



## WORKING FOR WETLANDS REHABILITATION PROGRAMME, EASTERN CAPE

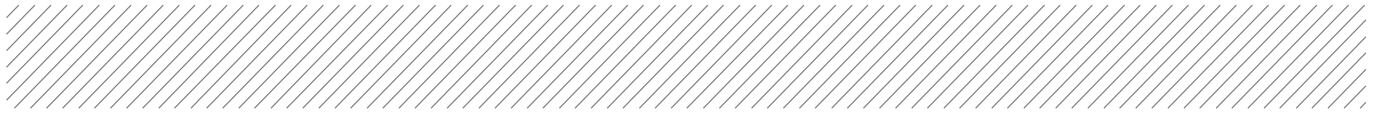
### BASIC ASSESSMENT REPORT OCTOBER 2019



Agriculture, Forestry and Fisheries  
Environmental Affairs  
Water Affairs and Sanitation



**EXPANDED PUBLIC WORKS PROGRAMME**  
Creating opportunities towards human fulfillment



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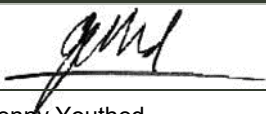

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| <b>Report title</b>     |                 | Working for Wetlands Rehabilitation Programme, Eastern Cape  |                         |                 |                    |
| <b>Document ID</b>      |                 | 12029b   | <b>Project number</b>   |                 | 113223             |
| <b>File path</b>        |                 | P:\Projects\113223 Plan & Env Comp Work for Wetlands\Enviro\7 DEL SERV\701 Provinces\Eastern Cape\2018_2019\Reports\BAR\Re-application |                         |                 |                    |
| <b>Client</b>           |                 | Working for Wetlands Programme   |                         |                 |                    |
| <b>Client contact</b>   |                 | Dr Farai Tererai   | <b>Client reference</b> |                 | WfWetlands: EC BAR |
| <b>Rev</b>              | <b>Date</b>     | <b>Revision details/status</b>   | <b>Author</b>           | <b>Reviewer</b> | <b>Approver</b>    |
| 0                       | 4 February 2019 | <b>Draft for PPP</b>   | Ms Andrea Wessels       | Jenny Youthed   | Ms Franci Gresse   |
| 1                       | 6 June 2019     | <b>Draft for PPP</b>   | Ms Andrea Wessels       | Jenny Youthed   | Ms Franci Gresse   |
| 2                       | 7 October 2019  | <b>Draft for PPP</b>   | Ms Andrea Wessels       | Jenny Youthed   | Ms Franci Gresse   |
| <b>Current revision</b> |                 | <b>2</b>   |                         |                 |                    |

| Approval           |   |                    |   |
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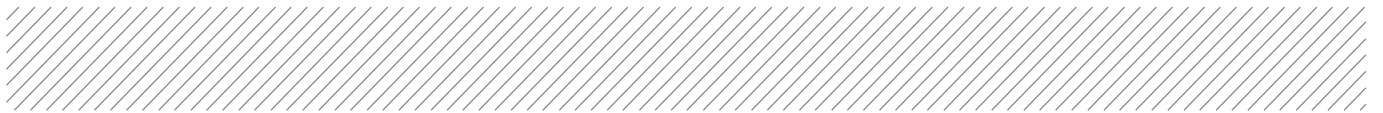


Please note that this report was previously made available for public comment in February 2019 and June 2019. Due to an unforeseen delay during the submission of the finalised reports to the Department of Environmental Affairs, the application for Environmental Authorisation lapsed, and a new application has been lodged with the Department. All comments received during the first application has been incorporated in the Public Participation Report (Appendix B).

## NEMA requirements for Basic Assessment Reports

| Appendix 1  | Content as required by NEMA  | Page  |
|---|--|---|
| 3(1)  | A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include -   |   |
| (a)   | (i) details of the EAP who prepared the report; and<br>(ii) details of the expertise of the EAP, including curriculum vitae;   | Section 8.2<br>Appendix D                   |
| (b)   | the location of the activity, including-<br>(i) the 21 digit Surveyor General code of each cadastral land parcel;<br>(ii) where available, the physical address and farm name;<br>(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;  | Section 1.1.1<br><br>N/A                    |
| (c)   | a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is-<br>(i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or<br>(ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;   | Figure 2<br>Chapter 6<br><br>N/A<br><br>N/A |
| (d)   | a description of the scope of the proposed activity, including-<br>(i) all listed and specified activities triggered and being applied for; and<br>(ii) a description of the activities to be undertaken, including associated structures and infrastructure;  | Chapter 2<br><br>Section 5.2                |
| (e)   | a description of the policy and legislative context within which the development is proposed including -<br>(i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and<br>(ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments; | Chapter 2                                   |
| (f)   | a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;  | Section 5.1                                 |
| (g)   | a motivation for the preferred site, activity and technology alternative;  | Chapter 5                                   |
| (h)   | a full description of the process followed to reach the proposed preferred alternative within the site, including -<br>(i) details of all the alternatives considered;   | Section 5.3                                 |
|   | (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;   | Chapter 4<br>Appendix B                     |
|   | (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;   |   |
|   | (iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;  | Chapter 6                                   |
|   | (v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts-<br>(aa) can be reversed;<br>(bb) may cause irreplaceable loss of resources; and<br>(cc) can be avoided, managed or mitigated;  | Chapter 7                                   |
| (vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;  | Section 3.2  |   |
| (vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; | Chapter 7  |   |

|     |  |  |
|-----|--|--|
|     | (viii) the possible mitigation measures that could be applied and level of residual risk;  |  |
|     | (ix) the outcome of the site selection matrix;   | N/A  |
|     | (x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and  | Section 5.3  |
|     | (xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;   | N/A  |
| (i) | a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including -   | Chapter 3 and 7  |
|     | (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and   |  |
|     | (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;  |  |
| (j) | an assessment of each identified potentially significant impact of risk, including -   | Chapter 7  |
|     | (i) cumulative impacts;  |  |
|     | (ii) the nature, significance and consequences of the impact and risk;   |  |
|     | (iii) the extent and duration of the impact and risk;  |  |
|     | (iv) the probability of the impact and risk occurring;   |  |
|     | (v) the degree to which the impact and risk can be reversed;   |  |
|     | (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and  |  |
|     | (vii) the degree to which the impact and risk can be avoided, managed or mitigated;  |  |
| (k) | where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report; | Chapter 8  |
| (l) | an environmental impact statement which contains -   | Provided in the project specific rehabilitation plans. |
|     | (i) a summary of the key findings of the environmental impact assessment;  |  |
|     | (ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and            |  |
|     | (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;   |  |
| (m) | based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the impact management outcomes for the development for inclusion in the EMPr;  | Chapter 8  |
| (n) | any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;  |  |
| (o) | a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;  | Section 3.3  |
| (p) | a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;  | Section 8.2  |
| (q) | where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised;                   | Section 8.2  |
| (r) | an undertaking under oath or affirmation by the EAP in relation to-  | Appendix E   |
|     | (i) the correctness of the information provided in the report;   |  |
|     | (ii) the inclusion of comments and inputs from stakeholders and interested and affected parties; and   |  |
|     | (iii) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;  |  |



|     |   |     |
|-----|---|-----|
| (s) | where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts; | N/A |
| (t) | any specific information that may be required by the competent authority; and   | N/A |
| (u) | any other matter required in terms of section 24(4)(a) and (b) of the Act.  | N/A |

## EIA Screening Tool

Regulation 16(1)(v) of the Environmental Impact Assessment Regulations (Government Notice Regulation 982, 2014, as amended) requires that an application for environmental authorisation be accompanied by a report that has been generated by the national web based environmental screening tool.

This tool became operational on 4 October 2019 (Government Notice 42561 of 5 July 2019) and screens proposed sites for environmental sensitive features. In addition, the screening tool identifies specialist studies that may be applicable to the proposed site and/or development and should be undertaken during the application process. Should any of these assessments not be applicable the Environmental Assessment Practitioner can provide a motivation to this regard for the competent authority to consider.

### Applicability of Screening Tool Results

Table A below provides a list of all specialist studies that were identified by the screening tool (see Appendix F) for developments undertaken in watercourse.

It is however **important to remember** that the WfWetlands Programme is **not a development proposal**, and although this programme technically requires Environmental Authorisation in terms of Regulations pursuant to NEMA, such **environmentally positive rehabilitation projects should not need to be assessed for negative environmental impacts associated with developments**.

The very **objective** of the WfWetlands Programme is to **improve both environmental and social circumstances**, while also **giving effect to a range of policy objectives** of environmental legislation, and **honouring South Africa's commitments** under several international agreements, especially the **Ramsar Convention on Wetlands**.

The legislation protecting the environment in South Africa was **not written with the intention of preventing wetland rehabilitation efforts**, but rather of **curtailing development in sensitive environments**.

Therefore, legislative processes aimed at preventing negative environmental impact through development are really not applicable to a project of this nature and the project activities that trigger Listing Notices are only being undertaken to benefit the environment.

**Table A: Screening tool results and applicability of specialist assessments for wetlands S32E-01, S32E-02 and S32E-03**

| Specialist Assessment | Applicable Themes         | EAP motivation for Applicability   |
|-----------------------|---------------------------|--|
| Landscape/<br>Visual  | Civil aviation<br>Defence | <p>The objective of the proposed interventions is to rehabilitate a degraded wetland. These interventions are visually non-obtrusive and were designed with a minimum footprint. Please refer to Appendix C of the Amathole Wetland Rehabilitation Plan for the proposed intervention designs.</p> <p><u>This specialist study is therefore not considered to be applicable to the WfWetlands Programme.</u></p> |



| Specialist Assessment                | Applicable Themes                                 | EAP motivation for Applicability   |
|--------------------------------------|---|--|
| Archaeological and cultural heritage | Archaeological and cultural heritage <sup>1</sup> | Please refer to Section 2.4 of this report. None of the proposed wetland rehabilitation interventions are located within a national/provincial heritage site or protected area. Furthermore, no structures older than 60 years will be affected and none of the activities included in Section 38(1) are applicable. <u>This specialist study is therefore not considered to be applicable to the WfWetlands Programme.</u>  |
| Palaeontology                        | Palaeontology                                     | <p>The following motivation regarding the need for a palaeontological assessment was provided by Dr Piet-Louis Grundling<sup>2</sup>. Please refer to Appendix F2 for a copy of Dr Grundling's communication.</p> <ol style="list-style-type: none"> <li><i>The wetlands which required rehabilitation are indeed located in a landscape underlain by Tarkastad Subgroup sandstones and dolerite intrusions (Figure A, included below this table).</i></li> <li><i>The Tarkastad Subgroup is well known for its richness in fossils such as <u>Lystrosaurus</u> (3226 King Williams Town, 1: 250 000 Geological Map, 1976, Council for Geoscience)</i></li> <li><i>However, these occur in the inert sandstone layers and requires power tools to be removed (pers. Comm. Prof Francois Durand<sup>3</sup>).</i></li> <li><i>Furthermore, no fossils occur within the dolerite intrusions and adjacent sandstones where the intense heat during the extensive dolerite intrusion phase would have destroyed any fossils present.</i></li> <li><i>The wetlands occur in valleys that were scoured out during two uplifts of southern Africa 20 million and 5 million years ago (WET-Origin, 2009, Water Research Commission) and subsequently infilled. These wetlands are typically of Holocene age and it is therefore unlikely that any Tarkastad Subgroup fossils (of about 250 million years) will be preserved in these recent wetland sediments.</i></li> <li><i>Furthermore, the excavations of the wetland restoration structures planned are typically 0.2m (for earth plugs: the most common intervention planned) and 0.5m (for three (3) concrete structures) in the incised, eroded stream channels and drains and 2.3 m in adjacent banks<sup>4</sup>. Consequently, excavations will be limited to the Holocene infill (wetland sediments) and will therefore not expose sandstones of the Tarkastad Subgroup.</i></li> </ol> |

<sup>1</sup> This theme was identified for only Wetland S32E-03 due to its proximity to an important wetland.

<sup>2</sup> Dr Grundling is a MSc degree in geology and is a wetland specialist with 34 years of experience. He is employed as a Deputy Director in the Legal, Authorisation and Compliance Inspectorate of the Department of Environmental Affairs. Please refer to Appendix F2 for Dr Grundling's CV.

<sup>3</sup> Professor Durand is a world renown palaeontologist of the University of Johannesburg.

<sup>4</sup> Note that the 2.3m deep excavations are required for key walls with a width of 0.5m and length of 3-4m.

| Specialist Assessment                                | Applicable Themes   | EAP motivation for Applicability   |
|--|---|--|
|  |   | <p><i>I have worked in various wetlands in that area, amongst other in the Dunedin peatland (in 2001) where we have sampled peat of deeper than 2 m and we did not encounter sandstone sub-outcrop, neither any fossils and as such it is my professional opinion that the planned Amathole wetland restoration will not have an adverse effect on the palaeontology of the wetland and related catchment.</i></p> <p><u>Based on the above, a palaeontological specialist study is not considered to be applicable to the WfWetlands Programme.</u></p>   |
| Terrestrial biodiversity<br><br>Aquatic biodiversity | Terrestrial biodiversity<br>Aquatic biodiversity<br>Plant species | <p>The objective of the proposed interventions is to rehabilitate a degraded wetland, which would help to improve the resilience of biodiversity to climate change etc. Furthermore, the wetland specialists consider habitat, aquatic ecology and associated wetland fauna and flora species in their assessments. Please refer to Sections 6.2.1 and 7.2, as well as Appendix A of the Amathole Wetland Rehabilitation Plan for more information on the expected benefits to biodiversity.</p> <p>Note that limited, short term, disturbances are expected during the construction phase, however, appropriate mitigation measures (that are based on more than 15 years' experience with wetland rehabilitation) have been identified and are included in the Environmental Management Programme.</p> <p><u>These additional specialist studies are therefore considered not to be applicable to the WfWetlands Programme since:</u></p> <p>(a) the objective of the proposed project is to restore and improve the functioning and ecosystem services provided by the identified wetlands;</p> <p>(b) these benefits have been assessed in the Status Quo report included in Annexure A of the Amathole Wetland Rehabilitation Plan;</p> <p>(c) potential impacts (see Chapter 7) are known based on more than 15 years' experience rehabilitating wetlands in the Eastern Cape Province; and</p> <p>(d) appropriate mitigation measures are included in the Amathole Wetland Rehabilitation Plan and Environmental Management Programme (as confirmed with the wetland specialist).</p> |
| Hydrology  |   | <p>The objective of the proposed interventions is to rehabilitate degraded wetlands, including restoring the natural hydrology of the affected wetlands. Interventions are identified and designed to</p>  |

| Specialist Assessment           | Applicable Themes   | EAP motivation for Applicability   |
|---------------------------------|---|--|
|                                 |   | <p>have a minimum footprint, while achieving maximum environmental benefit to the wetlands.</p> <p>Please refer to Sections 6.2.1 and 7.2, as well as Annexure A of the Amathole Wetland Rehabilitation Plan for more information on the expected benefits in terms of wetland hydrology. Note that limited, short term, disturbances are expected during the construction phase, however, appropriate mitigation measures (that are based on more than 15 years' experience with wetland rehabilitation) have been identified and are included in the Environmental Management Programme.</p> <p><u>Since the WfWetlands Programme is not proposing a development, but wetland rehabilitation interventions that would restore the natural hydrology of the degraded wetlands (as discussed in Annexure A of the Amothole Wetland Rehabilitation Plan), a hydrology impact assessment is not considered to be applicable.</u></p>   |
| Socio-economic                  | Agriculture   | <p>The WfWetlands Programme pursues its mandate of wetland protection, wise use and rehabilitation in a manner that maximises employment creation, supports small emerging businesses, and transfers skills amongst vulnerable and marginalised groups. The WfWetlands Programme has a current budget of just over R 130 million, of which approximately 35% is allocated directly to paying wages. Being part of the EPWP, the WfWetlands Programme has created more than 34 000 jobs and over 3.2 million person-days of paid work. The local teams are made up of a minimum of 55% women, 65% youth and 2% disabled persons (see Section 5.1).</p> <p>Furthermore, interventions are carefully selected to prevent potential conflict with landowners as a result of landuse change (e.g. agriculture) and rather protect agricultural resources as required in terms of the Conservation of Agricultural Resource Act (Act 43 of 1983). In addition, no objections were received from the Department of Agriculture, Forestry and Fisheries (DAFF) during the previous public comment periods.</p> <p><u>This specialist study is therefore not considered to be applicable to the WfWetlands Programme.</u></p> |
| Animal species<br>Plant species | Terrestrial biodiversity<br>Aquatic biodiversity<br>Plant species | <p>The proposed wetland rehabilitation interventions are in degraded wetlands that are being rehabilitated to improve wetland health (including plant and animal species, environmental services, etc.).</p> <p>Furthermore, the wetland specialists consider habitat, aquatic ecology and associated wetland fauna and flora species in their assessments. The occurrence of sensitive species is unlikely, and</p>   |

| Specialist Assessment | Applicable Themes | EAP motivation for Applicability  |
|-----------------------|-------------------|---|
|                       |                   | <p>none were identified during the site visit with the wetland specialist. However, should any species be identified during the implementation of the proposed interventions, specific protection/mitigation measures included in the Amathole Wetland Rehabilitation Plan and Environmental Management Programme. Please refer to Sections 6.2.1 and 7.2, as well as Appendix A of the Amathole Wetland Rehabilitation Plan for more information on the expected benefits to biodiversity.</p> <p><u>These specialist studies are therefore not considered to be applicable to the WfWetlands Programme.</u></p> |



Figure A The wetlands identified in the polygon below in a Google Earth Image on the left and the geology Map (Council for Geoscience) on the right. The Tarkastad formation is the yellow colour and the dolerite intrusions in red (Source: Dr Piet-Louis Grundling)



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## ABBREVIATIONS

|                   |   |
|-------------------|---|
| <b>ASD</b>        | Assistant Director: Wetlands Programmes                               |
| <b>BAR</b>        | Basic Assessment Report   |
| <b>BGIS</b>       | Biodiversity Geographic Information Systems                           |
| <b>CBA</b>        | Critical Biodiversity Area  |
| <b>DAFF</b>       | Department of Agriculture, Forestry and Fisheries                     |
| <b>DEA</b>        | Department of Environmental Affairs                                   |
| <b>DEDEAT</b>     | Department of Economic Development, Environmental Affairs and Tourism |
| <b>DWS</b>        | Department of Water and Sanitation                                    |
| <b>EA</b>         | Environmental Authorisation   |
| <b>EAP</b>        | Environmental Assessment Practitioner                                 |
| <b>ECBCP</b>      | Eastern Cape Biodiversity Conservation Plan                           |
| <b>ECO</b>        | Environmental Control Officer   |
| <b>EIA</b>        | Environmental Impact Assessment                                       |
| <b>EMPr</b>       | Environmental Management Programme                                    |
| <b>EPWP</b>       | Expanded Public Works Programme                                       |
| <b>ESA</b>        | Ecological Support Area   |
| <b>GA</b>         | General Authorisation   |
| <b>GIS</b>        | Geographic Information System   |
| <b>GPS</b>        | Geographical Positioning System                                       |
| <b>IA</b>         | Implementing Agent  |
| <b>I&amp;AP</b>   | Interested and Affected Party   |
| <b>IDP</b>        | Integrated Development Plan   |
| <b>MAP</b>        | Mean Annual Precipitation   |
| <b>NEMA</b>       | National Environmental Management Act (Act 107 of 1998)               |
| <b>NEM:BA</b>     | National Environmental Management: Biodiversity Act (Act 10 of 2004)  |
| <b>NEM:PAA</b>    | National Environmental Management: Protected Areas Act                |
| <b>NEM:WA</b>     | National Environmental Management: Waste Act (Act 59 of 2008)         |
| <b>NFEPA</b>      | National Freshwater Ecosystem Priority Area                           |
| <b>NHRA</b>       | National Heritage Resources Act (Act 25 of 1999)                      |
| <b>NPAES</b>      | National Protected Area Expansion Strategy                            |
| <b>NWA</b>        | National Water Act (Act 36 of 1998)                                   |
| <b>NWI</b>        | National Wetland Inventory Project                                    |
| <b>PET</b>        | Potential Evapotranspiration  |
| <b>PPP</b>        | Public Participation Process  |
| <b>SMME</b>       | Small, Medium and Micro Enterprises                                   |
| <b>UNESCO</b>     | United Nations Educational, Scientific and Cultural Organisation      |
| <b>WfWetlands</b> | Working for Wetlands  |



## GLOSSARY OF TERMS

**Bedrock:** The solid rock that underlies unconsolidated material, such as soil, sand, clay, or gravel (Cowden and Kotze, 2008).

