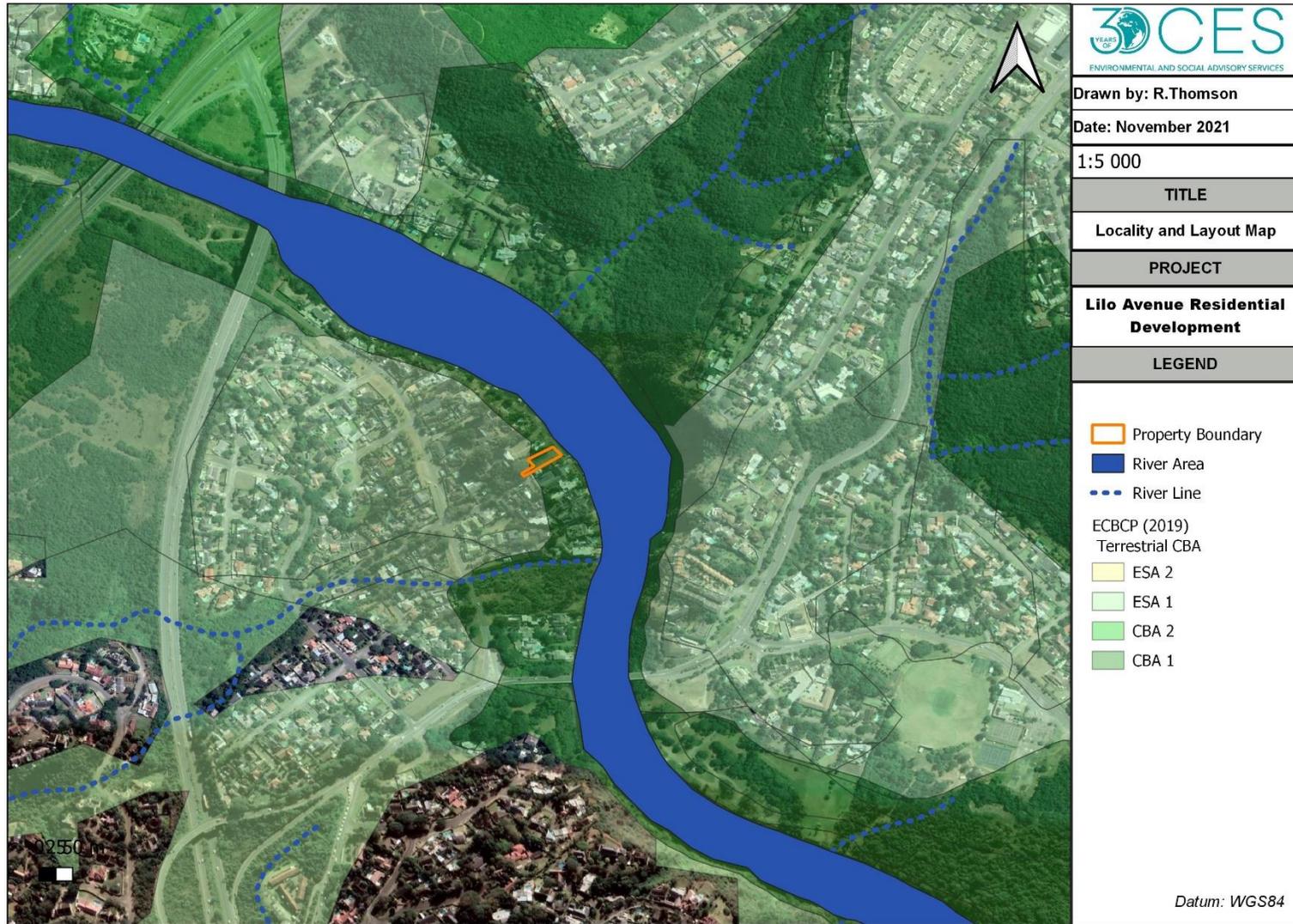


Figure 3-2 Locality and Layout of the Lido Avenue Development



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 residence at Lido Avenue on Nahoon River Estuary, this EMPr sets out the methods by which proper environmental controls are to be implemented by the Contractor and all other parties involved.

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. The impacts are identified and given a brief description. The phases of the development are 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 the Developer 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 satisfaction 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.