**Basic Assessment Report (BAR):** A report as required in terms of the 2014 EIA Regulations, of the National Environmental Management Act, No. 107 of 1998 (NEMA), that describes the proposed activities and their potential impacts.

**Biophysical:** The biological and physical components of the environment (Cowden and Kotze, 2008).

**Catchment:** All the land area from mountaintop to seashore which is drained by a single river and its tributaries. Each catchment in South Africa has been subdivided into secondary catchments, which in turn have been divided into tertiary catchments. Finally, all tertiary catchments have been divided into interconnected quaternary catchments. A total of 1946 quaternary catchments have been identified for South Africa. These subdivided catchments provide the main basis on which catchments are subdivided for integrated catchment planning and management (Cowden and Kotze, 2008).

**Development:** The building, erection, construction or establishment of a facility, structure or infrastructure, *including associated earthworks* or borrow pits, that is necessary for the undertaking of a listed or specified activity, including any associated post development monitoring, but *excludes any modification, alteration or expansion* of such a facility, structure or infrastructure, including associated earthworks or borrow pits, and *excluding the redevelopment of the same facility in the same location, with the same capacity and footprint*.

**Development Footprint:** means *any evidence of physical alteration* as a result of the undertaking of an activity.

**Environmental Assessment Practitioner (EAP):** The individual responsible for the planning, management and coordination of the environmental impact assessments, strategic environmental assessments, environmental management plans and/or other appropriate environmental instruments introduced through regulations of NEMA.

**Ecosystem Services or 'eco services':** The services such as sediment trapping or water supply, supplied by an ecosystem (in this case a wetland ecosystem).


**Environmental Impact Assessment (EIA):** A study of the environmental consequences of a proposed course of action via the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of that application.

**Environmental Management Programme (EMPr):** A detailed plan of action to organise and coordinate environmental mitigation, rehabilitation and monitoring during the implementation and maintenance of interventions identified under the WfWetlands Programme such that positive impacts are enhanced and negative impacts are avoided/minimised.

**Expansion:** The *modification, extension, alteration* or upgrading of a facility, structure or infrastructure at which an activity takes place in such a manner that the *capacity* of the facility or the *footprint* of the activity is increased.

**Indigenous Vegetation:** Vegetation consisting of indigenous plant species occurring naturally in an area, *regardless of the level of alien infestation* and where the topsoil has not been lawfully disturbed during the preceding ten years.





**Interested and Affected Parties (I&APs):** People and organisations that have interest(s) in the proposed activities, also referred to as stakeholders.

**Environmental Impact:** An environmental change caused by some human act.

**Implementer:** The person or organisation responsible for the construction of WfWetlands rehabilitation interventions.

**Intervention:** A method of wetland rehabilitation that aims to address the objectives of the particular wetland system, namely to restore the hydrological integrity of the system and support associated biodiversity. It can be in the form of a hard (structures made of hard materials which are fixed (e.g. a concrete weir) or soft intervention (e.g. re-vegetation).

**Mitigation:** Actions to reduce the impact of a particular activity.

**Maintenance:** The replacement, repair or the reconstruction of an existing structure within the same footprint, in the same location, having the same capacity and performing the same function as the previous structure ('like for like').

**Maintenance Management Plan:** A management plan for maintenance purposes defined or *adopted by the competent authority*. [For WfWetlands, this is called a Rehabilitation Plan.]

**Public Participation Process (PPP):** A process of involving the public in order to identify issues and concerns, and obtain feedback on options and impacts associated with a proposed project, programme or development. Public Participation Process in terms of NEMA refers to: a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to specific project matters.

**Project:** An area of WfWetlands intervention generally defined by a quaternary catchment or similar management unit such as a national park in which a single implementer operates.

**Quaternary Catchment:** "A fourth order catchment in a hierarchal classification system in which a primary catchment is the major unit" and that is also the "principal water management unit in South Africa" (DWS, 2011).

**Rehabilitation:** In the context of wetlands, refers to re-instating the driving ecological forces (including hydrological, geomorphological and biological processes) that underlie a wetland, so as to improve the wetland's health and the ecological services that it delivers.

**Significant impact:** An impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.

**Wetland:** "Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water and which in normal circumstances supports or would support vegetation typically adapted to life in saturated soils." (National Water Act, 36 of 1998) *and* "Land where an excess of water is the dominant factor determining the nature of the soil development and the types of plants living there" (Cowden and Kotze, 2008).

## 1 INTRODUCTION AND BACKGROUND

Working for Wetlands (WfWetlands) is a government programme managed by the Environmental Programmes (EP) of the Department of Environmental Affairs (DEA), and is a joint initiative with the Departments of Water and Sanitation (DWS), and Agriculture, Forestry and Fisheries (DAFF). In this way the programme is an expression of the overlapping wetland-related mandates of the three parent departments, and besides giving effect to a range of policy objectives, it also honours South Africa's commitments under several international agreements, especially the Ramsar Convention on Wetlands.

The programme is mandated to protect pristine wetlands, promote their wise-use and rehabilitate those that are damaged throughout South Africa, with an emphasis on complying with the principles of the Expanded Public Works Programme (EPWP) and using only local Small, Medium and Micro Enterprises (SMMEs). The EPWP seeks to draw significant numbers of unemployed people into the productive sector of the economy, gaining skills while they work and increasing their capacity to earn an income.

Due to the nature of the project, it is important to note that the very objectives of the WfWetlands Programme are to improve both environmental and social circumstances. The legislation protecting the environment in South Africa was not written with the intention of preventing wetland rehabilitation efforts, but rather of curtailing development in sensitive environments.

Throughout this report there will therefore be sections which guide the reader to understand how the minimum legal requirements (as required by the amended 2014 Environmental Impact Assessment (EIA) Regulations) will be met. It is important to note that the planning cycle of the WfWetlands Programme occurs annually, and continuously builds on existing information (dating back to the early 2000s). Each project cycle occurs within three phases (Refer to Section 3.1), with Phase 1 and Phase 2 occurring prior to implementation. Figure 2 on the following page provides an overview of how Phase 1 and 2 relate to the basic assessment process.

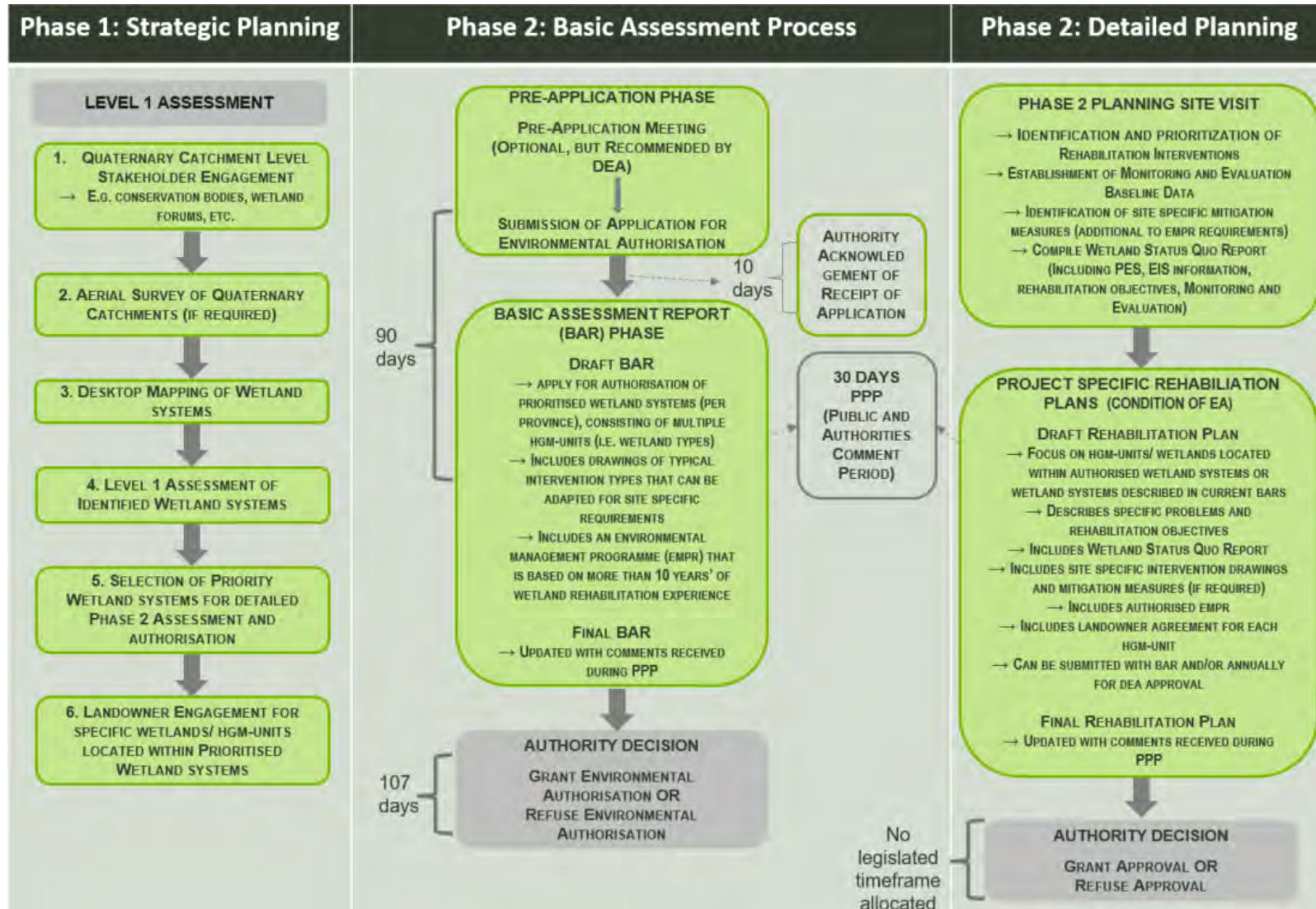


Figure 2: Overview of Phase 1 and 2 as part of the planning process

## 1.1 Introducing the Project

The WfWetlands Programme is currently managing 48 WfWetlands Projects countrywide, including projects in the Eastern Cape Province. WfWetlands has actively been rehabilitating wetlands in the Eastern Cape Province since the early 2000s. Priority wetland systems requiring rehabilitation were identified during Phase 1 of the WfWetlands Programme. Catchment and wetland prioritisation assessments were undertaken by the provincial Wetland Specialist/s to identify priority catchments and associated wetlands within which rehabilitation work needs to be undertaken. A review was undertaken to determine local knowledge and identify existing studies of the quaternary catchments in the province. The Programme's current five year strategic plans were further used as a guide to identify wetlands, as well as data from the National Freshwater Ecosystem Priority Areas (NFEPA) project. Decisions on priority areas were informed by input from wetland forums, biodiversity/ conservation plans, municipalities, state departments and various other stakeholders

### 1.1.1 Project Location

Based on the above, the following new wetland systems were identified in the Eastern Cape Province as shown in **Table 1** and **Table 2** below.

**Table B: Project details**

| Project Name | Wetland System   | Quaternary Catchment | Lat (DDMMSS)  | Long (DDMMSS) |
|--------------|------------------|----------------------|---------------|---------------|
| Amathole     | Ai. Kolomane 1   | S32E                 | 32°25'18.86"S | 26°46'59.60"E |
|              | Aii. Kolomane 2  | S32E                 | 32°27'2.35"S  | 26°46'10.20"E |
|              | Aiii. Kolomane 5 | S32E                 | 32°24'38.07"S | 26°45'48.40"E |
|              | Aiv. Kolomane 16 | S32E                 | 32°24'14.95"S | 26°45'45.69"E |

**Table C: Farm details for Eastern Cape projects**

| Project Name | Wetland System   | Property Number | 21-digit SG code      | Property Size (ha) |
|--------------|------------------|-----------------|-----------------------|--------------------|
| Amathole     | Ai. Kolomane 1   | 99              | C0180000000009900000  | 1179.781           |
|              | Aii. Kolomane 2  | 100             | C01800000000010000000 | 1073.57            |
|              | Aiii. Kolomane 5 | RE/423          | C06200000000042300000 | 395.547            |
|              | Aiv. Kolomane 16 | 1/421           | C06200000000042100001 | 431.988            |

### 1.1.2 Project Team

The Aurecon team, in partnership with GroundTruth, comprises Design Engineers and Environmental Assessment Practitioners (EAPs) who undertake the planning, design and authorisation components of the project. The team is assisted by an external team of Wetland Specialists<sup>5</sup> who provide scientific insight into the operation of wetlands and expert local knowledge of the wetlands. The project team is also complimented by the Assistant Director for Wetlands Programme (ASDs) who are each responsible for a province.

The project team for Eastern Cape Province includes the following professionals:

<sup>5</sup> These Wetland Specialists are also referred to as Wetlanders in the Programme, and the two terms should be used interchangeably. The individuals are selected based on their expertise in the province, and their involvement in the wetland society of South Africa.

**Table D: Planning Team for Eastern Cape Province**

| Role      | Representative | Company                             |
|-----------|----------------|-------------------------------------|
| ASD       | Unathi Makati  | Department of Environmental Affairs |
| EAP       | Jenny Youthed  | Aurecon South Africa (Pty) Ltd      |
| Engineer  | Tyler Harvey   | GroundTruth                         |
| Engineer  | Trevor Pike    | GroundTruth                         |
| Wetlander | Megan Grewcock | GroundTruth                         |

Ms Jenny Youthed acts as the EAP for the Eastern Cape Province and has been part of the WfWetlands Programme since 2010. Ms Youthed's signed EAP declaration and curriculum vitae (CV) can be found in **Appendix F**.

Specialist input is provided within this BAR by the provincial wetland specialist, however a specialist report does not accompany the report. A detailed assessment is however provided by a wetland specialist for the relevant rehabilitation plan. These assessments are undertaken in terms of the WET-Health methodology.

Should any heritage resources be identified on site (refer to Section 6.3) a heritage specialist will be appointed to undertake the necessary permitting procedures in terms of the National Heritage Resources Act (Act 25 of 1999) (NHRA).

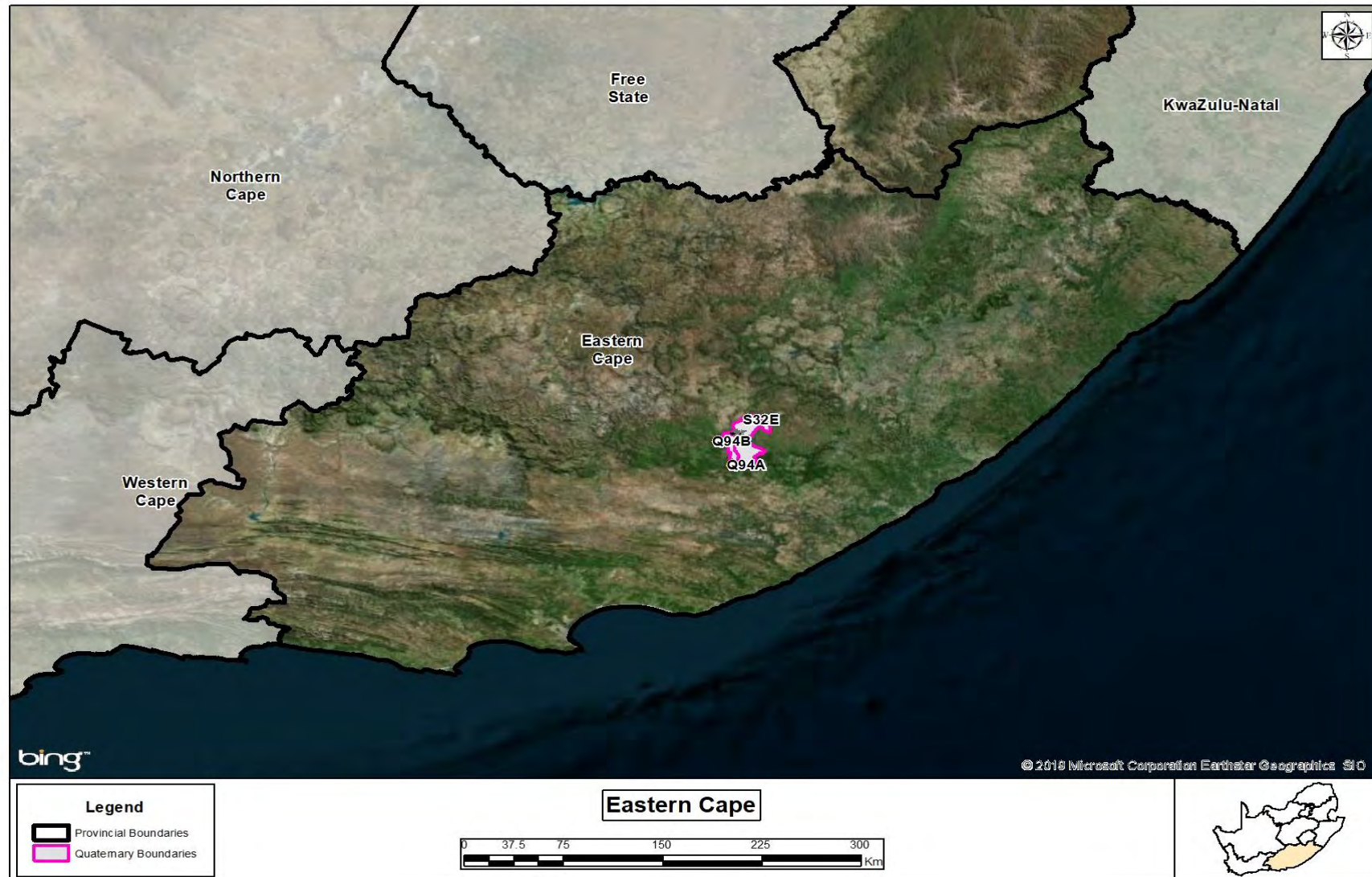


Figure 3: Locality map showing the location of quaternary catchment included in this BAR

## 2 LEGAL AND PLANNING CONTEXT

One of the core purposes of the WfWetlands Programme is the preservation of South Africa's valuable wetland systems through rehabilitation and restoration.

South Africa has rigorous and comprehensive environmental legislation aimed at preventing the degradation of the environment, including damage to wetland systems. The following legislation is of relevance:

- The National Environmental Management Act, No. 107 of 1998 (NEMA), as amended
- The National Water Act, No.36 of 1998 (NWA)
- The National Heritage Resources Act, No. 25 of 1999 (NHRA)

Development proposals within, or near, any wetland system are subject to thorough bio-physical and socio-economic assessment as mandatory processes of related legislation. These processes are required to prevent degradation of the environment and to ensure sustainable and environmentally-conscious development.

### 2.1 Relevant Legislation

There are a host of legal and policy documents and guidelines to consider when undertaking such a project. **Table E** provides an overview of relevant legislation.