4.1.3 Operational and Maintenance 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 the Developer 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) Information on any proposed management or mitigation measures that will be taken to address the environmental impacts that have been identified in a report contemplated by these Regulations, including environmental impacts or objectives in respect of –
 - (i) Planning and design;
 - (ii) Pre-construction;
 - (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;



The following mitigation measures must be complied with during the construction and operation of the proposed residence at Lido Avenue on Nahoon River Estuary.

The following mitigation measures must be complied with during the construction and operation of the proposed residential development on Lido Avenue.

PLANNING AND DESIGN PHASE

Environmental policy and legislation

Legal and policy compliance

- All relevant legislation and policy must be consulted, and the proponent must ensure that the project is compliant with such legislation and policy.
- These should include (but are not limited to):
 - NEMA
 - ICM Act
 - National Water Act
 - Seashore Act
 - Nahoon Estuary Management Plan (2016),
 - Buffalo City Metropolitan Municipality (BCMM) Spatial Development Plan,
 - BCMM Coastal Management Plan,
 - Eastern Cape Biodiversity Conservation Plan (2019) and
 - BCMM by-laws.
- A Sea Shore Act lease will be required for the jetty. This application will be submitted to DEDEAT following the required public participation, which includes the placement of two adverts.

Built environment

Site layout and establishment

- The design and layout of the proposed residence must minimize the encroachment into sensitive habitats and must maximise the use of already transformed areas.
- The wall dividing the property from the neighbours residence should be facebrick and there should be no windows facing this residence.

Stormwater management

- Appropriate stormwater structures must be designed to minimise erosion and sedimentation of estuary.

Estuarine environment

Design of jetty and retaining wall.

- The retaining wall must be located outside of the 5 metre contour line (i.e. the Estuarine Functional Zone).
- The jetty must be a floating jetty that straddles the estuary bank and does not require the excavation of the estuary bank in any way.
- A coastal lease in terms of the Seashore Act must be obtained before constructing the jetty.

CONSTRUCTION PHASE

Environmental Policy

- The Applicant must appoint an independent Environmental Control Officer (ECO) for the duration of the construction phase to audit the contractor's compliance with the specifications



in the EA, EMPr and any other permits/authorisations.

- Audits should be conducted at least on a quarterly basis.

Built Environment

Site demarcation, site clearance

- The construction footprint must be clearly demarcated prior to the commencement of construction and must be approved by the ECO.
- The developer must ensure that the boundary wall and the gate entrance are completed prior to works on the main residence.

Material stockpiling

- No construction material must be stored within 10 metres of the estuary bank.
- Any material stockpiles must be monitored for erosion and mobilisation of materials towards the estuary. If this is noted by an ECO, suitable cut-off drains or berms must be placed between the stockpile area and the estuary.

Stormwater management

- Stormwater must be properly controlled during construction.
- Stormwater must be managed effectively to minimize the ingress of construction debris and sediment-laden stormwater into the estuary..

Soils

- Vegetation clearance must be limited to the development footprint.
- Erosion controls and sediment trapping must be put in place.
- Soil handling measures must be in place to avoid mixing soil types;
- Soil must not be contaminated with construction waste;
- Disturbed areas must be constantly monitored for erosion channels and rehabilitated immediately.

Waste management

- Waste bins must be provided for collecting waste.
- All general waste collected on site must be disposed of at a licensed general waste disposal site.
- All hazardous waste generated on site must be placed in a temporary impermeable bunded containment area which must be disposed of at a hazardous landfill site or be collected by the appropriate service provider.
- Proof of receipt of hazardous waste by a licensed service provider must be maintained on the site.
- Building rubble must be appropriately disposed of.

Traffic

- Construction vehicles and building materials may not block access to surrounding residents.
- Large construction vehicles (cement trucks, tip trucks and material delivery trucks) should have sound emitters when reversing.

Hazardous substances

- Cement and concrete must not be mixed directly on the ground, or during rainfall events when the potential for transport of pollutants to ground is the greatest.
- Cement trucks may not be washed out on site. The supplier must clean the trucks at their own production facility as per their own waste management plan.



- Drip trays must be placed under stationary construction machinery, including fuel bowsers, overnight to avoid soil contamination from oil and fuel leaks.
- Absorbent materials in the form of a spill kit must be provided on site.
- The ECO must determine the precise method of treatment of polluted soil. This could involve the application of soil absorbent materials or oil-digestive powders to the contaminated soil.

Health and safety

- The contractor must provide proof of their Health and Safety policy.

Estuarine Environment

Jetty and retaining wall.

- Great care must be exercised when installing the floating jetty and construction of the retaining wall to avoid any damage to the estuary bank.
- These activities must be closely monitored by the appointed ECO.

Water quality

- No concrete mixing must take place within 32m of the estuary.
- Chemicals used for construction must be stored safely on bunded surfaces in the construction site.
- No ablution facilities should be located within 20 m of the estuary.
- Chemical toilets must be regularly maintained/ serviced to prevent ground or surface water pollution.
- Any hazardous substances/waste must be stored in impermeable bunded areas.
- All general waste and refuse must be removed from site and disposed and windproof temporary storage area before being disposed of at a registered landfill site.

Disturbance of aquatic vegetation and habitat

- There must be no removal of any riparian vegetation.
- Removal of alien vegetation should be prioritised.
- Banks should be stabilised as soon as possible if alien vegetation is removed.
- Damage to bed and banks of the estuary must be avoided other than to complete specific works within the estuary (e.g. during installation of the jetty).
- The estuarine embankment is to remain in its natural state, with the 5m contour no-go area.
- The concrete retaining wall is to be constructed outside of the 5m contour no-go area

Socio-economic

Noise

- Work must be restricted to daylight hours on week days.
- Construction vehicles must be adequately maintained in order to prevent unnecessarily.

Air quality and dust control

- During windy periods un-surfaced and un-vegetated areas must be dampened down.
- Vegetation must be retained where possible as this will reduce dust travel.

Visual

- The site camp must be placed in an area that is not visually obtrusive to the neighbouring properties or local communities.
- The site camp and temporary structures must be decommissioned, and the area rehabilitated



once construction has been completed.

- All waste, materials and equipment must be removed from site.
- The project area is to be kept tidy and free of litter.

Rehabilitation and maintenance

Inadequate rehabilitation and maintenance

- 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 is completed.
- All impacted areas must be restored as per the EMPr requirements.

OPERATION PHASE

Environmental Policy

Legal and policy compliance

- All condition stipulated in the EA must be adhered to particularly relating to maintaining the estuary bank and control of stormwater accessing the estuary.

Built Environment

Stormwater management

- Stormwater infrastructure must be maintained and monitored for erosion and sedimentation of the estuary.

Waste management

- The Lido Avenue residential development will adhere to Buffalo City Metropolitan Municipality waste disposal guidelines.

Estuarine environment

Water quality

- The sewerage infrastructure must be properly maintained and must be monitored on a regular basis to ensure that the systems are functioning correctly.

Inadequate rehabilitation and maintenance

- The rehabilitation of the disturbed areas must be monitored for a period of 6-12 months after completion of construction activities.



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 proposed residence at Lido Avenue on Nahoon River Estuary. This programme must include:

- Establishing a baseline of pre-construction site conditions validated with photographic evidence.
- Quarterly audits will be conducted by an independent ECO for the construction phase to ensure compliance with the conditions stipulated in this EMPr and, where necessary, make recommendations for corrective action. These audits can be conducted randomly and do not require prior arrangement with the Project Coordinator.
- 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 must 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.



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

The Project Coordinator is responsible for overall management of the project and the implementation of the EMPr. The following tasks fall within his / her responsibilities:

- Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures;
- Monitor site activities on a daily basis for compliance;
- Conduct internal audits of the construction site against the EMPr;
- Confine the construction site to the demarcated areas; and
- Rectify transgressions through the implementation of corrective action.

7.2 CONTRACTOR

The Contractor is responsible for the overall execution of the activities envisioned in the construction phase, including the implementation and compliance with recommendations and conditions of the EMPr. The Contractor must therefore ensure compliance with the EMPr at all times during construction activities and maintain an environmental register which keeps a record of all environmental incidents that occur on the site during construction of the proposed residence at Lido Avenue on Nahoon River Estuary and site rehabilitation. These incidents may include:

- Public involvement / complaints;
- Health and safety incidents;
- Incidents involving hazardous materials stored on site; and
- Non-compliance incidents.

The Contractor is also responsible for the implementation of corrective actions issued by the ECO and Project Coordinator within a reasonable or agreed upon period of time.