**Table E: Relevant Legislation, policies and guidelines considered in preparation of the Basic Assessment Report**

| Title of legislation, policy or guideline                        | Applicability to the project  | Administering authority                         | Date |
|--|---|---|------|
| <b>Legislation</b>   |   |   |      |
| The Constitution of South Africa (Act 108)                       | The WfWetlands Programme is a rehabilitation proposal that aims to protect and conserve South Africa's wetland ecosystems. As such the listed legislation, policies and guidelines are all of relevance to the project. | National Government                             | 1996 |
| National Environmental Management Act (Act 107) (NEMA)           |   | Department of Environmental Affairs             | 1998 |
| National Environmental Management Act (Act 107), Amendment Act   |   | Department of Environmental Affairs             | 1998 |
| The National Water Act (Act 36)                                  |   | Department of Water and Sanitation              | 1998 |
| Conservation of Agricultural Resources Act (Act 43)              |   | Department of Agriculture, Forestry & Fisheries | 1983 |
| Natural Heritage Resources Act (Act 25)                          |   | National Heritage Resources Agency              | 1999 |
| World Heritage Conventions Act (Act 49)                          |   | Department of Environmental Affairs             | 1999 |
| The National Environmental Management: Biodiversity Act (Act 10) |   | Department of Environmental Affairs             | 2004 |

| Title of legislation, policy or guideline   | Applicability to the project  | Administering authority   | Date                    |
|---|---|---|-------------------------|
| National Environmental Management: Protected Areas Act (Act 57)   |   | Department of Environmental Affairs   | 2003                    |
| The Mountain Catchments Areas Act (Act 63)  |   | Department of Water and Sanitation  | 1970                    |
| Nature and Environmental Conservation Ordinance (Ordinance 19)  |   | Department of Economic Development, Environmental Affairs and Tourism               | 1974                    |
| Ciskei Nature Conservation Act  |   | Department of Economic Development, Environmental Affairs and Tourism               | 1987                    |
| <b>National Guidelines</b>  |   |   |                         |
| EIA Guideline Series, in particular:<br>Guideline 7 – Public Participation in the EIA process, 2012 (DEA, October 2012)<br>Integrated Environmental Management Guideline- Guideline on need and Desirability (DEA, 2017)      | The WfWetlands Programme is a rehabilitation proposal that aims to protect and conserve South Africa's wetland ecosystems. As such the listed legislation, policies and guidelines are all of relevance to the project. | Department of Environmental Affairs   | 2012 – 2014<br><br>2017 |
| <b>Provincial By-laws, Frameworks, Plans and Policies</b>   |   |   |                         |
| Eastern Cape Biodiversity Conservation Plan (ECBCP)   | The WfWetlands Programme is a rehabilitation proposal that aims to protect and conserve South Africa's wetland ecosystems. As such the listed legislation, policies and guidelines are all of relevance to the project. | Eastern Cape Department of Economic Development, Environmental Affairs and Tourism. | 2012                    |
| <b>International Conventions</b>  |   |   |                         |
| The Ramsar Convention<br>Convention on Biological Diversity<br>United Nations Conventions to Combat Desertification<br>New Partnership for Africa's Development (NEPAD)<br>The World Summit on Sustainable Development (WSSD) | The WfWetlands Programme is a rehabilitation proposal that aims to protect and conserve South Africa's wetland ecosystems. As such the listed legislation, policies and guidelines are all of relevance to the project. |   |                         |



## 2.2 National Environmental Management Act, No. 107 of 1998 (NEMA)

The implementation of various interventions aimed at wetland rehabilitation require Environmental Authorisation (EA) from the Department of Environmental Affairs (DEA) in terms of Regulations pursuant to NEMA, as amended. It has been determined together with DEA that a **Basic Assessment Report (BAR)** will be prepared for each Province where work is proposed in different project areas by the WfWetlands Programme.

In addition, **rehabilitation plans** have been prepared for each project area. The rehabilitation plans describe the combination and number of interventions selected to meet the rehabilitation objectives for each Wetland Project, as well as an indication of the approximate location and approximate dimensions of each intervention. **Appendix A** provides a description of the typical intervention types that are used for wetland rehabilitation purposes. The rehabilitation plans also provide site photographs of the general landscape as well as photographs of the proposed locations for each intervention.

### The WfWetlands Programme is not a development proposal

It is important to note that the very objectives of the WfWetlands Programme are to **improve both environmental and social circumstances**. The WfWetlands Programme **gives effect to a range of policy objectives of environmental legislation**, and also **honours South Africa's commitments under several international agreements**, especially the Ramsar Convention on Wetlands. The legislation protecting the environment in South Africa was not written with the intention of preventing wetland rehabilitation efforts, but rather of curtailing development in sensitive environments. It is important to remember that **the WfWetlands Programme is not a development proposal**, and although this programme technically requires Environmental Authorisation in terms of Regulations pursuant to NEMA, such environmentally positive rehabilitation projects should not need to be assessed for negative environmental impact. Therefore legislative processes aimed at preventing negative environmental impact through development are really not applicable to a project of this nature and the **project activities that trigger Listing Notices are only being undertaken to benefit the environment**.

### 2.2.1 Listed Activities

The following listed activities, as shown in **Table F**, have been identified as being applicable to the proposed rehabilitation interventions:

**Table F: Listed activities triggered by the proposed Eastern Cape Projects**

| Listed activity   | Description of project activity that triggers listed activity  |
|---|--|
| <b>Listing Notice 1 (GN R983, as amended)</b>   |  |
| Activity 12: The development of- <ol style="list-style-type: none"> <li>i. weirs, where the weir, including infrastructure and water surface area, exceeds 100 square metres in size; or</li> <li>ii. infrastructure or structures with a physical footprint of 100 square metres or more;</li> </ol> where such development occurs- <ol style="list-style-type: none"> <li>a. within a watercourse;</li> <li>c. if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.</li> </ol> | In order to achieve the objectives of wetland rehabilitation, changes must be made to artificial drainage lines or eroding water channels if the wetland systems are to be returned to their original statuses. The following may be necessary: <ul style="list-style-type: none"> <li>• The construction of concrete or gabion weirs or earth structures within watercourses (wetlands);</li> <li>• The formalisation of stream crossings to ensure that the integrity of wetland systems downstream and upstream of the crossings are protected from further degradation; and</li> <li>• The construction of walkways in public wetlands to limit human impact, and to form</li> </ul> |

| Listed activity  | Description of project activity that triggers listed activity  |
|--|--|
|  | part of the educational component of the project.  |
| <p>Activity 19: The infilling or depositing of any material of more than 10 m<sup>3</sup> into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10m<sup>3</sup> from a watercourse; but excluding where such infilling, depositing, dredging, excavation, removal or moving –</p> <p>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan.</p>   | <p>In order to implement the proposed rehabilitation interventions, soil would need to be moved as part of the site preparation and/or construction activities, for example:</p> <ul style="list-style-type: none"> <li>• Excavations may be required to build weirs, etc.;</li> <li>• Erosion channels may be filled with rocks or soil;</li> <li>• Former forestry, agricultural or access roads through the wetland may need to be removed or stabilised or altered (culverts added) to reinstate flow regimes; and</li> <li>• Eroded embankments may need to be sloped for MacMat R to be applied, etc.</li> </ul>               |
| <p>Activity 27: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—</p> <p>(i). the undertaking of a linear activity; or</p> <p>(ii). maintenance purposes undertaken in accordance with a maintenance management plan.</p>  | <p>In order for WfWetlands to achieve rehabilitation objectives, the removal of alien invasive species could be required.</p>  |
| <b>Listing Notice 3 (GN R985, as amended)</b>  |  |
| <p>Activity 12: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>Eastern Cape</p> <p>ii. Within critical biodiversity areas identified in bioregional plans;</p>   | <p>In order for WfWetlands to achieve rehabilitation objectives, the removal of alien invasive species will be required.</p>   |
| <p>GN 985: Activity 14 The development of-</p> <p>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or</p> <p>(ii) infrastructure or structures with a physical footprint of 10 square metres or more;</p> <p>where such development occurs—</p> <p>(a) within a watercourse;</p> <p>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</p> <p>a. In Eastern Cape</p> | <p>In order to achieve the objectives of wetland rehabilitation, changes must be made to artificial drainage lines or eroding water channels if the wetland systems are to be returned to their original statuses. The following may be necessary:</p> <ul style="list-style-type: none"> <li>• The construction of concrete or gabion weirs or other rehabilitation structures such as earth plugs within watercourses (wetlands);</li> <li>• The formalisation of stream crossings to ensure that the integrity of wetland systems downstream and upstream of the crossings are protected from further degradation; and</li> </ul> |

| Listed activity  | Description of project activity that triggers listed activity   |
|--|---|
| <p>i. Outside urban areas:</p> <p>(cc) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> | <ul style="list-style-type: none"> <li>The planned wetland projects are located outside urban areas in the Eastern Cape.</li> </ul> <p>The Amathole wetlands fall within Critical Biodiversity Areas as identified in the Eastern Cape Biodiversity Conservation Plan. They are also within 2km of the Katberg State Forest</p> |

### 2.3 National Water Act, No. 36 of 1998 (NWA)

In terms of Section 39 of the NWA, a General Authorisation<sup>6</sup> (GA) has been granted for certain activities that usually require a Water Use License; as long as these activities are undertaken for wetland rehabilitation. These activities include ‘impeding or diverting the flow of water in a watercourse<sup>7</sup>’ and ‘altering the bed, banks, course or characteristics of a watercourse<sup>8</sup>’ where they are specifically undertaken for the purposes of rehabilitating a wetland for conservation purposes. The WfWetlands Programme is required to register the ‘water use’ in terms of the GA.

### 2.4 National Heritage Resource Act, No. 25 of 1999 (NHRA)

Section 27, 28 and 34 of the NHRA pertains to the protection of national and provincial heritage sites, protected areas, and structures older than 60 years, and prohibits any impacts to these resources. Section 38 of the NHRA requires that any person who intends to undertake a development as categorised in the NHRA must at the very earliest stages of initiating the development notify the responsible heritage resources authority, namely the South African Heritage Resources Agency (SAHRA) or the relevant provincial heritage agency. These agencies would in turn indicate whether or not a full Heritage Impact Assessment (HIA) would need to be undertaken. The requirements of the NHRA are tabulated below, as well as an indication of their applicability to this project (refer Table 6).

**Table 6: Applicability of NHRA requirements in terms of the proposed wetland rehabilitation activities**

| NHRA Section  | Applicability to WfWetlands   |
|---|---|
| <b>Section 27: National heritage sites and provincial heritage sites</b>  |   |
| (18) No person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site. | <p>The wetland systems proposed for rehabilitation in this Province are not located within any listed national or provincial heritage sites. <u>This Listing is therefore not considered to be applicable to the WfWetlands Programme.</u></p> <p>Should any wetland projects identified in the future have the potential to impact on any heritage sites, then the mandatory specialist assessment and permitting processes as prescribed by the authority will be undertaken prior to any rehabilitation work commencing.</p> |

<sup>6</sup>Government Notice No. 1198, 18 December 2009

<sup>7</sup>Section 21(c) of the NWA, No. 36 of 1998

<sup>8</sup>Section 21(i) of the NWA, No. 36 of 1998

| NHRA Section  | Applicability to WfWetlands   |
|---|---|
| <b>Section 28: Protected areas</b>  |   |
| <p>(3) No person may damage, disfigure, alter, subdivide or in any other way develop any part of a protected area unless, at least 60 days prior to the initiation of such changes, he or she has consulted the heritage resources authority which designated such area in accordance with a procedure prescribed by that authority.</p>  | <p>The wetland systems proposed for rehabilitation in this Province are not located within a protected area as defined by the Act. <u>This Listing is therefore not considered to be applicable to the WfWetlands Programme.</u></p> <p>Should any wetland projects identified in the future have the potential to impact on any protected areas as defined by the Act, then the mandatory specialist assessment and permitting processes as prescribed by the authority will be undertaken prior to any rehabilitation work commencing.</p>  |
| <b>Section 34: Structures</b>   |   |
| <p>(1) No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority</p>  | <p>No structures or parts of structures older than 60 years will be altered or demolished during the proposed wetland rehabilitation activities in this Province. <u>This Listing is therefore not considered to be applicable to the WfWetlands Programme.</u></p> <p>However, should it be determined during the site specific planning phase that the rehabilitation activities could potentially impact on structures older than 60 years, then the mandatory specialist assessment and permitting processes as prescribed by the authority will be undertaken prior to any rehabilitation work commencing.</p> |
| <b>Section 38(1): Development categories</b>  |   |
| <p>(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;</p>  | <p>Although some of the proposed rehabilitation interventions could be perceived to involve linear barriers (e.g. berms, as shown in Appendix A) to control or direct the flow of water, none of these interventions would exceed the threshold of 300m in length. <u>This Listing is therefore not considered to be applicable to the WfWetlands Programme.</u></p>  |
| <p>(b) the construction of a bridge or similar structure exceeding 50m in length;</p>   | <p>The typical wetland rehabilitation interventions used by WfWetlands do not meet the requirements of the definition of a bridge as adopted by the South African Institution of Civil Engineering<sup>[1]</sup>. Furthermore, even though some of the typical rehabilitation interventions (namely gabion and concrete weirs, see Appendix A) extend across artificial water channels, none of these structures would exceed the threshold of 50m in length. <u>This Listing is therefore not considered to be applicable to the WfWetlands Programme.</u></p>   |
| <p>(c) any development or other activity which will change the character of a site -<br/>                     (i) exceeding 5 000m<sup>2</sup> in extent; or<br/>                     (ii) involving three or more existing erven or subdivisions thereof; or<br/>                     (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or<br/>                     (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;</p> | <p>The WfWetlands Programme is aimed at restoration, and involves wetland rehabilitation measures to restore natural wetland systems by addressing erosion problems and threats to ecological functioning (i.e. maintaining the natural character of the site). The Programme therefore does not constitute a development or an activity that will change the character of a site, but rather involves interventions to reclaim important natural systems at risk of being lost to anthropogenic impact. <u>This Listing is therefore not considered to be applicable to the WfWetlands Programme.</u></p>          |
| <p>(d) the re-zoning of a site exceeding 10 000m<sup>2</sup> in extent; or</p>  | <p>The WfWetlands Programme does not require that any of the project areas be rezoned. <u>This Listing is therefore not considered to be applicable to the WfWetlands Programme.</u></p>  |

<sup>[1]</sup> "A structure erected over a depression, river, watercourse, railway line, road or other obstacle for carrying motor, railway, pedestrian or other traffic or services and having a length of 6 m or more, measured between and abutment faces along the centre line of the road at girder-bed level, except that road-over-rail or rail-over-road structure are always classed as bridges." (COLTO, 1998).

| NHRA Section   | Applicability to WfWetlands  |
|--|--|
| (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, | The WfWetlands Programme does not constitute any other category of development provided for in regulations by SAHRA. It is a Government rehabilitation initiative. <u>This Listing is therefore not considered to be applicable to the WfWetlands Programme.</u> |

It is important to note that even though the proposed WfWetlands Programme activities in this Province are not located within a protected site (national or provincial) and do not exceed any of the thresholds in terms of the NHRA, there is always the possibility that new heritage resource discoveries could be made during the rehabilitation activities. Should any archaeological and/ or heritage resources be exposed during the implementation of the interventions, the Implementation Team will follow the process described in the Environmental Management Plan (Appendix D of the rehabilitation plans). This process includes ceasing the implementation of all interventions in the immediate areas, cordoning off the discovery, notifying the relevant Heritage Authorities of the discovery, and following their recommendations to investigate or secure the discovery.

## 3 METHODOLOGY

### 3.1 Approach to the Project

In order to manage the **WfWetlands Programme**, wetlands have been grouped into “projects”, and each **Wetland Project** encompasses several smaller wetland systems which are each divided into smaller, more manageable and homogenous wetland units. These Wetland Projects may be located within one or more quaternary catchments within a Province.

Each Wetland Project is managed in three phases (as shown in the flow diagram in **Figure 4**) over a two-year cycle. The first two phases straddle the first year of the cycle and involve planning, identification, design and authorisation of interventions. The third phase is implementation, which takes place during the second year.

In order to undertake these three phases, a collaborative team has been established as follows. The **Programme Team** currently comprises two subdirectories: a) Implementation and After Care and b) Planning, Monitoring and Evaluation. The Assistant Directors for Wetlands Programmes (ASDs)<sup>9</sup> report to the Implementation and After Care Deputy Director and are responsible for the identification and implementation of projects in their regions. The Programme Team is further supported by a small team that fulfil various roles such as Geographical Information Systems (GIS) and training. Independent Design Engineers and Environmental Assessment Practitioners (EAPs) are appointed to undertake the planning, design and authorisation components of the project. The project team is assisted by a number of wetland specialists who provide scientific insight into the operation of wetlands and bring expert and often local knowledge to the project teams. They are also assisted by the landowners and implementers who have valuable local knowledge of these wetlands.

The first phase is the identification of suitable wetlands which require intervention. The purpose of Phase 1 and the associated reporting is to identify:

- Priority catchments and associated wetlands/ sites within which rehabilitation work needs to be undertaken; and
- Key stakeholders who will provide meaningful input into the planning phases and wetland selection processes, and who will review and comment on the rehabilitation proposals.

**Phase 1** commences with a catchment and wetland prioritisation process for every province. The Wetland Specialist responsible for a specific province undertakes a desktop study to determine the most suitable wetlands for the WfWetlands rehabilitation efforts. The involvement of Provincial Wetland Forums<sup>10</sup> and other key stakeholders is a critical component of the wetland identification processes since these stakeholders are representative of diverse groups with shared interests (e.g. from government institutions to amateur ecological enthusiasts). This phase also involves initial communication with local land-owners and other Interested and Affected Parties (I&APs) to gauge the social benefits of the work. Aerial surveys of the areas in question may be undertaken, as well as limited fieldwork investigations or site visits to confirm the inclusion of certain wetland projects or units. Once wetlands have been prioritised and agreed on by the various parties, specific rehabilitation objectives are determined for each wetland following a rapid wetland assessment undertaken by the Wetland Specialist.

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<sup>9</sup> Also referred to as Provincial Coordinators (PCs).

<sup>10</sup> Where possible, the most recent provincial Wetland Forum minutes are included in Appendix E.

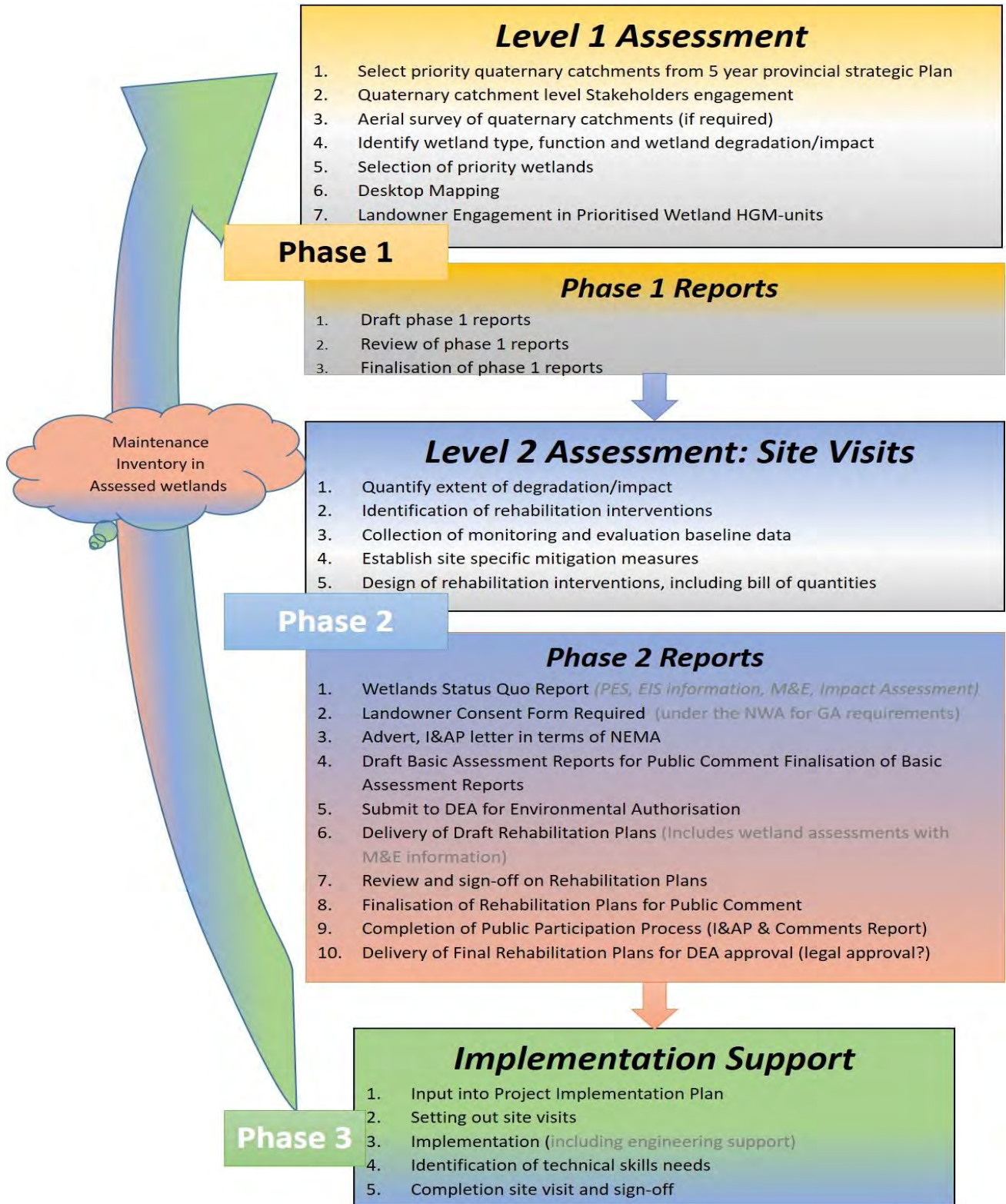


Figure 4: The Working for Wetlands planning process

**Phase 2** requires site visits attended by the fieldwork team comprising a Wetland Specialist, a Design Engineer, an EAP, and an ASD. Other interested stakeholders or authorities, landowners and in some instances the Implementing Agents (IAs) may also attend the site visits. This allows for a highly collaborative approach, as options are discussed by experts from different scientific disciplines, as well as local inhabitants with deep anecdotal knowledge. While on site, rehabilitation opportunities are investigated. The details of the proposed interventions are discussed, some survey work is undertaken by the engineers, and Global Positioning System (GPS) coordinates and digital photographs are taken for record purposes. Furthermore, appropriate dimensions of the locations are recorded in order to design and calculate quantities for the interventions. At the end of the site visit the rehabilitation objectives together with the location layout of the proposed interventions are agreed upon by the project team.

During Phase 2, monitoring systems are put in place to support the continuous evaluation of the interventions. The systems monitor both the environmental and social benefits of the interventions. As part of the Phase 2 site visit, a maintenance inventory of any existing interventions that are damaged and/or failing and thus requiring maintenance is compiled by the ASD, in consultation with the Design Engineer.

Based on certain criteria and data measurements (water volumes, flow rates, and soil types); the availability of materials such as rock; labour intensive targets; maintenance requirements etc., the interventions are then designed. Bills of quantity are calculated for the designs and cost estimates made. Maintenance requirements for existing interventions in the assessed wetlands are similarly detailed and the costs calculated. The Design Engineer also reviews and, if necessary, adjusts any previously planned interventions that are included into the historical rehabilitation plans.

Phase 2 also requires that Environmental Authorisations are obtained before work can commence in the wetlands during Phase 3. Provincial level BARs and project specific rehabilitation plans are prepared. The rehabilitation plans include details of each intervention to be implemented, preliminary construction drawings and all necessary documentation required by applicable legislation. The rehabilitation plans are considered to be the primary working document for the implementation of the project via the construction/ undertaking of interventions listed in the Plan.

**Phase 3** commence upon approval of the BARs and wetland rehabilitation plans by DEA. The work detailed for the project would be implemented within a year followed by on-going monitoring. It is typically at this point in the process when the final construction drawings are issued to the Implementing Agents (IAs). Seventeen [Hold 3] IAs are currently employed in the WfWetlands Programme and are responsible for employing contractors and their teams (workers) to construct the interventions detailed in each of the rehabilitation plans. For all interventions that are based on engineering designs (typically hard engineered interventions), the Design Engineer is required to visit the site before construction commences to ensure that the original design is still appropriate in the dynamic and ever-changing wetland system. The Design Engineer assist the IAs in pegging and setting-out interventions. Phase 3 concludes with the construction of the interventions, but there is an on-going monitoring and auditing process that ensures the quality of interventions, the rectification of any problems, and the feedback to the design team regarding lessons learnt.

**Landowner consent** is an important component of each phase in each Wetland Project. The flow diagram, **Figure 4**, demonstrates the point at which various consent forms must be approved via signature from the directly affected landowner. The ASDs are responsible for undertaking the necessary landowner engagement and for ensuring that the requisite landowner consent forms required as part of Phase 1 and 2 of this project are signed. Without these signed consent forms the WfWetlands Programme will not be able to implement rehabilitation interventions on the affected property.



### 3.2 Impact Assessment Methodology

This section outlines the proposed method for assessing the significance of the potential environmental impacts during the construction and operational phase.

For each impact, the **EXTENT** (spatial scale), **MAGNITUDE** and **DURATION** (time scale) is described. These criteria were used to ascertain the **SIGNIFICANCE** of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The mitigation described in the EIR represents the full range of plausible and pragmatic measures but does not necessarily imply that they will be implemented.

The tables on the following pages show the scale used to assess these variables, and defines each of the rating categories.

**Table G: Assessment criteria for the evaluation of impacts**

| Criteria  | Category                   | Description  |
|---|----------------------------|--|
| <b>Spatial influence of impact</b>                          | <b>Regional</b>            | Beyond a 10 km radius of the candidate site.                                     |
|   | <b>Local</b>               | Between 100 m and 10 km radius of the candidate site.                            |
|   | <b>Site specific</b>       | On site or within 100 m of the candidate site.                                   |
| <b>Magnitude of impact (at the indicated spatial scale)</b> | <b>High</b>                | Natural and/ or social functions and/ or processes are <i>severely</i> altered   |
|   | <b>Medium</b>              | Natural and/ or social functions and/ or processes are <i>notably</i> altered    |
|   | <b>Low</b>                 | Natural and/ or social functions and/ or processes are <i>slightly</i> altered   |
|   | <b>Very Low</b>            | Natural and/ or social functions and/ or processes are <i>negligibly</i> altered |
|   | <b>Zero</b>                | Natural and/ or social functions and/ or processes remain <i>unaltered</i>       |
| <b>Duration of impact (temporal)</b>                        | <b>Construction period</b> | From commencement up to 2 years after construction                               |
|   | <b>Short Term</b>          | From 2 to 5 years after construction   |
|   | <b>Medium Term</b>         | From 5 to 15 years after construction  |
|   | <b>Long Term</b>           | More than 15 years after construction  |

The **SIGNIFICANCE** of an impact is derived by taking into account the temporal and spatial scales and magnitude. The means of arriving at the different significance ratings is explained in **Table H**.

Table H: Definition of significance ratings

| Significance ratings | Level of criteria required   |
|----------------------|--|
| <b>High</b>          | <ul style="list-style-type: none"> <li>High magnitude with a regional extent and long term duration</li> <li>High magnitude with either a regional extent and medium term duration or a local extent and long term duration</li> <li>Medium magnitude with a regional extent and long term duration</li> </ul>   |
| <b>Medium</b>        | <ul style="list-style-type: none"> <li>High magnitude with a local extent and medium term duration</li> <li>High magnitude with a regional extent and construction period or a site specific extent and long term duration</li> <li>High magnitude with either a local extent and construction period duration or a site specific extent and medium term duration</li> <li>Medium magnitude with any combination of extent and duration except site specific and construction period or regional and long term</li> <li>Low magnitude with a regional extent and long term duration</li> </ul> |
| <b>Low</b>           | <ul style="list-style-type: none"> <li>High magnitude with a site specific extent and construction period duration</li> <li>Medium magnitude with a site specific extent and construction period duration</li> <li>Low magnitude with any combination of extent and duration except site specific and construction period or regional and long term</li> <li>Very low magnitude with a regional extent and long term duration</li> </ul>   |
| <b>Very low</b>      | <ul style="list-style-type: none"> <li>Low magnitude with a site specific extent and construction period duration</li> <li>Very low magnitude with any combination of extent and construction or short term duration</li> </ul>  |
| <b>Neutral</b>       | <ul style="list-style-type: none"> <li>Zero magnitude with any combination of extent and duration</li> </ul>   |

Once the significance of an impact has been determined, the **PROBABILITY** of this impact occurring as well as the **CONFIDENCE** in the assessment of the impact, was determined using the rating systems outlined in **Table I** and **Table J**, respectively. It is important to note that the significance of an impact should always be considered in concert with the probability of that impact occurring. Lastly, the **REVERSIBILITY** of the impact is estimated using the rating system outlined in **Table K**.

Table I: Definition of probability ratings

| Probability ratings | Criteria  |
|---------------------|---|
| <b>Definite</b>     | Estimated greater than 95 % chance of the impact occurring. |
| <b>Probable</b>     | Estimated 5 to 95 % chance of the impact occurring.         |
| <b>Unlikely</b>     | Estimated less than 5 % chance of the impact occurring.     |

Table J: Definition of confidence ratings

| Confidence ratings | Criteria   |
|--------------------|--|
| <b>Certain</b>     | Wealth of information on and sound understanding of the environmental factors potentially influencing the impact.                              |
| <b>Sure</b>        | Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact. |
| <b>Unsure</b>      | Limited useful information on and understanding of the environmental factors potentially influencing this impact.                              |

**Table K: Definition of reversibility ratings**

| Reversibility ratings | Criteria  |
|-----------------------|---|
| <b>Irreversible</b>   | The activity will lead to an impact that is in all practical terms permanent. |
| <b>Reversible</b>     | The impact is reversible within 2 years after the cause or stress is removed. |

### 3.3 Assumptions and Limitations

#### 3.3.1 Assumptions

In undertaking this investigation and compiling the BAR, the following has been assumed:

- The strategic level investigations undertaken during Phase 1 are acceptable and robust.
- The information provided by the applicant and wetland specialists is accurate.
- The scope of this investigation is limited to assessing the over-all environmental impacts that have been identified over time since the WfWetlands Programme commenced in the early 2000's. Additional site specific impacts/ mitigation measures, focusing on the Wetland Unit and proposed intervention, was identified during the planning phase and are included in the applicable rehabilitation plan.

## 4 PUBLIC PARTICIPATION

### 4.1 Public Participation Process

South African legislation and guidelines have formalised stakeholder engagement in the BAR process and refer to it as the Public Participation Process (PPP). PPP forms an integral component of the environmental impact assessment process and enables I&APs to identify issues, concerns, and suggestion through the review of documents/ reports at various stages throughout the BAR process as described in Chapter 6 of GN R982, as amended. For more detail on the PPP undertaken to date (e.g. copies of advertisements, poster locations, comments received, etc.), please refer to **Appendix B**.

Table L: Public Participation Process

| Activity                                      | Description  |
|---|--|
| <b>Pre-application</b>                        |  |
| <b>Advertisements</b>                         | Adverts were placed in the <i>The Rep</i> to allow I&APs the opportunity to register their interest in the project.  |
| <b>Site Posters</b>                           | Posters, notifying I&APs of the proposed rehabilitation projects, were placed at the entrance to the Park and at the local library.  |
| <b>Register of I&amp;APs</b>                  | The existing provincial I&AP database (from previous planning cycles) has been updated with information from new I&APs responding to advertisements and site notices throughout the application process. Proactive identification of I&APs, municipal representatives, organs of state, competent authorities and surrounding landowners were also undertaken to update the database specific to the new planning year.  |
| <b>Basic Assessment Process</b>               |  |
| <b>Availability of BAR for public comment</b> | The BAR were made available for a 30 day comment period from 14 October 2019 to 12 November 2019 on Aurecon's website: <a href="http://aurecongroup.com/en/public-participation.aspx">http://aurecongroup.com/en/public-participation.aspx</a> .<br>All competent authorities/Relevant commenting authorities received an electronic copy (i.e. CD) of the BAR and Rehabilitation Plans to review and comment on. Registered I&APs were able to contact Mr Simamkele Ntsengwane if they had problems accessing the documents. Mr Simamkele Ntsengwane can be contacted at Tel: 021 526 9560 and/or Email: <a href="mailto:Simamkele.Ntsengwane@aurecongroup.com">Simamkele.Ntsengwane@aurecongroup.com</a> . |
| <b>Written Notification</b>                   | Written notification was given on 11 October 2019 to all registered I&APs regarding the availability of the BAR and rehabilitation plans for public comment.   |
| <b>Register of I&amp;APs</b>                  | The register for I&APs will continue to be updated during the Basic Assessment Process.  |
| <b>Comments</b>                               | All comments received during the first application process is included in a Comments and Response Report (CRR) (available in <b>Appendix B5</b> ), with copies of the original comments received.  |

Following the 30 day public comment period, the BAR and rehabilitation plans will be updated by incorporating any additional I&AP comments received on the reports (where relevant). All comments will be recorded and responded to in a second CRR which will be circulated to all who have provided comment. The updated BAR and rehabilitation plans will then be submitted to DEA for their decision-making process. Once DEA has made their decision on the proposed project, all registered I&APs will be notified of the outcome of the decision within fourteen (14) calendar days of the decision and the right to appeal projects.

## 5 PROJECT DESCRIPTION

### 5.1 Need and Desirability: National Importance of the WfWetlands Programme

South Africa is a dry country, but is endowed with exceptionally rich biodiversity. The nation has a pressing reason to value the water-related services that wetlands provide. It is estimated that by 2025, South Africa will be one of fourteen African countries classified as “*subject to water scarcity*” (UNESCO, 2000). The conservation of wetlands is fundamental to the sustainable management of water quality and quantity, and wetland rehabilitation is therefore essential to conserving water resources in South Africa.

The guiding principles of the NWA recognise the need to protect water resources. In responding to the challenge of stemming the loss of wetlands and maintaining and enhancing the benefits they provide, government has recognised that, in order to be truly effective, strategies for wetland conservation need to include a combination of proactive measures for maintaining healthy wetlands, together with interventions for rehabilitating those that have been degraded. These objectives are currently being expressed in a coordinated and innovative way through the WfWetlands Programme.

Working for Wetlands pursues its mandate of wetland protection, wise use and rehabilitation in a manner that maximises employment creation, supports small emerging businesses, and transfers skills amongst **vulnerable** and **marginalised** groups. In the 15 years since 2004, the WfWetlands Programme has invested just under R1.1 billion in wetland rehabilitation and has been involved in over 1 500 wetlands, thereby improving or securing the health of over 70 000 hectares of wetland environment. The WfWetlands Programme has a current budget of just over R 130 million, of which approximately 35% is allocated directly to paying wages. Being part of the EPWP, the WfWetlands Programme has created more than 34 000 jobs and over 3.2 million person-days of paid work. The local teams are made up of a minimum of 55% women, 65% youth and 2% disabled persons.

Wetlands are not easy ecosystems to map at a broad scale as they are numerous, often small and difficult to recognise and delineate on remotely sensed imagery such as satellite photos. The WfWetlands Programme houses the National Wetlands Inventory Project (NWI) which aims to provide clarity on the extent, distribution and condition of South Africa’s wetlands. The project clarifies how many and which rivers and wetlands have to be maintained in a natural condition to sustain economic and social development, while still conserving South Africa’s freshwater biodiversity.

The National Freshwater Ecosystem Priority Areas (NFEPA) has used the NWI data to produce the most comprehensive national wetland map to date, called the NFEPA Atlas. This atlas enables the planning of wetland rehabilitation on a catchment scale.

Other activities that form part of the WfWetlands Programme include:

- Raising awareness of wetlands among workers, landowners and the general public; and
- Providing adult basic education and training, and technical skills transfer (in line with the emphasis of the EPWP on training, the WfWetlands Programme has provided 250 000 days of training in vocation and life skills).

### 5.2 Activities to be undertaken

The successful rehabilitation of a wetland requires that the cause of damage or degradation is addressed, and that the natural flow patterns of the wetland system are re-established (flow is encouraged to disperse rather than to concentrate). Approximately 800 interventions are implemented every year in the WfWetlands Programme. The key objectives of implementing interventions include:

- Restoration of hydrological integrity (e.g. raising the general water table or redistributing the water across the wetland area);

- Recreation of wetland habitat towards the conservation of biodiversity; and
- Job creation and social upliftment.

Typical activities undertaken within the projects include:

- Plugging artificial drainage channels created by development or historical agricultural practices to drain wetland areas for other land use purposes;
- Constructing structures (gabions, berms, weirs) to divert or redistribute water to more natural flow paths, or to prevent erosion by unnatural flow rates that have resulted from unsustainable land use practices or development; and
- Removing invasive alien or undesirable plant species from wetlands and their immediate catchments (in conjunction with the Working for Water initiative).

Methods of wetland rehabilitation may include hard engineering interventions (see Section 5.3 and **Appendix A**) such as:

- Earth berms or gabion systems to block artificial channels that drain water from or divert polluted water to the wetland;
- Concrete and gabion weirs to act as settling ponds, to reduce flow velocity or to re-disperse water across former wetland areas thereby re-establishing natural flow paths;
- Earth or gabion structure plugs to raise channel floors and reduce water velocity;
- Concrete or gabion structures to stabilise head-cut or other erosion and prevent gullies;
- Concrete and/or reno mattress strips as road crossings to address channels and erosion in wetlands from vehicles; and
- Gabion structures (mattresses, blankets or baskets) to provide a platform for the growth of desired wetland vegetation.

Soft engineering interventions (see Section 5.3 and **Appendix A**) also offer successful rehabilitation methods, and the following are often used together with the hard engineering interventions:

- The use of biodegradable or natural soil retention systems such as eco-logs, MacMat-R plant plugs, grass or hay bales, and brush-packing techniques;
- The re-vegetation of stabilised areas with appropriate wetland and riparian plant species;
- Alien invasive plant clearing, which is an important part of wetland rehabilitation (this is supported by the Working for Water Programme).
- The fencing off of sensitive areas within the wetland to keep grazers out and to allow for the re-establishment of vegetation;
- In some instances, the use of appropriate fire management and burning regimes. The removal of undesirable plant and animal species; and
- In some wetlands, it may be possible to involve the community to develop a management plan for wise use within a wetland. This can involve capacity building through educating and training the community members who would monitor the progress. A plan could involve measures such as rotational grazing with long term benefits for rangeland quality.

### 5.3 Alternatives

“**Alternatives**”, in relation to a proposed activity, refers to different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- a) the property on which or location where it is proposed to undertake the activity;
- b) the type of activity to be undertaken;
- c) the design or layout of the activity;
- d) the technology to be used in the activity;
- e) the operational aspects of the activity; and
- f) the option of not implementing the activity.

Due to the WfWetlands Programme not being a development proposal, the use of alternatives as normally applied in terms of the NEMA is not appropriate. As explained earlier in Chapter 3, a comprehensive phased approach is applied each year to identify wetlands with a high rehabilitation priority (Phase 1), rehabilitation objectives for each wetland unit and the most appropriate interventions to achieve these objectives (Phase 2). During Phase 3, these interventions are again scrutinised during setting-out to consider changes that have occurred within the landscape since the original planning took place. Should any significant changes be required to the intervention, the Project Team will be informed by the engineer to ensure that the proposed design changes would not compromise the rehabilitation objectives identified for the specific wetland. For more information on how alternatives are being considered for the WfWetlands Programme, please refer to **Table M**.

**Table M: Approach to alternatives for the WfWetlands Programme**

| Alternative               | Applicability to WfWetlands   |
|---------------------------|---|
| <b>Site Alternatives</b>  | <p>All quaternary catchments within the province are considered for possible wetland rehabilitation work in the earlier stages of the WfWetlands Programme (Phase 1 catchment and wetland prioritisation processes), and only those that meet the prioritisation criteria are selected for the current planning cycle. Wetlands within the selected Quaternary Catchments undergo a similar prioritisation process, which includes a consultation component with the relevant stakeholders and interest groups, and the Wetland Projects presented in this report are those that are finally selected. Wetland Units within each Wetland Project are investigated by the Wetland Specialist and these are selected based on their suitability in terms of the overall WfWetlands Programme objectives<sup>11</sup>. The earlier site selection processes to determine feasible and reasonable Wetland Projects are described in detail in Section 3.1.</p> <p><b>All wetland site alternatives have therefore already been considered in the earlier phases of the WfWetlands Programme, and only the preferred wetland systems (site locations) are presented here.</b> For the purpose of this report, no feasible or reasonable wetland site alternatives exist.</p> |
| <b>Other Alternatives</b> | <p>One form of alternative considered during the WfWetlands Programme is a design alternative, where all possible intervention options that may achieve a desired rehabilitation objective are contemplated during the Phase 2 field work component of a particular Wetland Unit. The design team comprising a Wetland Specialist, a Design Engineer, an EAP, and an ASD (and in some instances other interested stakeholders such as authorities and/or landowners who may attend the site visit) will discuss and select the most appropriate intervention option for a particular problem. <b>Each of the intervention options selected, as well as the determination of the most appropriate location for these within the Wetland Unit are therefore based on expert opinion and are thus considered to be the most suitable and effective interventions to achieve the rehabilitation objectives for the wetland.</b></p>   |

<sup>11</sup> Wetland conservation and poverty reduction through job creation and skills development amongst vulnerable and marginalised groups.

| Alternative                     | Applicability to WfWetlands   |
|---------------------------------|---|
| <p><b>No-Go Alternative</b></p> | <p>If the no-go alternative is pursued, the prioritised wetlands will continue to deteriorate, resulting in an overall negative impact on aquatic and terrestrial ecosystems, habitats and species of conservation significance. <b>In the absence of rehabilitation, the important role of these wetlands in flood attenuation, nutrient retention and water quality amelioration, as well as ecological services will not be realised.</b> In many instances the current degradation results in severe erosion, which may impact on the agricultural or land use potential of adjacent sites, as well as result in sedimentation and eutrophication impacts for downstream users.</p> |



## 6 BASELINE DESCRIPTION OF EASTERN CAPE PROJECTS

### 6.1 Eastern Cape Project: Background

WfWetlands has been rehabilitating wetlands in the Eastern Cape for well over 10 years, with initial efforts being focused on the Gatberg and the Kromme River areas (located close to the towns of Maclear and Kareedouw respectively). Rehabilitation projects have since spread to include wetland systems in areas such as Tsitsikamma, Port Elizabeth, Baviaanskloof, Hogsback and Qunu. In previous years the programme worked in the Q94A quaternary catchment, majority of the rehabilitation opportunities have been exhausted the systems beyond Hogsback into the Amathole mountain ranges were reviewed. The focus this year is on a new project area, i.e. Amathole, and more specifically the S32E quaternary catchment.