7.3 ENVIRONMENTAL CONTROL OFFICER

For the purposes of implementing the conditions contained herein, the Developer must appoint an ECO for the contract. The ECO must be the responsible person for ensuring that the provisions of the EMPr and that any necessary environmental authorisations are complied with during the construction period. The ECO's duties in this regard will include, *but are not limited to*, the following:

- Conduct regular site visits to be able to report on and respond to any environmental issues;
- Report compliance and non-compliance issues to the competent authority;
- Advise the Contractor on environmental issues within the defined work areas;
- Review access and incident records that may pertain to the environment and reconcile the entries with the observations made during site inspection, monitoring and auditing;
- Recommend corrective action when required for aspects of non-compliance within the EMPr;
- Take immediate action on site where clearly defined and agreed upon “no-go” areas are violated or in danger of being violated, inform the Developer of the occurrence immediately and take action; and
- Be contactable by the public regarding matters of environmental concern as they relate to the operation of the works.



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 period. The EMPr will be binding on all contractors 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, 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 and take corrective action. Complaints received regarding activities on the construction site pertaining to the environment must be recorded in a dedicated register and the response(s) noted with the date and action taken. The ECO should be made aware of any complaints.

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 must be reported to the competent authority for them to deal with the transgression, as it deems fit.

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 and site extensions;
- 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; and/or
- The Contractor fails to comply with corrective or other instructions issued within a specific time period.



It is recommended that the Contractors institute 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 unrepaired 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, cultural or heritage objects on site.
- Urination and defecation anywhere except at designated facilities.

8.2 EMERGENCY PREPAREDNESS

The Contractor must provide existing generic plans that there will be appropriate responses to unexpected or accidental actions or incidents that will cause environmental impacts, throughout the construction period. Such activities may include, *inter alia*:

- Accidental waste water discharges to water and land.
- Accidental fires.
- Accidental spillage of hazardous substances.
- Specific environmental and ecosystem effects from accidental releases or incidents.

These plans should 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 (No. 85 of 1993), the NEMA (No. 107 of 1998) and the National Water Act (No. 36 of 1998) as amended 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. The written reports may be used for training purposes in an effort to prevent similar future occurrences.

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 Developer and/or the Contractor will be liable.

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.
- Unauthorised blasting activities (if applicable).
- Pollution of water sources.
- Unnecessary removal or damage to trees.

The following steps will be followed by the ECO, on behalf of the Developer, when observing a transgression:

- 1 **Transgression observed:** Give a warning to the Contractor, with time to remedy the situation. Report transgression and agreed remedial action to the Developer.
- 2 **Transgression not remedied:** Report the Contractor directly to the Developer and issue a financial penalty to the Contractor with an agreed time period to remedy the situation with the assistance of the Developer (*if necessary*).
- 3 **Failure to remediate:** Depending on the severity and impact significance of the transgression, which must be assessed and discussed with the Developer prior to reporting to the competent authority, the ECO may report directly to DEA (Compliance) recommending that for:



- HIGH impact: DEDEAT to issue a notice to cease construction;
- MEDIUM impact: DEDEAT to issue a notice instructing the Developer to implement recommended remedial action; and/or
- LOW impact: ECO to notify, but up to discretion of DEDEAT to apply sanction.

In all cases, however, non-compliance must be reported to DEDEAT in the quarterly audit reports. However, the ECO will also report on corrective actions proposed and implemented.

The following schedule of fines for environmental damage or EMPr transgressions have been adapted from the City of Cape Town: Standard Environmental Specifications.

Table 8-1: List of fines for transgressions or resultant environmental damage

TRANSGRESSION OR RESULTANT ENVIRONMENTAL DAMAGE	Min. fine	Max. fine
Failure to comply with prescriptions regarding ECO appointment and monitoring of EMPr	R1 000	R2 000
Failure to comply with prescriptions regarding environmental awareness training	R2000	R10 000
Failure to comply with prescriptions regarding method statements	R2 000	R10 000
Failure to report environmental damage or EMPr transgressions to the ECO	R1 000	R2 000
Failure to carry out instructions of the DEO/ECO regarding the environment of the EMPr	R1 000	R2 000
Failure to comply with prescriptions posting of emergency numbers	R2 000	R10 000
Failure to comply with prescriptions regarding information boards	R1 000	R2 000
Failure to comply with prescriptions regarding a complaints register	R1 000	R2 000
Failure to comply with prescriptions regarding site demarcation and enforcement of "no go" areas	R2 000	R10 000
Failure to comply with prescriptions regarding site clearing	R2 000	R10 000
Failure to comply with prescriptions for the storage of imported materials within a designated Contractors yard	R1 000	R2 000
Failure to comply with prescribed administration, storage or handling of hazardous substances	R1 000	R2 000
Failure to comply with prescriptions regarding equipment maintenance and storage	R1 000	R2 000
Failure to comply with fuel storage, refuelling, or clean-up prescriptions	R1 000	R2 000
Failure to comply with prescriptions regarding procedures for emergencies (spillages and fires)	R2 000	R10 000
Failure to comply with prescriptions regarding construction camp	R2 000	R10 000