The Amathole project was identified for the 2018/2019 planning cycle as a priority area during the Phase 1 activities associated with the WfWetlands Programme. The Amathole study site includes wetlands areas within the Amathole mountain and the Hogsback areas. Catchment and wetland prioritisation assessments were undertaken by the Wetland Specialist/s to identify priority catchments and associated wetlands within which rehabilitation work needed to be undertaken. A review was undertaken to determine local knowledge and identify existing studies of the quaternary catchments in the province. The Programme's current five-year strategic plans were further used as a guide to identify wetlands, as well as data from the National Freshwater Ecosystem Priority Areas (NFEPA) project. Decisions on priority areas were informed by input from wetland forums, biodiversity / conservation plans, municipalities, state departments and various other stakeholders.

### 6.2 Biophysical Environment

The following new wetland systems were identified in the Eastern Cape Province and will be the focus of this Basic Assessment Process. The tables below provide an overview of the biophysical environment of the wetland systems.

- Quaternary catchment S32E:
  - Kolomane 1
  - Kolomane 2
  - Kolomane 5
  - Kolomane 16

Please refer to **Appendix C** for a selection of maps that show the location and biodiversity sensitivity of the above listed wetland systems. Also see the applicable rehabilitation plan for detailed descriptions of the wetlands, wetland problems, rehabilitation objectives and proposed rehabilitation interventions.

#### 6.2.1 Quaternary catchment S32E and associated wetland systems

| Quaternary Catchment S32E  |  |
|----------------------------|--|
| <b>General description</b> | Quaternary catchment S32E is located near the town of Seymore in the Eastern Cape and falls within the Mzimvubu-Keiskamma water management area (WMA) and the Kei River sub-WMA. The catchment has three main rivers flowing through it, namely the Klipplaat, Krom and the Diep River. The Waterdown dam is located at the northern boundary of the catchment and supplies water to Whittlesea and the Sada area. The catchment is classified by DWS and has a moderate ecological sensitivity rating with the confidence in this rating as medium (EC state of Dams) |

|  |   |
|--|---|
| <b>Climate</b>                         | <p>The Eastern Cape is described as having complex climate dominated by temperate and subtropical climatic regimes. The Amathole district ranges from mild temperature conditions (14-23°C) along the coastal areas and extreme conditions (5-35 °C) among the inland areas where the catchment is located. The mountains on the northern border of the district experience winter snow and summer rainfalls.</p> <p>Summer conditions are experienced from October to April, with average temperatures of 28°C. Most of the rainfall occurs in summer with an average of 700mm often in the form of thunderstorms.</p> <p>Winter, which predominates from May to September, typically with average temperatures of 21°C. Frost is common and occasional snowfalls occur. The mean annual Precipitation (MAP) is 641.9mm and the Potential Evapotranspiration (PET) is 1730.2mm (Schulze 2007) for the S32E catchment, making the hydrological sensitivity of the wetlands within this catchment to be <i>Moderately High</i> (Macfarlane et al. 2007).</p> |
| <b>Geology and topography</b>          | <p>The quaternary catchment is characterised by Red, yellow and / or greyish soils with low to medium base status. The area is underlain by the Karoo Supergroup which includes shale, mudstones and sandstones with dolerite intrusions (Internal Strategic Perspective 2004). According to the ISP, a characteristic of the geology and soils of the area is that once the vegetation is removed (by whichever means), erosion of the topsoil is rapid due to the nature of the dispersive soils derived from the underlying geology is reported to cause high turbidities/ suspended solids in rivers and reduce the quality of water. The area consists predominantly of the Karoo supergroup with the Adelaide subgroup between the coast and the Amatole mountains.</p>   |
| <b>Terrestrial ecology</b>             | <p>The S32E catchment falls within the Grassland Biome and is dominated by the Amathole Montane Grassland vegetation type which is classified as least threatened (Mucina &amp; Rutherford 2006). No species of special concern were noted during the site visit.</p> <p>The catchment also has patches of indigenous Amatole Mistbelt forest (SANBI BGIS, 2018); most of which are located along the escarpment below the wetlands, on the western side of the catchment near Katberg. Some of these forest patches are designated as official State Forests.</p> <p>The wetland is dominated by <i>Juncus</i> with limited invasion with bramble.</p>   |
| <b>Aquatic ecology</b>                 | <p>The quaternary catchment is associated with a heavily to critically modified (class D) Present Ecological State (PES). The quaternary catchment is classified as a Fish migratory catchment according to NFEPA, making it important for because it supports important fish populations. The Amathole Freshwater Species project and Biodiversity Stewardship (AFSCP) have obtained baseline data that monitors the endangered fish species, this includes the Eastern Cape Rocky ad Amathole Toad.</p>   |
| <b>Land use</b>                        | <p>The area is communally owned, and the primary land use is agriculture; in particular subsistence agriculture and grazing which is practiced on a communal basis. Moderate to heavy overgrazing has taken place in some areas. Scattered community settlements also occur, but there are no major urban areas within the catchment.</p>   |
| <b>Kolomane 1 S32E-01</b>              |   |
| <b>Location</b>                        | <p>The Kolomane 1 wetland is located approximately 14.72 km South of the town of the Seymore town and lies south of the Krom river. The Kolomane Police station is 400 metres from the wetland.</p>   |
| <b>District and Local municipality</b> | <p>The wetland falls within the Amathole District municipality and the Raymond Mhlaba Local municipality.</p>   |
| <b>Reason for selection</b>            | <p>The wetland is considered as high priority due to the anticipated gains associated with deactivated the main channel and berm within the wetland. Great opportunities for rehabilitation, that showed potential for an ideal balance between 'hard' and 'soft' rehabilitation interventions.</p>   |

|  |   |
|--|---|
| <b>Wetland type and size<sup>12</sup></b>            | The wetland is classified as a Channelled valley-bottom   |
| <b>Conservation status (terrestrial and aquatic)</b> | The systems fall within terrestrial CBA 1 <sup>13</sup> and aquatic CBA 1 <sup>14</sup> areas according to the ECBCP, rehabilitation of wetlands will support the priorities of the ECBCP. Patches of the Katberg State Forest lie within 2km of the wetland system. Rehabilitation is likely to be of benefit to these forests as they are located on the escarpment just below the wetland system. The system does not lie within any national protection area expansion strategy (NPAES) area. |
| <b>Land use</b>                                      | Livestock paths through sections of the wetland, and across the channel were identified, as well as active grazing in the wetland   |
| <b>Wetland problems</b>                              | As the land was transformed from natural to cultivation, the functioning of the system, changed, the problems within this wetland includes desiccation of the midsection of the wetland, alien vegetation and Cut-off drains, berms and plough lines were identified running through portions of the wetland  |
| <b>Rehabilitation objectives</b>                     | To reinstate the function of the wetland and to benefit community through job creation, preservation of environment, secure water supply for the downstream communities.  |
| <b>Kolomane 2 S32E-02</b>                            |   |
| <b>Location</b>                                      | The Kolomane 2 wetland is located approximately 11.2 km North from the town of Seymore and approximately 3 km South of the tail of Krom river.  |
| <b>District and Local municipality</b>               | The wetland falls within the Amathole District municipality and the Raymond Mhlaba Local municipality.  |
| <b>Reason for selection</b>                          | Great opportunities for rehabilitation, that showed potential for an ideal balance between 'hard' and 'soft' rehabilitation interventions.  |
| <b>Wetland type and size</b>                         | The channelled valley-bottom wetland system is approximately 39 ha in size.   |
| <b>Conservation status (terrestrial and aquatic)</b> | The wetland system falls within terrestrial CBA 1 and aquatic CBA 1 areas according to the ECBCP, rehabilitation of wetlands will support the priorities of the ECBCP. Patches of the Katberg State Forest lie within 2km of the wetland system. Rehabilitation is likely to be of benefit to these forests as they are located on the escarpment just below the wetland system. The system does not lie within any national protection area expansion strategy (NPAES) area.                     |
| <b>Land use</b>                                      | The land use for this wetland was historically subsistence cultivation, there is currently signs of livestock grazing in the area. The wetland also feeds directly into the Koloman 1 wetland and supports its functioning  |
| <b>Wetland problems</b>                              | The historical modifications has led to the desiccation of portions of the HGM unit, making the system much drier than the natural conditions.  |
| <b>Rehabilitation objectives</b>                     | Improving the wetland function.   |
| <b>Kolomane 5 S32E-03</b>                            |   |
| <b>Location</b>                                      | The Kolomane 5 wetland is located 15km North from the town of Seymore. The NFEPA Krom river flows through the wetland.  |

<sup>12</sup> The approximate size of each wetland system is provided as the intention is to positively influence the entire area through the implementation of smaller interventions. Since the specific interventions required to address specific problems are only determined during Phase 2 site visits, the actual intervention footprints will only be available for inclusion in the rehabilitation plans which will also be made available to registered I&APs for review before being submitted to DEA for approval.

<sup>13</sup> Recommended land use objective for terrestrial CBA 1 areas according to the ECBCP: *Maintain biodiversity in near natural state with minimal loss of ecosystem integrity. No transformation of natural habitat should be permitted.*

<sup>14</sup> Importance of aquatic CBA 1 areas according to the ECBCP: *Critically important river sub-catchments, including wetlands and important estuaries.*

|  |  |
|--|--|
| <b>District and Local municipality</b>               | The wetland falls within the Amathole District municipality and the Raymond Mhlaba Local municipality.   |
| <b>Reason for selection</b>                          | A large wetland system that can be secured and its functioning enhanced through fairly simple rehabilitation initiatives; combining both 'hard' and 'soft' intervention options to secure the rehabilitation.  |
| <b>Wetland type and size</b>                         | The wetland is classified as a channelled valley-bottom wetland  |
| <b>Conservation status (terrestrial and aquatic)</b> | <p>The wetland system falls within terrestrial CBA 2 and aquatic CBA 1 areas according to the ECBCP, rehabilitation of wetlands will support the priorities of the ECBCP. Patches of the Katberg State Forest lie within 2km of the wetland system. Rehabilitation is likely to be of benefit to these forests as they are located on the escarpment just below the wetland system. The system does not lie within any national protection area expansion strategy (NPAES) area. The wetlands forms the headwaters of the Krom river.</p> <p>From the site visit it was noted flora included <i>Morea hutonii</i> (Golden Vlei Iris); <i>Helichrysum spp.</i>, including <i>H. aureum</i>; <i>Juncus</i> and the presence of the crowned crane birds in nearby wetlands.</p> |
| <b>Land use</b>                                      | The land use of the wetland is grazing, an informal sheep crossing was noted during the site visit.  |
| <b>Wetland problems</b>                              | The problems associated with the wetland includes the erosion in the channel, alien invasive tress and an inactive and desiccated wetland portion.   |
| <b>Rehabilitation objectives</b>                     | To reinstate the function of the wetland and to benefit community through job creation, preservation of environment, secure water supply for the downstream communities. rehabilitation may allow for a favourable balance between.  |
| <b>Kolomane 16 S32E-04</b>                           |  |
| <b>Location</b>                                      | The Kolomane 16 wetland is located approximately 16.7 km North from the town of Seymore. The NFEPA Krom river flows through the wetland.   |
| <b>District and Local municipality</b>               | The wetland falls within the Amathole District municipality and the Raymond Mhlaba Local municipality.   |
| <b>Reason for selection</b>                          | Opportunities to stabilise headcut erosion identified at the toe of this wetland system were identified, which will protect the wetland system from eroding further  |
| <b>Wetland type and size</b>                         | The wetland is classified as a channelled valley-bottom wetland  |
| <b>Conservation status (terrestrial and aquatic)</b> | <p>The wetland system falls within terrestrial CBA 2 and aquatic CBA 1 areas according to the ECBCP, rehabilitation of wetlands will support the priorities of the ECBCP. Patches of the Katberg State Forest lie within 2km of the wetland system. Rehabilitation is likely to be of benefit to these forests as they are located on the escarpment just below the wetland system. The system does not lie within any national protection area expansion strategy (NPAES) area. The wetlands forms the headwaters of the Krom river.</p>  |
| <b>Land use</b>                                      | The landuse of the wetland is for grazing, a nearby cattle dip was noted during the site visit.  |
| <b>Wetland problems</b>                              | Historical cultivation practises have had negatively altered the functioning and integrity of the wetland. Problems in alien invasive vegetation, Headcuts and Active erosion  |
| <b>Rehabilitation objectives</b>                     | To stabilise the localised erosion before it leads to further loss of wetland habitat upstream.  |

### 6.3 Cultural and Heritage Environment

As the project aims to rehabilitate wetlands threatened by erosion, no impact is expected to occur on cultural or historic features. However, should any such features be identified during the Phase 2 site visit, a heritage specialist will be consulted, and the relevant heritage authorities will be notified. Also see Sections 2.4 and 7.1.4.

### 6.4 Socio-economic Environment

**Table N** below provides a summary of the socio-economic profile of the local municipalities within which the proposed wetland rehabilitation projects will take place. Being part of the EPWP, the WfWetlands Programme has created more than 34 000 jobs and over 3 million person-days of paid work by using local SMMEs to implement the approved wetland rehabilitation plans. Local teams generally consist of a minimum of 55% women, 65% youth and 2% disabled persons.

The EPWP focuses on local unemployed people with the intent of making them part of the productive economic sector, assisting them with skills development and increasing their capacity to earn an income. In terms of basic education and training of adults and skills transfer, the WfWetlands Programme has provided 250 000 days of training in vocation and life skills.

The economic data below is based on the 2011 census for Nkonkobe municipality. In 2016 the Nkonkobe and Nxube local municipalities were merged into Raymond Mhlaba Local municipality under the Amathole District. However, at the time of this report, the combined statistics are not yet available.

**Table N: Economic profile of applicable local municipalities**

|                                      | <b>Nkonkobe</b> |
|--------------------------------------|-----------------|
| <b>Population</b>                    |                 |
| Young (0-14)                         | 28.8%           |
| Working age (15-64)                  | 62%             |
| Elderly (65+)                        | 9.2%            |
| Dependency ratio                     | 61.3            |
| <b>Level of education (aged 20+)</b> |                 |
| No schooling                         | 7.2%            |
| Higher education                     | 7.1%            |
| Matric                               | 17 %            |
| <b>Level of Employment (%)</b>       |                 |
| Unemployment rate                    | 48.1%           |
| Youth Unemployment rate              | 59.6%           |
| <b>Economic Profile</b>              |                 |
| No income                            | 18.7%           |
| R1 - R4,800                          | 6,5%            |
| R4,801 - R9,600                      | 8.8%            |
| R9,601 - R19,600                     | 26.4%           |
| R19,601 - R38,200                    | 21.2%           |
| R38,201 - R76,4000                   | 8.1%            |

|                         |      |
|-------------------------|------|
| R76,401 - R153,800      | 5%   |
| R153,801 - R307,600     | 3.1% |
| R307,601 - R614,400     | 1.4% |
| R614,001 - R1,228,800   | 0.3% |
| R1,228,801 - R2,457,600 | 0.1% |
| R2,457,601+             | 0.1% |

Source: [http://www.statssa.gov.za/?page\\_id=993&id=nkonkobe-municipality](http://www.statssa.gov.za/?page_id=993&id=nkonkobe-municipality)

The anticipated benefit of the WfWetlands Programme nationally is presented below in **Table O**.

**Table O: Socio-economic value of the WfWetlands Programme**

| Aspect   | Response                |
|--|-------------------------|
| What is the expected capital value of the activity on completion?  | R 130 000 000           |
| How many new employment opportunities will be created in the development and construction phase of the activity/ies? | ~ 120 <sup>15</sup>     |
| What is the expected value of the employment opportunities during the development and construction phase?            | ~R54.4 million in wages |
| What percentage of this will accrue to previously disadvantaged individuals?   | ~90%                    |

<sup>15</sup> Employment opportunities are created only during the construction phase and for many of the projects there are already EPWP teams (team size averages around 20-35 individuals) working on them. However, Working for Wetland principles ensure that a very large percentage of those employed are from local communities.

## 7 IMPACT ASSESSMENT

The WfWetlands Programme has been rehabilitating wetlands across South Africa since the early 2000s and are considered to be specialists when it comes to working in sensitive wetland environments. Their significant experience and knowledge is actively being transferred to Implementing Agents and Contractors not only verbally by the provincial ASDs, but also through training and the use of important tools such as the Environmental Management Programme (EMPr). It must be noted that the EMPr is considered a living document and is updated on a regular basis to incorporate lessons learned and/or in response to changing environments (legal, biological, etc.). In addition, the requirements of the EMPr are supplemented with site specific mitigation measures, included in the relevant rehabilitation plan, as identified by the wetland specialist and EAP during the Phase 2 planning site visits.

This chapter focuses on the key potential impacts (direct, indirect and cumulative) that have been identified for the WfWetlands Programme over time. For each impact assessed, mitigation measures have been proposed to reduce and/or avoid negative impacts and enhance positive impacts. These mitigation measures are also incorporated into the EMPr to ensure that they are implemented during the planning/pre-construction, construction and operational phases. The EMPr forms part of the BAR (**Appendix D**), and as such its implementation will become a binding requirement should environmental authorisation be received from DEA.

The following subsections assess each impact according to the construction and operational phase in which they are likely to occur. It should be highlighted that this assessment does not consider the decommissioning of the proposed interventions. The purpose of the implementation of a specific intervention is to rehabilitate the affected wetland system and prevent further degradation. Furthermore, many of the soft interventions are made from biodegradable materials (see **Appendix A**). If these begin to degrade, they will not have a negative impact on the system. The hard interventions serve as a more permanent feature within the wetland, as the sensitive environments (which includes dispersive soils in some of them, for example) could be negatively impacted by new soil disturbance activities when removing interventions. Maintenance surveys are undertaken by WfWetlands and if a hard structure should begin to lose its function/ require maintenance, the intervention would be reconsidered either for maintenance, or the need to redesign the structure in response to landscape changes

**Note:** The interventions identified for the proposed rehabilitation project were identified during a screening process that was undertaken to ensure that the most suitable intervention was identified, developed and assessed for each rehabilitation site. During this screening process, the project team also took into account environmental, social and economic considerations, as well as the rehabilitation objectives identified for the wetland.

Should these interventions not be implemented, the current rate of degradation at the assessed wetlands would continue and in some cases even result in the permanent loss of the integrity and functioning of these systems. It would also not be possible to achieve the rehabilitation objectives identified for the wetlands. Without the implementation of wetland rehabilitation as part of the WfWetlands project, the overall programme objectives<sup>16</sup> and the EPWP requirements would not be realised.

**Please note that no roads will be constructed to provide access to wetlands for rehabilitation purposes. Only existing roads will be used.**

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<sup>16</sup> Wetland conservation and poverty reduction through job creation and skills.