Failure to comply with prescriptions for the use of ablution facilities	R1 000	R2 000
Failure to comply with prescriptions regarding water provision	R1 000	R2 000
Failure to comply with prescriptions for the use of designated eating areas, heating source for cooking or presence of fire extinguishers	R1 000	R2 000
Failure to comply with prescriptions regarding fire control	R2 000	R10 000
Failure to comply with prescriptions for solid waste management	R2 000	R10 000
Failure to comply with prescriptions to prevent water pollution and sedimentation	R2 000	R10 000
Failure to comply with prescriptions to the protection of natural features, flora, fauna and archaeology	R2 000	R10 000
Failure to comply with prescriptions regarding speed limits	R1 000	R2 000
Failure to comply with prescriptions regarding noise levels of construction activity	R2 000	R10 000
Failure to comply with prescriptions regarding working hours	R2 000	R10 000
Failure to comply with prescriptions regarding aesthetics	R1 000	R2 000
Failure to comply with prescriptions regarding dust control	R1 000	R2 000
Failure to comply with prescriptions regarding security and access onto private property	R1 000	R2 000
Failure to comply with prescriptions regarding cement and concrete batching	R2 000	R10 000



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

Before the construction of the proposed residence at Lido Avenue on Nahoon River Estuary commences, the Contractor must provide the ECO and the Developer with a written method statement setting out the following:

- Details of the construction activities;
- Location where the activity will take place;
- Identification of impacts that might result from the activity;
- Identification of activities that may cause impacts;
- 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; and the
- Treatment and continued maintenance of the impacted environment.

The Contractor should provide such information in advance of any or all construction activities provided that new submissions are given to the ECO whenever there is a change or variation to the original.

The ECO should provide comment on the methodology and procedures proposed by the Contractor but he/she 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 ECO must continuously monitor the Contractor's adherence to the approved impact prevention procedures and the ECO must issue the Contractor with 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 should be documented and reported to the Developer in the monthly report. These reports must be made available to DEDEAT when requested.

9.4 DOCUMENT CONTROL

The Contractor is 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 should identify the personnel and their position(s), who drafted and compiled the document(s), who reviewed and recommended approval, and who finally approved the document for distribution.
- All documents should be dated, provided with a revision number and reference number, filed systematically, and retained for a five year period.

The Contractor 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 must be made available to the ECO 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.

The Contractors must ensure that their employees and any third party, who carries out all or part of the Contractors' obligations, are adequately trained with regard to the implementation of the EMPr and the general environmental legal requirements and obligations. Training should be conducted by the ECO where necessary.

Environment and health awareness training programmes should be targeted at three distinct levels of employment, i.e. the executive, middle management and labour. Environmental awareness training programmes should contain the following information:

- The names, positions and responsibilities of personnel to be trained;
- The framework for appropriate training plans;
- The summarised content of each training course; and
- A schedule for the presentation of the training courses.

The ECO must 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 training records must verify each of the targeted personnel's training experience.

The Developer must ensure that adequate environmental training takes place. All employees must be given an induction presentation on environmental awareness and the content of the EMPr. The presentation needs to be conducted in the language of the employees to ensure it is understood. The environmental training must, as a minimum, include the following:

- 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 and with the requirement of the Agency's environmental management systems, 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;
- Environmental legal requirements and obligations;
- Details regarding floral/faunal species of special concern and protected species, and the procedures to be followed should these be encountered during the construction of approach roads or construction camps;
- The importance of not littering;
- The importance of using supplied ablution 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; and the
- Details regarding archaeological and/or historical sites which may be unearthed during construction and the procedures to be followed should these be encountered.

Recommended Environmental Education Material is provided in Appendix A.