## 7.1 CONSTRUCTION PHASE

### 7.1.1 Job creation

| Phase   | Pre-Construction   | Construction           | Operational              | Decommissioning |
|---|--|------------------------|--------------------------|-----------------|
| <b>Impact description</b>   | <p>One of the primary objectives of the WfWetlands Programme is to create jobs and to teach transferrable skills to unemployed members of the local community so that they can be drawn into the permanent job market.</p> <p>The potential impact of this is significant and has a number of indirect positive impacts such as improvement in quality of life of the workers, increased spending in the local economy and the support of small business in the local area.</p> <p>Cumulatively, the impact of the WfWetlands projects is judged to be of high positive significance. The programme has a budget of approximately R130 million per annum, has created in the region of 27 000 jobs and transferred skills to numerous previously unskilled persons.</p> <p>Should the project not be authorised or implemented, the potential jobs would not be created. Where projects already have active teams implementing interventions, this would have a high negative impact as the contractors would not be able to keep their teams busy. Where projects do not have active teams, the impact would however be neutral as the impact would not be worse against the baseline, i.e. jobs would not be taken away, they just would not be created.</p> |                        |                          |                 |
|   | <b>Pre-Mitigation</b>  | <b>Post-Mitigation</b> | <b>No-go Alternative</b> |                 |
| <b>Type</b>   | Neutral  | Neutral                | Neutral                  |                 |
| <b>Extent</b>   | Site Specific  | Site Specific          | Site Specific            |                 |
| <b>Magnitude</b>  | Low  | Low                    | Zero                     |                 |
|   |  |                        | Zero                     |                 |
| <b>Duration</b>   | Long-term  | Long-term              | Long-term                |                 |
| <b>Significance</b>   | <b>MEDIUM (+)</b>  | <b>HIGH (+)</b>        | <b>High (-)</b>          |                 |
|   |  |                        | <b>Neutral</b>           |                 |
| <b>Probability</b>  | Definite   | Definite               | Definite                 |                 |
| <b>Confidence</b>   | Certain  | Certain                | Certain                  |                 |
| <b>Reversibility</b>  | Irreversible   | Irreversible           | Irreversible             |                 |
| <b>Mitigation measures</b>  |  |                        |                          |                 |
| <ul style="list-style-type: none"> <li>Ensure that the required project workers are sourced from local communities and that maximum employment numbers are maintained throughout the project duration.</li> <li>Project implementers to support local businesses (e.g. local quarry owners to obtain rock for gabions) where possible.</li> </ul> |  |                        |                          |                 |



7.1.2 Fire risk

| Phase   | Pre-Construction  | Construction           | Operational              | Decommissioning |
|---|---|------------------------|--------------------------|-----------------|
| <b>Impact description</b>   | <p>Construction usually takes place in the dry months when the danger of veld fires is highest. There is a possibility that construction workers could light a fire on site that could become out of control. The risk of this happening is assessed to be low, although the significance in terms of the economic damage that could be caused is high. Adequate site supervision would considerably mitigate this impact.</p> <p>Fires are part of a natural biophysical cycle in most ecosystems and are therefore likely to still occur without the construction activities of the WfWetlands construction teams taking place.</p> |                        |                          |                 |
|   | <b>Pre-Mitigation</b>   | <b>Post-Mitigation</b> | <b>No-go Alternative</b> |                 |
| <b>Type</b>   | Negative  | Negative               | Negative                 |                 |
| <b>Extent</b>   | Site Specific   | Site Specific          | Site Specific            |                 |
| <b>Magnitude</b>  | Medium  | Low                    | Low                      |                 |
| <b>Duration</b>   | Short-term  | Short-term             | Short-term               |                 |
| <b>Significance</b>   | <b>MEDIUM (-)</b>   | <b>LOW (-)</b>         | <b>NEUTRAL</b>           |                 |
| <b>Probability</b>  | Unlikely  | Unlikely               | Unlikely                 |                 |
| <b>Confidence</b>   | Sure  | Sure                   | Sure                     |                 |
| <b>Reversibility</b>  | Irreversible  | Irreversible           | Irreversible             |                 |
| <b>Mitigation measures</b>  |   |                        |                          |                 |
| <ul style="list-style-type: none"> <li>• Ensure that workers are aware of the potential for fires and the damage that could be caused.</li> <li>• Ensure that a fire response procedure is in place and that all dry season work is organized in liaison with the landowners so that it fits into their firebreak/fire protection programme.</li> </ul> |   |                        |                          |                 |

7.1.3 Nuisance impacts

| Phase                     | Pre-Construction   | Construction           | Operational              | Decommissioning |
|---------------------------|--|------------------------|--------------------------|-----------------|
| <b>Impact description</b> | <p>Construction can result in nuisance impacts, particularly for landowners. These impacts include:</p> <ul style="list-style-type: none"> <li>• Noise from construction activities, personnel and vehicles.</li> <li>• An increase in the amount of litter being generated.</li> <li>• Dust.</li> <li>• Security concerns such as theft or leaving gates open.</li> <li>• Non-use of sanitation facilities.</li> <li>• Temporary loss of access to areas due to construction activities.</li> </ul> <p>Given the isolated working environment (i.e. far from densely settled areas and public routes), the relatively few number of people on site and constant supervision by the project implementer, the above impacts are likely to be of low magnitude.</p> <p>Should the project not be authorised or implemented, no nuisance impacts would occur.</p> |                        |                          |                 |
|                           | <b>Pre-Mitigation</b>  | <b>Post-Mitigation</b> | <b>No-go Alternative</b> |                 |
| <b>Type</b>               | Negative   | Negative               | Neutral                  |                 |
| <b>Extent</b>             | Site Specific  | Site Specific          | Site Specific            |                 |
| <b>Magnitude</b>          | Medium   | Low                    | Zero                     |                 |
| <b>Duration</b>           | Short-term   | Short-term             | Long-term                |                 |
| <b>Significance</b>       | <b>LOW (-)</b>   | <b>VERY LOW (-)</b>    | <b>NEUTRAL</b>           |                 |
| <b>Probability</b>        | Definite   | Definite               | Definite                 |                 |
| <b>Confidence</b>         | Certain  | Certain                | Certain                  |                 |

| Reversibility  | Reversible | Reversible | Reversible |
|--|------------|------------|------------|
| <b>Mitigation measures</b>   |            |            |            |
| <ul style="list-style-type: none"> <li>All site workers to undergo environmental induction training (“toolbox talks”) before undertaking work so that they are aware of the various environmental requirements.</li> <li>Landowners should be consulted regarding the placement of stockpile sites and toilets as well as access routes. This must be indicated on the site camp layout plan.</li> <li>Ensure that closed gates are kept closed. When in doubt, the landowner should be consulted.</li> <li>Follow the EMPr with regard to sanitation facilities, waste management, noise and site management</li> <li>Utilise local labour wherever possible to reduce potential friction within the community caused by bringing outside personnel in.</li> <li>Ensure that all workers wear the yellow/blue attire indicative of WfWetlands personnel so that they are not mistaken for trespassers.</li> </ul> |            |            |            |

7.1.4 Heritage resources

| Phase  | Pre-Construction   | Construction           | Operational              | Decommissioning |
|--|--|------------------------|--------------------------|-----------------|
| <b>Impact description</b>  | <p>The proposed interventions mainly consist of soil berms across drainage channels to raise the watertable to restore the wetland hydrology. A small number of weirs are however also required in erosion dongas to prevent continued erosion of the wetland. For these weirs, the contractors will be required to undertake excavation activities (by hand) up to a maximum depth of 2.7m (depending on the depth of the erosion donga). The maximum excavation depth is limited to the outer sections of the key walls and decreases towards the centre of the erosion channel. As a rule, should any bedrock be uncovered during excavations, the foundation of the relevant intervention will be revised to avoid removal/ disturbance thereof.</p> <p>No significant heritage resources within the wetlands were identified during interactions with I&amp;APs or the planning site visit for the proposed projects.</p> <p>Given the low likelihood of heritage sites being disturbed and provided that construction is immediately stopped should a heritage resource be encountered then the magnitude of this impact should be neutral.</p> <p>Should the interventions not be implemented, natural weathering would still occur. However, given the low potential of heritage resources in the area, this is anticipated to remain neutral for the no-go alternative.</p> |                        |                          |                 |
|  | <b>Pre-Mitigation</b>  | <b>Post-Mitigation</b> | <b>No-go Alternative</b> |                 |
| <b>Type</b>  | Negative   | Negative               | Negative                 |                 |
| <b>Extent</b>  | Site Specific  | Site Specific          | Site Specific            |                 |
| <b>Magnitude</b>   | Medium   | Zero                   | Zero                     |                 |
| <b>Duration</b>  | Long-term  | Long-term              | Long-term                |                 |
| <b>Significance</b>  | <b>LOW (-)</b>   | <b>NEUTRAL</b>         | <b>NEUTRAL</b>           |                 |
| <b>Probability</b>   | Probable   | Probable               | Probable                 |                 |
| <b>Confidence</b>  | Sure   | Sure                   | Sure                     |                 |
| <b>Reversibility</b>   | Irreversible   | Irreversible           | Irreversible             |                 |
| <b>Mitigation measures</b>   |  |                        |                          |                 |
| <ul style="list-style-type: none"> <li>Should any heritage resource or suspected resources be identified during the Phase 2 planning site visit, a suitably qualified heritage specialist shall be consulted.</li> <li>Should any artefact or suspected artefact (including fossils and grave sites), or any site of cultural significance be encountered during construction, then the Contractor must immediately stop work in the vicinity of the artefact and alert the relevant authorities. The area around the discovery shall be cordoned off until such time that work is authorised to proceed.</li> </ul> |  |                        |                          |                 |

7.1.5 Worker and livestock safety

| Phase  | Pre-Construction  | Construction           | Operational              | Decommissioning |
|--|---|------------------------|--------------------------|-----------------|
| <b>Impact description</b>  | <p>Alien clearing requires very specific training and involves high risk equipment such as chainsaws. It sometimes involves large trees and therefore extreme caution needs to be exercised.</p> <p>The wetlands are in communal areas, so the livestock wander around. Safety measures need to be implemented to prevent them from being injured e.g. falling into an excavation</p> |                        |                          |                 |
|  | <b>Pre-Mitigation</b>   | <b>Post-Mitigation</b> | <b>No-go Alternative</b> |                 |
| <b>Type</b>  | Negative  | Negative               | Negative                 |                 |
| <b>Extent</b>  | Site Specific   | Site Specific          | Site Specific            |                 |
| <b>Magnitude</b>   | Medium  | Low                    | Zero                     |                 |
| <b>Duration</b>  | Long-term   | Long-term              | Long-term                |                 |
| <b>Significance</b>  | <b>MEDIUM (-)</b>   | <b>LOW (-)</b>         | <b>NEUTRAL</b>           |                 |
| <b>Probability</b>   | Definite  | Definite               | Definite                 |                 |
| <b>Confidence</b>  | Certain   | Certain                | Certain                  |                 |
| <b>Reversibility</b>   | Irreversible  | Irreversible           | Irreversible             |                 |
| <b>Mitigation measures</b>   |   |                        |                          |                 |
| <ul style="list-style-type: none"> <li>All site workers to undergo specific safety training before undertaking this work so that they are aware of the various risks and measures to be taken in emergency situations.</li> <li>Where required, security teams must be provided to protect the teams on site.</li> <li>Follow Occupational Health and Safety requirements.</li> <li>Personal Protective Equipment (PPE) shall be worn at all times on site.</li> <li>Inform community of work commencement where required for livestock to be monitored</li> </ul> |   |                        |                          |                 |

7.1.6 Flora and fauna

| Phase                     | Pre-Construction   | Construction           | Operational              | Decommissioning |
|---------------------------|--|------------------------|--------------------------|-----------------|
| <b>Impact description</b> | <p><u>Habitat disturbance</u><br/>Habitat disturbance during the construction stage is typically temporary. In addition most species are relatively tolerant of disturbance and would be able to utilise the similar alternative habitat available in the study area. The area of habitat loss is also likely to be small and limited to the immediate surroundings of the intervention being constructed.</p> <p><u>Disturbance of protected species</u><br/>Construction activities could potentially result in disturbance to habitats required by protected species. However, as above, disturbance is temporary and nearby, similar habitat is available. Almost complete mitigation is also possible by liaising with the appropriate conservation bodies whose local representatives can advise on appropriate measures and construction timeframes.</p> <p><u>Alien species invasion</u><br/>A potential construction-related impact on vegetation is the possibility of an increase in alien invasive species due to disturbance and weed seeds being brought in with borrow and construction material. Very little borrow material will however be brought in.</p> |                        |                          |                 |
|                           | <b>Pre-Mitigation</b>  | <b>Post-Mitigation</b> | <b>No-go Alternative</b> |                 |
| <b>Type</b>               | Negative   | Negative               | Negative                 |                 |
| <b>Extent</b>             | Site Specific  | Site Specific          | Site Specific            |                 |
| <b>Magnitude</b>          | Medium   | Low                    | Low                      |                 |
| <b>Duration</b>           | Long-term  | Long-term              | Long-term                |                 |

| Significance  | MEDIUM (-)   | LOW (-)      | MEDIUM (-)   |
|---|--------------|--------------|--------------|
| Probability   | Definite     | Definite     | Likely       |
| Confidence  | Certain      | Certain      | Sure         |
| Reversibility   | Irreversible | Irreversible | Irreversible |
| <b>Mitigation measures</b>  |              |              |              |
| <ul style="list-style-type: none"> <li>Should any protected species need to be removed or relocated, e.g. indigenous tree ferns, the appropriate permits shall be required. These activities shall take place under strict guidance from the ASD and/or appropriate authority.</li> <li>Should any protected species occur on site, the ASD and project manager or implementer must liaise prior to site establishment with the relevant conservation body to determine measures required during the construction period to limit potential disturbances to protected species.</li> <li>Implement the provisions of the EMPr regarding stockpiling borrowed material and rehabilitation after construction</li> </ul> |              |              |              |

7.1.7 Aquatic ecosystems

| Phase                     | Pre-Construction   | Construction  | Operational            | Decommissioning |                          |
|---------------------------|--|---------------|------------------------|-----------------|--------------------------|
| <b>Impact description</b> | <p><u>Temporary alteration to stream flow patterns</u><br/>Construction must often take place in areas that are permanently wet. This requires that water be diverted away from working areas, leading to temporary alterations in the current drainage characteristics. Water diversion is typically done using sand bags to slow/block flow and then a pump to remove water and discharge it further downstream. This can result in a slight drying in the working areas and may affect aquatic organisms. This will however be of a temporary nature and is unlikely to significantly alter flow patterns.</p> <p><u>Sedimentation</u><br/>Construction activities can result in additional sediment ending up in the water course (e.g. due to earthworks or breakage of sandbags used to divert water away from working areas). Sediment can result in silt build-up downstream, increase the turbidity of the water and result in habitat changes. However, as wetlands are typically low-energy systems, much of the excess sediment is likely to be trapped before it is washed far downstream. Also, given the limited nature of the earthworks, sedimentation is not anticipated to occur to a significant degree.</p> <p><u>Pollution of water-courses</u><br/>Construction activities close to a water-course/wetland carry the attendant risk that construction-related pollutants could end up in the wetland system. Typical pollutants include hydrocarbons (e.g. from fuel leaks, shutter oil and lubricating fluid spills), litter, cement and contaminated wash-down water.</p> <p><u>Disturbance of wetland vegetation and stream banks</u><br/>Some disturbance to stream banks and wetland vegetation will be inevitable in order to construct the proposed interventions. This impact generally occurs on a small scale and can be mitigated via good management practices.<br/>Pursuing the no-go option would result in the current negative ecosystem impacts continuing. These impacts would include desiccation, erosion, channel incision, etc.</p> |               |                        |                 |                          |
|                           | <b>Pre-Mitigation</b>  |               | <b>Post-Mitigation</b> |                 | <b>No-go Alternative</b> |
|                           | Type   | Negative      | Negative               | Negative        | Negative                 |
|                           | Extent   | Site Specific | Site Specific          | Site Specific   | Site Specific            |
|                           | Magnitude  | Medium        | Low                    | Medium          | Medium                   |
| Duration                  | Long-term  | Long-term     | Long-term              | Long-term       |                          |
| Significance              | MEDIUM (-)   | LOW (-)       | MEDIUM (-)             | MEDIUM (-)      |                          |

|  |              |              |              |
|--|--------------|--------------|--------------|
| <b>Probability</b>   | Definite     | Definite     | Definite     |
| <b>Confidence</b>  | Certain      | Certain      | Certain      |
| <b>Reversibility</b>   | Irreversible | Irreversible | Irreversible |
| <b>Mitigation measures</b>   |              |              |              |
| <ul style="list-style-type: none"> <li>• Work shall predominantly take place during low rainfall periods.</li> <li>• No foreign vegetation matter (e.g. mulch) shall be allowed on site (especially from alien species).</li> <li>• Soils shall be stockpiled according to the different soil layers as per the soil profile in order not to mix layers of leached and organic soils.</li> <li>• Stockpiles and revegetated areas shall be covered with mulch or cloth (geotextile) and kept moist.</li> <li>• Implement the provisions of the EMPr regarding stockpile location and site management.</li> <li>• Sandbags used to temporarily divert water shall be in a good condition to prevent additional sedimentation and/ or failure.</li> <li>• Sand/ earth to fill the bags shall be obtained from and returned to existing excavation points where feasible.</li> <li>• Soil required for the construction of interventions shall be stabilised as per the engineer's recommendations to counteract dispersive tendencies.</li> <li>• Water abstracted above the General Authorization limits must be authorized by DWS prior to such abstraction taking place.</li> </ul> |              |              |              |

**7.1.8 Sourcing borrow material**

| Phase   | Pre-Construction   | Construction           | Operational              | Decommissioning |
|---|--|------------------------|--------------------------|-----------------|
| <b>Impact description</b>   | <p>Borrow material (earth and rocks) is not always readily available on site, and has to be sourced elsewhere. This can have a negative biophysical impact on the area where it is sourced.</p> <p>The quantities required are not such that they require a borrow pit licence. Costs increase the further one gets from site and therefore borrow material is sourced as close to site as possible. Sources include existing borrow areas on neighbouring farms, decommissioned dam walls, man-made berms which are no longer required.</p> <p>Should the borrow material not be required, the potential impact would be neutral.</p> |                        |                          |                 |
|   | <b>Pre-Mitigation</b>  | <b>Post-Mitigation</b> | <b>No-go Alternative</b> |                 |
| <b>Type</b>   | Negative   | Negative               | Negative                 |                 |
| <b>Extent</b>   | Site Specific  | Site Specific          | Site Specific            |                 |
| <b>Magnitude</b>  | Medium   | Low                    | Zero                     |                 |
| <b>Duration</b>   | Long-term  | Long-term              | Long-term                |                 |
| <b>Significance</b>   | <b>LOW (-)</b>   | <b>VERY LOW (-)</b>    | <b>NEUTRAL</b>           |                 |
| <b>Probability</b>  | Definite   | Definite               | Definite                 |                 |
| <b>Confidence</b>   | Certain  | Certain                | Certain                  |                 |
| <b>Reversibility</b>  | Irreversible   | Irreversible           | Irreversible             |                 |
| <b>Mitigation measures</b>  |  |                        |                          |                 |
| <ul style="list-style-type: none"> <li>• Implement the provisions of the EMPr.</li> <li>• Any quantities in excess of the minimum requirements for a borrow pit licence will require authorisation through Department of Mineral Resources.</li> <li>• Borrow areas will need to be properly re-sloped and re-vegetated after use.</li> </ul> |  |                        |                          |                 |

## 7.2 OPERATIONAL PHASE

### 7.2.1 Changes in land use

| Phase   | Pre-Construction  | Construction           | Operational              | Decommissioning |
|---|---|------------------------|--------------------------|-----------------|
| <b>Impact description</b>   | <p>The increase in wetland area may have both positive and negative impacts for the community. Wetlands are often utilised for grazing during the dry season and an increase in wetland area will thus improve grazing conditions. However the increase in wet areas may also make previously accessible areas inaccessible. The extent and magnitude of this impact will depend to a large degree on how much value the community places on wetland conservation. The community has however already been engaged and has indicated that they are in support of the project, which indicates they see the value in the WfWetlands Programme and are willing to accept the increase in wetland area.</p> <p>Potential positive impacts associated with increased wetland area and improved grazing conditions would not be realised should rehabilitation activities not be implemented. Furthermore, drained wetlands are often more susceptible to erosion, resulting in the removal of fertile topsoil and thereby reducing the agricultural potential of the site.</p> |                        |                          |                 |
|   | <b>Pre-Mitigation</b>   | <b>Post-Mitigation</b> | <b>No-go Alternative</b> |                 |
| <b>Type</b>   | Positive and Negative   | Positive and Negative  | Negative                 |                 |
| <b>Extent</b>   | Site Specific   | Site Specific          | Site Specific            |                 |
| <b>Magnitude</b>  | Low   | Low                    | Low                      |                 |
| <b>Duration</b>   | Long-term   | Long-term              | Long-term                |                 |
| <b>Significance</b>   | <b>LOW (+)</b>  | <b>LOW (+)</b>         | <b>NEUTRAL</b>           |                 |
| <b>Probability</b>  | Definite  | Definite               | Likely                   |                 |
| <b>Confidence</b>   | Certain   | Certain                | Sure                     |                 |
| <b>Reversibility</b>  | Irreversible  | Irreversible           | Irreversible             |                 |
| <b>Mitigation measures</b>  |   |                        |                          |                 |
| <ul style="list-style-type: none"> <li>• Ensure good access for the community and their livestock in the form of crossing points, where such measures should be of the lowest impact type and design possible.</li> <li>• Provision of watering points for stock to minimise extensive trampling in the wetlands (especially in the wetter times of year).</li> </ul> |   |                        |                          |                 |

### 7.2.2 Increased water storage and reduced treatment costs

| Phase                     | Pre-Construction   | Construction | Operational | Decommissioning |
|---------------------------|--|--------------|-------------|-----------------|
| <b>Impact description</b> | <p>Wetlands can offer valuable stream flow regulation and filtration services. By restoring wetland area, it is likely that downstream users will benefit by having a more reliable and possibly cleaner source of water. In addition, by addressing erosion, wetland rehabilitation can decrease the amount of sediment downstream. This can help to reduce water treatment costs for downstream users and will also reduce the sedimentation of downstream water storage facilities such as dams.</p> <p>The no-go alternative would mean that the positive impacts identified above would not be realised. In addition, the water retention and storage potential of the system and catchment would continue to decrease, and sedimentation of dams increase.</p> |              |             |                 |

|   | Pre-Mitigation    | Post-Mitigation   | No-go Alternative |
|---|-------------------|-------------------|-------------------|
| <b>Type</b>   | Positive          | Positive          | Negative          |
| <b>Extent</b>   | Local             | Local             | Local             |
| <b>Magnitude</b>  | Low               | Medium            | Low               |
| <b>Duration</b>   | Long-term         | Long-term         | Long-term         |
| <b>Significance</b>   | <b>MEDIUM (+)</b> | <b>MEDIUM (+)</b> | <b>MEDIUM (-)</b> |
| <b>Probability</b>  | Definite          | Definite          | Definite          |
| <b>Confidence</b>   | Certain           | Certain           | Certain           |
| <b>Reversibility</b>  | Irreversible      | Irreversible      | Irreversible      |
| <b>Mitigation measures</b>  |                   |                   |                   |
| <ul style="list-style-type: none"> <li>No mitigation measures are proposed</li> </ul> |                   |                   |                   |

### 7.2.3 Reduced soil erosion

| Phase   | Pre-Construction   | Construction      | Operational       | Decommissioning |
|---|--|-------------------|-------------------|-----------------|
| <b>Impact description</b>   | <p>By reducing exposed ground surfaces and surface runoff velocity, the sediment load in surface runoff is reduced, thereby contributing to better water quality in the sub-catchment area. Erosion is already a considerable problem in the general area (mostly due to overgrazing) and a number of erosion features are present in the wetlands. As the wetlands are in the headwaters of the catchment, stabilising these erosion features will have a significant positive impact not only in the wetland, but also downstream.</p> <p>If the proposed interventions are not implemented, erosion would continue and even accelerate over time. This would reduce the agricultural potential of farmland, and contribute to sedimentation of watercourses and dams.</p> |                   |                   |                 |
|   | Pre-Mitigation   | Post-Mitigation   | No-go alternative |                 |
| <b>Type</b>   | Positive   | Positive          | Negative          |                 |
| <b>Extent</b>   | Local  | Local             | Local             |                 |
| <b>Magnitude</b>  | Medium   | Low               | Medium            |                 |
| <b>Duration</b>   | Long-term  | Long-term         | Long-term         |                 |
| <b>Significance</b>   | <b>MEDIUM (+)</b>  | <b>MEDIUM (+)</b> | <b>MEDIUM (-)</b> |                 |
| <b>Probability</b>  | Definite   | Definite          | Definite          |                 |
| <b>Confidence</b>   | Certain  | Certain           | Certain           |                 |
| <b>Reversibility</b>  | Irreversible   | Irreversible      | Irreversible      |                 |
| <b>Mitigation measures</b>  |  |                   |                   |                 |
| <ul style="list-style-type: none"> <li>Increasing the community awareness will increase the knowledge of land management and overgrazing</li> </ul> |  |                   |                   |                 |

### 7.2.4 Employment opportunities

| Phase                     | Pre-Construction   | Construction | Operational | Decommissioning |
|---------------------------|--|--------------|-------------|-----------------|
| <b>Impact description</b> | <p>Ideally, the skills learned by the project team during the construction phase – such as how to work with concrete, build gabions etc. – can be used to assist them to find permanent employment.</p> <p>If the interventions are not implemented, and the teams are not provided with these skills, the impact will be neutral as there will be no change to the <i>status quo</i>.</p> |              |             |                 |

|   | Pre-Mitigation | Post-Mitigation   | No-go Alternative |
|---|----------------|-------------------|-------------------|
| <b>Type</b>   | Positive       | Positive          | Negative          |
| <b>Extent</b>   | Site Specific  | Site Specific     | Site Specific     |
| <b>Magnitude</b>  | Low            | Medium            | Zero              |
| <b>Duration</b>   | Long-term      | Long-term         | Long-term         |
| <b>Significance</b>   | <b>LOW (+)</b> | <b>MEDIUM (+)</b> | <b>NEUTRAL</b>    |
| <b>Probability</b>  | Definite       | Definite          | Definite          |
| <b>Confidence</b>   | Certain        | Certain           | Certain           |
| <b>Reversibility</b>  | Irreversible   | Irreversible      | Irreversible      |
| <b>Mitigation measures</b>  |                |                   |                   |
| <ul style="list-style-type: none"> <li>No mitigation measures are proposed</li> </ul> |                |                   |                   |

### 7.2.5 Public safety

| Phase   | Pre-Construction  | Construction    | Operational       | Decommissioning |
|---|---|-----------------|-------------------|-----------------|
| <b>Impact description</b>   | <p>Interventions such as gabion weirs, for example, could potentially be used as a swimming hole or for stream crossings by local communities and their livestock which could potentially have serious health and safety risks. Specific interventions have been provided for livestock and community crossings.</p> <p>It is possible that even if the interventions are not implemented, the individuals who might be at risk from the use of the wetlands would still be at risk in degraded wetlands. The community will also not be provided with more secure crossing places.</p> |                 |                   |                 |
|   | Pre-Mitigation  | Post-Mitigation | No-go Alternative |                 |
| <b>Type</b>   | Negative  | Positive        | Negative          |                 |
| <b>Extent</b>   | Site Specific   | Site Specific   | Site Specific     |                 |
| <b>Magnitude</b>  | Medium  | Low             | Medium            |                 |
| <b>Duration</b>   | Long-term   | Long-term       | Long-term         |                 |
| <b>Significance</b>   | <b>MEDIUM (-)</b>   | <b>LOW (-)</b>  | <b>MEDIUM (-)</b> |                 |
| <b>Probability</b>  | Definite  | Definite        | Likely            |                 |
| <b>Confidence</b>   | Certain   | Certain         | Certain           |                 |
| <b>Reversibility</b>  | Irreversible  | Irreversible    | Irreversible      |                 |
| <b>Mitigation measures</b>  |   |                 |                   |                 |
| <ul style="list-style-type: none"> <li>Consult with landowners and the local community to ensure that they are aware of, and educated in, the ecological values and sensitivity of the wetland environments, as well as the exact location of the intervention structures to be implemented.</li> </ul> |   |                 |                   |                 |

### 7.2.6 Ecosystem functioning

| Phase                     | Pre-Construction  | Construction | Operational | Decommissioning |
|---------------------------|---|--------------|-------------|-----------------|
| <b>Impact description</b> | <p><u>Restoring wetland corridors</u></p> <p>In areas where wetlands have been artificially drained, restoration can result in the re-wetting of areas and link up previously wet areas, thus creating and extending a network of wetland areas. These wetland corridors can provide valuable refuges for wetland species and allow for greater ecosystem connectivity.</p> <p><u>Changes in water quality and quantity</u></p> <p>More natural stream flow patterns within the wetland, as well as an improvement in water quality and quantity (due to improved ecosystem services) can be expected after rehabilitation. This improvement in water quality and a more reliable supply of water is particularly important given the water scarcity that faces South Africa.</p> |              |             |                 |



|  |  |                        |                           |
|--|--|------------------------|---------------------------|
|  | Should the proposed interventions not be implemented, the wetland systems selected as priority wetlands for rehabilitation, would continue to degrade. This degradation would lead to a loss in ecosystem services, and could result in large downstream impacts such as flooding. |                        |                           |
|  | <b>Pre-Mitigation</b>  | <b>Post-Mitigation</b> | <b>No-go Alternatives</b> |
| <b>Type</b>  | Positive   | Positive               | Negative                  |
| <b>Extent</b>  | Site Specific  | Site Specific          | Site Specific             |
| <b>Magnitude</b>   | Medium   | Low                    | Medium                    |
| <b>Duration</b>  | Long-term  | Long-term              | Long-term                 |
| <b>Significance</b>  | <b>MEDIUM (+)</b>  | <b>HIGH (+)</b>        | <b>MEDIUM (-)</b>         |
| <b>Probability</b>   | Definite   | Definite               | Likely                    |
| <b>Confidence</b>  | Certain  | Certain                | Sure                      |
| <b>Reversibility</b>   | Irreversible   | Irreversible           | Irreversible              |
| <b>Mitigation measures</b>   |  |                        |                           |
| <ul style="list-style-type: none"> <li>No mitigation measures are proposed.</li> </ul> |  |                        |                           |

7.2.7 Flora and fauna

| Phase                     | Pre-Construction   | Construction           | Operational              | Decommissioning |  |
|---------------------------|--|------------------------|--------------------------|-----------------|--|
| <b>Impact description</b> | <p><u>Increased habitat</u><br/>Increasing the wetland area through rehabilitation will result in an increase in habitat for wetland-dependent species. This is a positive impact, especially in light of the fact that a number of the Eastern Cape wetlands are utilised by the vulnerable and endangered species such as the Amatola Toad and crowned cranes</p> <p><u>Increased biodiversity</u><br/>A large proportion of the natural vegetation in the greater area has already been lost to forestry and agriculture. Restoring wetland habitat will help to increase the species richness of the overall area by encouraging the re-establishment of wetland species.</p> <p><u>Change in species composition</u><br/>In wetlands that have been subject to desiccation, plants that are tolerant of drier conditions are likely to have become established. With the restoration of the wetland, these species are likely to be replaced with wetland-adapted vegetation. This change in composition reflects a shift back to historical species composition and is thus considered positive.</p> <p>Should the interventions not be implemented, the positive benefits described above would not be realised. The fauna and flora would respond to the wetland degrading, which would likely result in a loss of biodiversity.</p> <p>The no-go alternative would mean that the positive impacts identified above would not be realised. Continued wetland degradation and habitat loss is likely to result in exponential increase in the significance of the no-go alternative, leading to an eventual loss of biodiversity and disruption of floral and faunal ecosystems. In addition, it would also negatively affect the achievement of conservation objectives for the area</p> |                        |                          |                 |  |
|                           | <b>Pre-Mitigation</b>  | <b>Post-Mitigation</b> | <b>No-go Alternative</b> |                 |  |
|                           | <b>Type</b>  | Positive               | Positive                 | Negative        |  |
|                           | <b>Extent</b>  | Site Specific          | Site Specific            | Site Specific   |  |
|                           | <b>Magnitude</b>   | Medium                 | Low                      | Medium          |  |
| <b>Duration</b>           | Long-term  | Long-term              | Long-term                |                 |  |

| Significance   | MEDIUM (+)   | MEDIUM (+)   | NEUTRAL      |
|--|--------------|--------------|--------------|
| Probability  | Definite     | Definite     | Definite     |
| Confidence   | Certain      | Certain      | Certain      |
| Reversibility  | Irreversible | Irreversible | Irreversible |
| <b>Mitigation measures</b>   |              |              |              |
| <ul style="list-style-type: none"> <li>• <b>Note:</b> The interventions identified for the proposed rehabilitation project were identified during a screening process that was undertaken to ensure that the most suitable intervention was identified, developed and assessed for each rehabilitation site. During this screening process the project team also took into account environmental, social and economic considerations, as well as the rehabilitation objectives identified for the wetland.</li> <li>• Should these interventions not be implemented, the current rate of degradation at the assessed wetlands would continue and in some cases even result in the permanent loss of the integrity and functioning of these systems. It would also not be possible to achieve the rehabilitation objectives identified for the wetlands. Without the implementation of wetland rehabilitation as part of the WfWetlands project, the overall programme objectives and the EPWP requirements would not be realised.</li> <li>• No mitigation measures are proposed.</li> </ul> |              |              |              |

## 8 INCLUSION AND WAY FORWARD

### 8.1 Conclusion

Based on the above, it is the opinion of the EAP that the positive long-term bio-physical and socio-economic aspects of the project as a whole greatly outweigh the minor negative construction related impacts, particularly since effective mitigation measures to reduce the negative impacts exist. There are no indications to suggest that the preferred alternative will have a significant detrimental impact on the environment. Instead, a long-term positive impact is anticipated. This is discussed in further detail below:

#### Construction Phase:

It is most likely that all identified construction related impacts would be limited to the duration of this phase. Impacts on the bio-physical environment are generally considered to be of **Medium (-)** to **Low (-)** significance, which can be reduced to **Low (-)** and **Very Low (-)** with the implementation of appropriate mitigation measures. Construction related impacts can generally be very effectively managed through the implementation and regular auditing of an EMP. Given that no significant heritage resources have been found for these project sites to date, the anticipated impact on heritage resources is **Low (-)** which can be mitigated to **Neutral**. The impact on the socio-economic environment is expected to be **Medium to High (+)** due largely to the creation of jobs and up-skilling of local workers.

#### Operational Phase:

Potential Operational Phase related impacts for both the bio-physical and socio-economic environments are generally considered to be of **Medium to High (+)** significance. These positive impacts are expected to arise due to the following:

- Improved wetland habitat for red data species;
- Improved wetland services (which has benefits for downstream as well as local users); and
- Empowering of the local community.

The impacts detailed above in **Chapter 7** are summarised below in **Table P**.

Table P: Impact summary table

| COLOUR KEY                                |                        |                 |            |
|---|------------------------|-----------------|------------|
| High Negative                             | Red                    | Neutral         | White      |
| Medium Negative                           | Orange                 | Low Positive    | Light Blue |
| Low Negative                              | Yellow                 | Medium Positive | Blue       |
| Very Low Negative                         | Light Yellow           | High Positive   | Green      |
| Construction Phase: Description of Impact | Significance of Impact |                 |            |
|   | Preferred Alternative  |                 | No-Go      |
|   | No Mitigation          | With mitigation |            |
| Job creation                              | Medium (+)             | High (+)        | Neutral    |
| Fire risk                                 | Medium (-)             | Low (-)         | Neutral    |
| Nuisance impacts                          | Low (-)                | Very Low (-)    | Neutral    |
| Impact on heritage resources              | Low (-)                | Neutral         | Neutral    |
| Worker safety                             | Medium (-)             | Low (-)         | Neutral    |
| Flora and fauna                           | Medium (-)             | Low (-)         | Medium (-) |
| Aquatic ecosystem impacts                 | Medium (-)             | Low (-)         | Medium (-) |
| Sourcing borrow material                  | Low (-)                | Very Low (-)    | Neutral    |
| Operational Phase: Description of Impact  |                        |                 |            |
| Changes in land use                       | Low (+)                | Low (+)         | Neutral    |
| Water storage and treatment cost          | Medium (+)             | Medium (+)      | Medium (-) |
| Employment                                | Medium (+)             | Medium (+)      | Neutral    |
| Soil Erosion                              | Medium (+)             | Medium (+)      | Medium (-) |
| Ecosystem functioning                     | Medium (+)             | High (+)        | Medium (-) |
| Flora and fauna                           | Medium (+)             | Medium (+)      | Neutral    |
| Reduced soil erosion                      | Medium (+)             | Medium (+)      | Medium (-) |
| Public safety                             | Medium (+)             | Low (-)         | Medium (-) |

## 8.2 Level of Confidence in Assessment and Recommendation of the EAP

Based on the information provided in this report, the outcome of the impact assessment and the supporting documentation it is the recommendation of the EAP that authorisation be granted for the following reasons:

- a) The proposed rehabilitation activities are likely to have significant positive bio-physical and socio-economic benefits, not just for the local community but – as a cumulative part of the WforWet programme – for the whole country.
- b) Effective mitigation measures exist to manage the limited negative impacts that were identified.
- c) The proposed rehabilitation activities are in line with the principles of NEMA (in particular: people and their needs – particularly women and children – are placed at the forefront of development via the EPWP; the development can be considered to be socially, environmentally and economically sustainable; the environmental impacts of the activity are not unfairly distributed and the potential environmental impacts have been assessed and evaluated).
- d) The WfWetlands Programme is an important part of the government's EPWP and given that the impacts of the proposed activities are not likely to be detrimental to the environment, this programme should be supported in the spirit of co-operative governance.

It is recommended that the following conditions should be included by the Department of Environmental Affairs in the Environmental Authorisation (should a positive decision be reached):

- Mitigation measures listed in this BAR should be referenced as conditions of approval.
- Construction activities must take place in accordance to the requirements of the attached EMPr, which also includes general requirements from the WfWetlands Best Management Practices Plan.
- Regular auditing of the EMPr must take place.

With regards to period for which the EA would be required, a validity period of 5 years is requested to allow for the implementation of the rehabilitation plan over multiple years – depending on the availability of budget.

Please find a signed EAP declaration signed in **Appendix E**.

## 8.3 Way Forward

The work proposed in the above-mentioned wetland systems are further detailed in a project specific Rehabilitation Plan, consisting of work that is planned for the following years' implementation cycle.

Each Rehabilitation Plan include a detailed description of the wetland system, the problems affecting the wetland as well as the proposed rehabilitation strategy. Input into this report is provided by the project engineer, wetland specialist, EAP, and WfWetlands ASD. The Rehabilitation Plan also include the engineering drawings and bill of quantities of the specific intervention planned to address the site-specific issue.

A general Environmental Management Programme (EMPr) (**Appendix D**) is included in both the BAR and Rehabilitation Plan and provides a set of guidelines and requirements for the implementing teams to ensure that each intervention does not do unnecessary harm to the environment. Where site-specific mitigation measures are required, these are included in the intervention booklets provided as an annexure to the Rehabilitation Plan.

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- IDP 2017: Amathole District Municipality: Integrated Development Plan 2018/2019
- Department of Water Affairs and Forestry. 2004. Internal Strategic Perspective for the Amatola - Kei Catchment Area of the Mzimvubu To Keiskamma WMA (WMA 12), August 2004 [Section 1-5]: <http://www.dwaf.gov.za/Documents/Other/WMA/12/AmatoleKeilSPAug04Exec.pdf>

# **Appendix A**

## **ENGINEERING BOOKLET**

# Working for Wetlands: Examples of Interventions





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## 1 INTRODUCTION

Each year during a Phase 2 planning site visit, a team consisting of an Engineer, a Wetland Specialist, the Working for Wetlands Provincial Coordinator and an Environmental Assessment Practitioner (EAP) plan a series of interventions to rehabilitate a priority wetland. These interventions are selected in a methodological manner, to specifically use the knowledge of the catchment to address the identified wetland problems.