10.1 MONITORING OF ENVIRONMENTAL TRAINING

The Contractor must monitor the performance of construction workers to ensure that the points relayed during their introduction have been properly understood and are being followed. If necessary, the ECO and / or a translator should be called to the site to further explain aspects of environmental or social behaviour that are unclear. Toolbox talks are recommended



11 CLOSURE PLANNING

Final site cleaning - the contractor must clear and clean the site and ensure that all equipment and residual materials not forming part of the permanent works is removed from site before issuing the completion certificate or as otherwise agreed.

Rehabilitation - the contractor (landscape architect/horticulturist) must be responsible for rehabilitating and re-vegetation of all areas disturbed/areas earmarked for conservation during construction to the satisfaction of the engineer and ECO.

11.1 POST-CONSTRUCTION AUDIT

A post-construction audit must be carried out and submitted to DEDEAT at the expense of the Developer. Objectives should be to audit compliances with the key components of the EMPr, to identify 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.

11.2 GENERAL REVIEW OF EMPr

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 ECO's record, as well as being included as an annexure to this document. Annexures of this nature must be distributed to all relevant parties.



12 CONCLUSIONS

All foreseeable actions and potential mitigations and/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, which would be required to minimise the negative impacts and maximise the positive benefits of the activities associated with the construction of the proposed residence at Lido Avenue on Nahoon River Estuary. The EMPr could thus change daily, and if managed correctly lead to a successful construction and operation phases.

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



13 APPENDIX A

PROPOSED ENVIRONMENTAL EDUCATION COURSE

WHAT IS THE ENVIRONMENT?

- Soil
- Water
- Plants
- People
- Animals
- Air we breathe
- Buildings, cars and houses



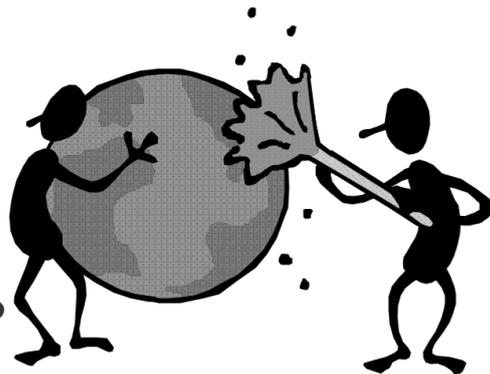


WHY MUST WE LOOK AFTER THE ENVIRONMENT?

- It affects us all as well as future generations
- We have a right to a healthy environment
- A contract has been signed
- Disciplinary action (e.g. construction could stop or fines issued)

HOW DO WE LOOK AFTER THE ENVIRONMENT?

- Report problems to your supervisor/ foreman
- Team work
- Follow the rules in the EMP





WORKING AREAS

Workers & equipment must stay inside the site boundaries at all times



RIVERS & STREAMS

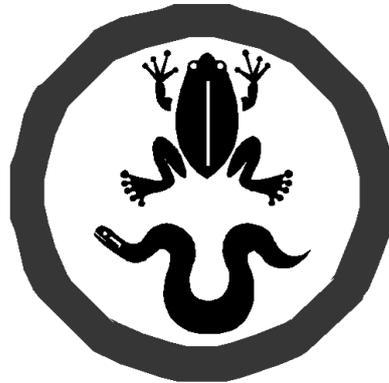
- Do not swim in or drink from streams
- Do not throw oil, petrol, diesel, concrete or rubbish in the stream
- Do not work in the stream without direct instruction
- Do not damage the banks or vegetation of the stream





ANIMALS

- Do not injure or kill any animals on the site
- Ask your supervisor or Contract's Manager to remove animals found on site



TREES AND FLOWERS

- Do not damage or cut down any trees or plants without permission
- Do not pick flowers





SMOKING AND FIRE

- Put cigarette butts in a rubbish bin
- Do not smoke near gas, paints or petrol
- Do not light any fires without permission
- Know the positions of fire fighting equipment
- Report all fires
- Do not burn rubbish or vegetation without permission



PETROL, OIL AND DIESEL

- Work with petrol, oil & diesel in marked areas
- Report any petrol, oil & diesel leaks or spills to your supervisor
- Use a drip tray under vehicles & machinery
- Empty drip trays after rain & throw away where instructed





DUST

Try to avoid producing dust -
Use water to make ground &
soil wet



NOISE

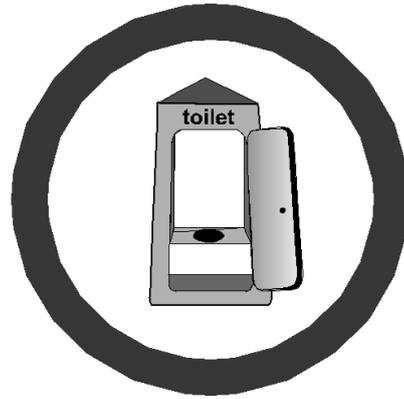
- Do not make loud noises around the site, especially near schools and homes
- Report or repair noisy vehicles





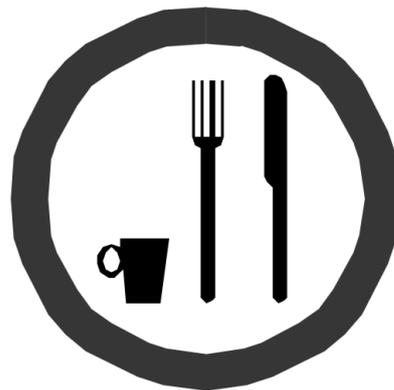
TOILETS

- Use the toilets provided
- Report full or leaking toilets



EATING

- Only eat in demarcated eating areas
- Never eat near a river or stream
- Put packaging & leftover food into rubbish bins





RUBBISH

- Do not litter - put all rubbish (especially cement bags) into the bins provided
- Report full bins to your supervisor
- The responsible person should empty bins regularly



TRUCKS AND DRIVING

- Always keep to the speed limit
- Drivers - check & report leaks and vehicles that belch smoke
- Ensure loads are secure & do not spill





EMERGENCY PHONE NUMBERS

Know all the emergency phone numbers:

- Local Municipality:
- Ambulance:
- Fire:
- Police:

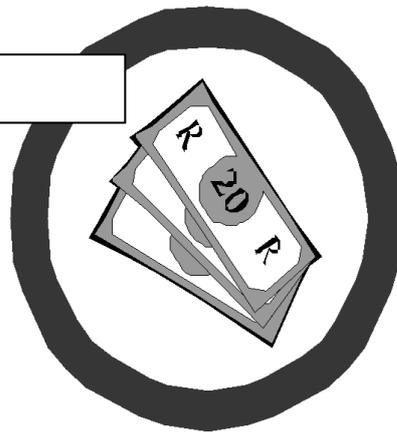


FINES AND PENALTIES

- Spot fines of between

To be confirmed by the Developer

- Your company may be fined
- Removal from site
- Construction may be stopped





PROBLEMS - WHAT TO DO!

- Report any breaks, floods, fires, leaks and injuries to your supervisor
- Ask questions!





APPENDIX B

ENVIRONMENTAL AUTHORISATION



APPENDIX C

PRO-FORMA: PROTECTION OF THE ENVIRONMENT

Employer _____

Contract No _____

Contract title _____

The Contractor will not be given right of access to the site until this form has been signed.

I/ we _____ (Contractor) record as follows:

1. I/ we, the undersigned, do hereby declare that I/ we am/ are aware of the increasing requirement by society that construction activities must be carried out with due regard to their impact on the environment.

2. In view of this requirement of society and a corresponding requirement by the Employer with regard to this Contract, I/ we will, in addition to complying with the letter of the terms of the Contract dealing with protection of the environment, also take into consideration the spirit of such requirements and will, in selecting appropriate employees, plant, materials and methods of construction, in so far as I/ we have the choice, include in the analysis not only the technical and economic (both financial and with regard to time) aspects but also the impact on the environment of the options. In this regard, I/ we recognise and accept the need to abide by the "precautionary principle" which aims to ensure the protection of the environment by the adoption of the most environmentally sensitive construction approach in the face of uncertainty with regard to the environmental implications of construction.

3. I/ we acknowledge and accept the right of _____ to deduct, should they so wish, from any amounts due to me/us, such amounts (hereinafter referred to as fines) as the Resident Engineer and Environmental Site Officer must certify as being warranted in view of my/ our failure to comply with the terms of the Contract dealing with protection of the environment, subject to the following:

3.1 The Resident Engineer and Environmental Officer, in determining the amount of such fine, must take into account *inter alia*, the nature of the offence, the seriousness of its impact on the environment, the degree of prior compliance/non-compliance, the extent of the Contractor's overall compliance with environmental protection requirements and, in particular, the extent to which he considers it necessary to impose a sanction in order to eliminate/reduce future occurrences.

3.2 The Resident Engineer and Environmental Officer must, with respect to any fine imposed, provide me/ us with a written statement giving details of the offence, the facts on which the Resident Engineer and Environmental Officer has based his assessment and the terms of the Contract (by reference to the specific clause) which has been contravened.

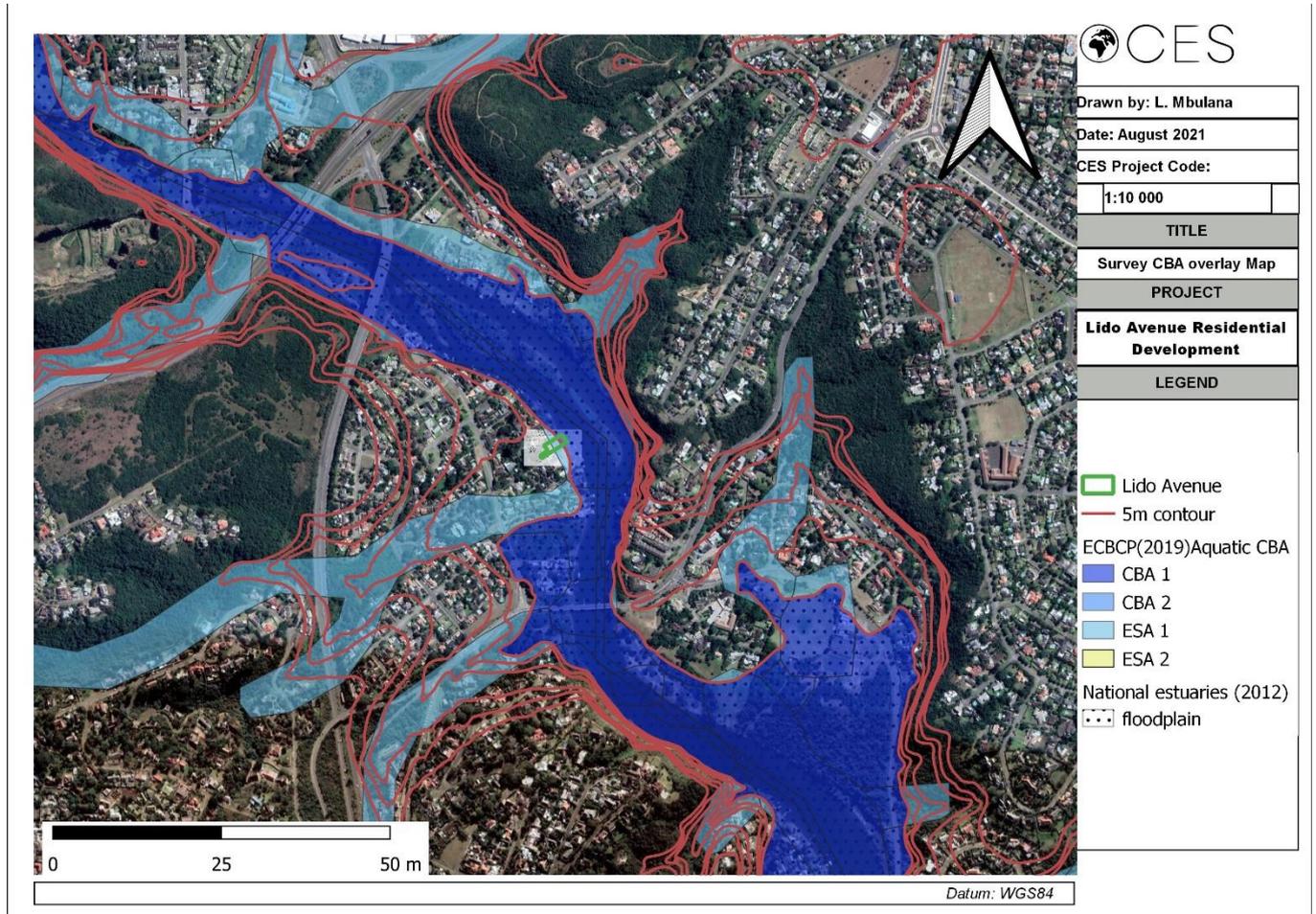
Signed _____

CONTRACTOR

Date _____



APPENDIX D: SENSITIVITY MAP





APPENDIX E: C.V's