The purpose of this document is to provide an overview of the typical interventions that are designed for the Working for Wetlands Programme. The site-specific details and drawings of the proposed interventions for each planning year will be included in the project rehabilitation plans, which shall be approved by the Department of Environmental Affairs prior to any construction commencing.

## 2 PROCESS FOR SELECTION

The choice of the combination of the most appropriate interventions necessary to achieve a certain rehabilitation objective is a rigorous exercise, and the decision is informed by several criteria.

- **Environmental** – E.g. Hydrology, geology and soils, seasonal influences, vegetation and site-specific constraints;
- **Engineering** – E.g. Biophysical aspects, risk and liability, construction material selection;
- **Social** – E.g. Labour quota requirements, health and safety, availability of materials, skills levels and opportunity for skills development; and
- **Rehabilitation objective(s)** – E.g. Stabilisation of head-cuts and erosion gullies, elevation of water table, eco-services, biodiversity value, sediment trapping eradication of problem species (among others), etc.

From these criteria, the choice is then made to implement either a “hard” or “soft” intervention. Hard engineering intervention may include, for example:

- Earth berms or gabion systems to block artificial channels that drain water from or divert polluted water to the wetland;
- Concrete and gabion weirs to act as settling ponds, to reduce flow velocity or to re-disperse water across former wetland areas thereby re-establishing natural flow paths;
- Earth or gabion structure plugs to raise channel floors and reduce water velocity;
- Concrete or gabion structures to stabilise head-cut or other erosion and prevent gullies;
- Concrete and/or reno mattress strips as road crossings to address channels and erosion in wetlands from vehicles; and
- Gabion structures (mattresses, blankets or baskets) to provide a platform for the growth of desired wetland vegetation.

Soft engineering interventions are often used together with the hard engineering interventions and could include, for example:

- The use of biodegradable or natural soil retention systems such as eco-logs, MacMat-R plant plugs, grass or hay bales, and brush-packing techniques;
- The re-vegetation of stabilised areas with appropriate wetland and riparian plant species;
- Alien invasive plant clearing, which is an important part of wetland rehabilitation (this is supported by the Working for Water Programme).
- The fencing off of sensitive areas within the wetland to keep grazers out and to allow for the re-establishment of vegetation;

- In some instances, the use of appropriate fire management and burning regimes. The removal of undesirable plant and animal species; and

Typical interventions are further described in the following section, and typical engineering drawings are included in Appendix A1.

### 3 TYPICAL INTERVENTIONS

#### 3.1 Weirs

A dam-type structure placed across a watercourse. Weirs are used to address head-cut and/ or channel erosion by trapping sediment and raising the local water table to encourage overland flow (i.e. rewetting a wetland).

##### 3.1.1 Concrete weirs

Concrete is used to construct weirs in high energy areas, such as active headcuts. They are impermeable and effectively trap sediment as well as water, reducing the flow velocity. For this reason, they are also used to raise the local water table. Selection of this intervention depends on the availability of appropriate foundation material and the volume of water moving through the wetland catchment. The construction of concrete weirs also provides an opportunity for skills transfer and development.



##### 3.1.2 Stone masonry weirs

Stone masonry structures are built using an option similar to brickwork. Individual stones are used to build a solid structure using a mixture of cement and sand as the bonding mortar between them. The use of these, as any other hard structure, should be considered in cases where the desired outcomes require the strength of concrete, while at the same time a rougher finish to the surface of the structure or a more natural appearance is desired.



##### 3.1.3 Gabion weirs

Gabion weirs comprise packed stone or rock in wire baskets. The configuration of the gabion baskets can result in the structure performing a similar function to a concrete or stone masonry weir in trapping sediment and reducing flow-velocities. Although gabion basket is permeable and allows for a measure of water to pass through the structure. Vegetation and other biota can also establish in/around the habitat they create. The construction of gabion weirs is more labour intensive than concrete weirs and thus favoured where site conditions are suitable. Some negative aspects associated with gabions: rock is not always readily available, they are vulnerable to vandalism and corrosive elements in some waters; and trampling by cattle and humans (this can be alleviated by concrete capping the gabions).



## 3.2 Earthworks

Earthworks interventions are characterised by their use of earth (soil or rock) that is moved to form features that will restore natural overland flow. All earthworks have a high labour requirement for implementation and are a common intervention in the Working for Wetlands Programme.

### 3.2.1 Cut and fill

Cut and fill is applicable where earth can be moved from one place to another to make the ground more level and restore natural overland flow. An example is in areas which have been impacted by ridge/ furrow farming and involve cutting the “ridges” and filling the “furrows” wherever possible.

### 3.2.2 Earth berms

Earth berms are typically an earth mound used to divert or retain water flow. Berms can be specified across a road to prevent water channelling along the road, or can be used to divert polluted water away from a wetland. Existing berms can also be removed in areas already impacted by farming which have used berms to divert or contain water. Berms are usually considered suitable in low flow areas, but can be susceptible to cattle trampling if not properly vegetated or capped with rocks.



### 3.2.3 Earth plugs

Similar to earth berms (3.2.2), plugs are suitable for low flow areas and involve the plugging of channel floors to reduce the water velocity.



### 3.2.4 Dam walls

Earthen dam walls in areas used for farming can be removed / breached to restore natural flow along a channel.

### 3.2.5 Roads

Old roads can cause impacts within a wetland and can be removed to restore natural overland flow.

## 3.3 Rock packs

The packing of rocks within a channel or across a slope can dissipate energy, slow down water velocity and trap sediment. Rock packing is a labour-intensive practice which is favourable for employment purposes.

### 3.3.1 Rock packs (in channel)

Rock packs in channel are used as sediment traps which slow down flow velocities and prevent erosion in the upstream section of the channel. A filter material such as geofabric is typically incorporated into the rock pack to prevent fine material from moving through it.



### 3.3.2 Rock packs (on slope)

When placed on a slope, rock packs are used to slow run-off and trap sediment to enhance vegetation re-growth.

### 3.4 Road crossings

Road crossings can address deep tracks and numerous channels which form when vehicles travel through a frequently wet area or on a steep slope. These involve either concrete and/or reno mattress strips being laid down as tracks for the vehicles. Reno specifically allows for the flow of water across the tracks which is applicable specifically in low lying areas of a wetland.



### 3.5 Biodegradable or natural soil retention systems

Sometimes biodegradable or natural soil retention systems are used to serve as sediment traps. These allow natural vegetation to establish, and in doing so supports the stabilisation of an area.

#### 3.5.1 Brush packs

Brush packing involves the placing of branches and heavy vegetation on a relatively flat eroded surface to slow down water velocities which in turn promotes sedimentation and increased opportunity for vegetation to re-establish itself. The placing of thorny tree species, such as *Acacia*, also discourages animals from using the area as a pathway.



#### 3.5.2 Ecologs

Ecologs are tightly wrapped cylinders of fibre held together with mesh wire. The fibre is typically derived from coconuts and is bio-degradable. Ecologs are used to stabilise minor watercourses with a relatively minor change in level from the top to the bottom of the slope. They act as small sediment traps and allow natural vegetation to establish in the fibre.



#### 3.5.3 MacMat-R

MacMat-R is a mesh reinforced three-dimensional geomat that is applied for erosion control. The three-dimensional mesh structure traps sediment which in turn promotes the re-establishment of vegetation. MacMat-R is typically applied on a wet exposed face which has a gentle slope across it.



### 3.5.4 Geocells lining

The geocells are used for erosion control, soil stabilization and channel protection. This can be done using concrete or earth infill. The concrete infill is suitable for high inflow channels and earth infill is usually used on low inflow channels.



### 3.5.5 Silt fence

This intervention reduces and stops erosion in dongas with small catchment areas by means of cheap and easily constructed structure. The structure requires vertical posts to be knocked into the ground, followed by netting being draped across and tied firmly to the vertical posts.



## 3.6 Vegetation management

The presence of alien invasive plants, or lack of vegetation cover can have significant impacts on riparian areas as well as the flow of water instream.

### 3.6.1 Revegetation

Revegetation of degraded areas within wetlands using appropriate wetland and riparian plant species can improve the hydrological integrity of the system by stabilising soils and will re-establishing wetland habitat. For each site-specific intervention, the Wetland Specialist will recommend the measures required to revegetate the area (e.g. species, planting requirements, monitoring, etc.).

### 3.6.2 Alien invasive plant clearing

Alien invasive plants affect the ecological functioning of wetlands and therefore clearing is an important part of wetland rehabilitation. Clearing is undertaken in conjunction with the Working for Water Programme which also prioritise job creation and upliftment of local communities.



## 3.7 Alternative measures

In some previous occurrences, alternative measures that add value to the use of the wetland system have been included in the Working for Wetlands Programme, such as:

- Fencing;
- Boardwalks;
- Bird hides;
- Floating wetlands; and
- Fish ladders.

However, as these interventions are generally an exception rather than the rule, more information will be provided on them in the reports in which they are planned for.





# **WORKING FOR WETLANDS**

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## **Guideline on Generic Intervention Structures for Wetland Rehabilitation Purposes**



# SOFT OPTIONS

DRAWING No.    SHEET No.    DRAWING DESCRIPTION

|               |              |                   |
|---------------|--------------|-------------------|
| 109664-STD-01 | Sheet 1 of 6 | LIST OF DETAILS   |
| 109664-STD-01 | Sheet 2 of 6 | ECOLOGS           |
| 109664-STD-01 | Sheet 3 of 6 | ROCK PACKS        |
| 109664-STD-01 | Sheet 4 of 6 | ROAD STRIPS       |
| 109664-STD-01 | Sheet 5 of 6 | BERMS             |
| 109664-STD-01 | Sheet 6 of 6 | MACMAT / MACMAT-R |

**NOTES**

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**EARTHWORKS/ EARTH STRUCTURES:**

- ALL CUT AND FILL SLOPES TO BE NOT STEEPER THAN 1:4, UNLESS OTHERWISE SPECIFIED.
- ALL EXPOSED DISTURBED SURFACES TO BE REVEGETATED, UNLESS OTHERWISE SPECIFIED. 100mm OF TOP SOIL TO COVER BERM. REVEGETATION TO BE UNDERTAKEN AS PER EMP / REHAB PLAN.
- SOIL FOR BERMS AND BACKFILL TO BE COMPACTED IN 100mm LAYERS AT OPTIMUM WATER CONTENT

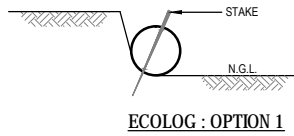
**DISPERSIVE SOILS:**  
(ONLY APPLICABLE IN AREAS WITH DISPERSIVE SOILS):

- IT IS CRITICAL TO ENSURE THAT THE FOUNDING SOIL NEVER DRIES OUT AND REMAINS AS UNDISTURBED AS POSSIBLE. THE BASE OF THE INTERVENTION SHOULD THEREFORE BE CONSTRUCTED AS SOON AS A PORTION OF EXCAVATION HAS BEEN FINISHED.
- FILL MATERIAL TO BE GOOD QUALITY, WELL-GRADED GRAVEL OR CLAY (NOT DISPERSIVE CLAY).
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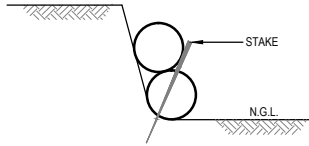
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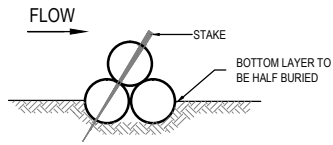
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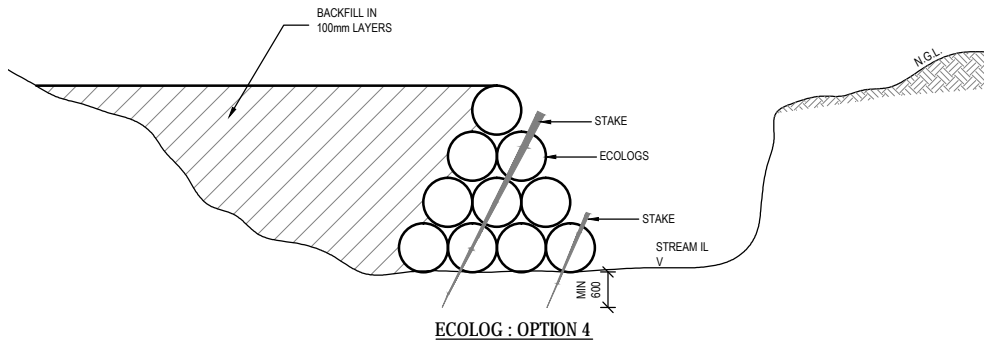
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**ECOLOG : OPTION 2**



**ECOLOG : OPTION 3**



**ECOLOG : OPTION 4**

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- SOIL FOR BERMS AND BACKFILL TO BE COMPACTED IN 100mm LAYERS AT OPTIMUM WATER CONTENT

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**ECOLOGS:**

- WOODEN PEGS USED TO ANCHOR ECOLOGS ARE TO BE NO LESS THAN 40mm DIA AND 1000mm IN LENGTH.
- PEGS SHOULD PROTRUDE NO LESS THAN 60mm FROM THE SOIL @ 1000 c/c.

**NOTE: THESE DETAILS MAY BE ADJUSTED TO SUIT INDIVIDUAL SITE CONDITIONS**

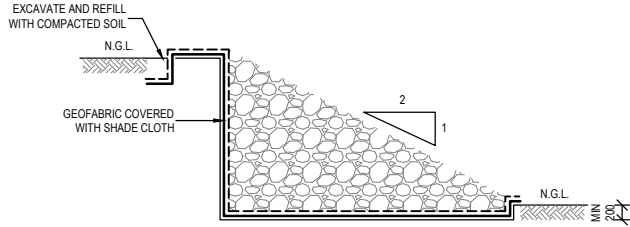
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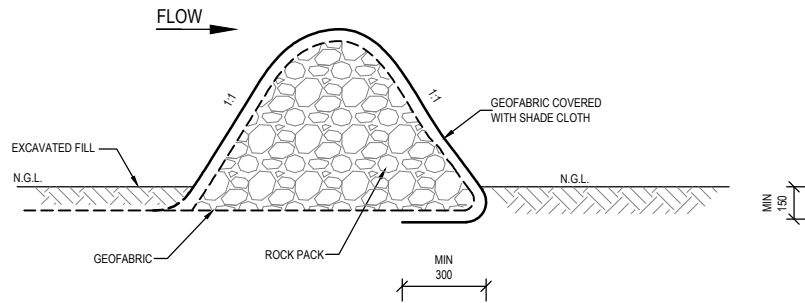
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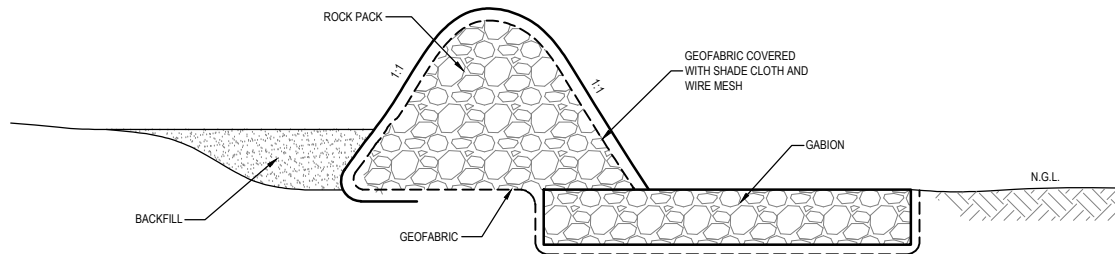
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**ROCK PACK : OPTION 1**



**ROCK PACK : OPTION 2**



**ROCK PACK : OPTION 3**

**NOTE: THESE DETAILS MAY BE ADJUSTED TO SUIT INDIVIDUAL SITE CONDITIONS**

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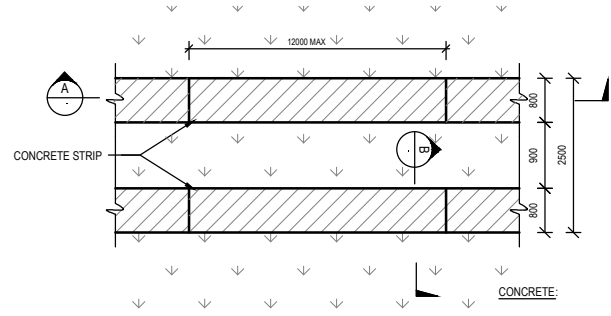
- ROCK PACKS:**
- 100mm -200mm STONE TO BE USED IN ROCK PACKS
  - STONE MUST BE NON-FRILABLE AND INSOLUBLE, e.g. GRANITE, BASALT, LIMESTONE OR SANDSTONE
  - ROCK PACKS PLACED ACROSS A STREAM TO BE TIED MIN 1m INTO EACH BANK.

| CLIENT               | REV | DATE       | REVISION DETAILS       | APPROVED    |
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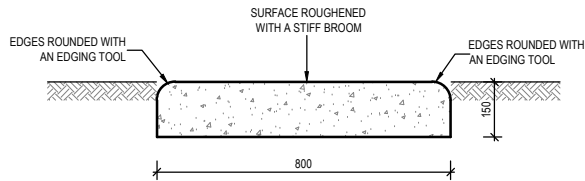
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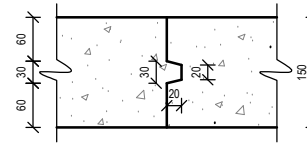


**PLAN OF CONCRETE STRIP**

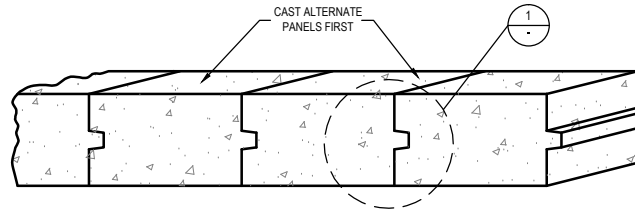


**SECTION B** (CONCRETE STRIP)  
1:20

- CONCRETE:**
- ALL BUTTRESS WEIR STRUCTURES TO USE MIN 20MPa CONCRETE MIX:  
1 BAG CEMENT  
95L SAND  
100L STONE  
27L WATER



**DETAIL 1** (SCHEMATIC VIEW OF JOINT BETWEEN PANELS)  
1:10



**SECTION A** (SCHEMATIC VIEW OF JOINT BETWEEN PANELS)  
1:10

**NOTE: THESE DETAILS MAY BE ADJUSTED TO SUIT INDIVIDUAL SITE CONDITIONS**

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**EARTHWORKS/ EARTH STRUCTURES:**

- ALL CUT AND FILL SLOPES TO BE NOT STEEPER THAN 1:4, UNLESS OTHERWISE SPECIFIED.
- ALL EXPOSED DISTURBED SURFACES TO BE REVEGETATED, UNLESS OTHERWISE SPECIFIED. 100mm OF TOP SOIL TO COVER BERM. REVEGETATION TO BE UNDERTAKEN AS PER EMP / REHAB PLAN.
- SOIL FOR BERMS AND BACKFILL TO BE COMPACTED IN 100mm LAYERS AT OPTIMUM WATER CONTENT

**DISPERSIVE SOILS:**  
(ONLY APPLICABLE IN AREAS WITH DISPERSIVE SOILS):

- IT IS CRITICAL TO ENSURE THAT THE FOUNDING SOIL NEVER DRIES OUT AND REMAINS AS UNDISTURBED AS POSSIBLE. THE BASE OF THE INTERVENTION SHOULD THEREFORE BE CONSTRUCTED AS SOON AS A PORTION OF EXCAVATION HAS BEEN FINISHED.
- FILL MATERIAL TO BE GOOD QUALITY, WELL-GRADED GRAVEL OR CLAY (NOT DISPERSIVE CLAY).
- ALL MATERIAL THAT IS EXCAVATED FROM THIS SITE AND RE-USED FOR BACKFILL SHALL BE WELL MIXED WITH 100kg OF LIME PER CUBIC METRE OF SOIL, AND PLACED AND COMPACTED AT OPTIMUM MOISTURE CONTENT.

| CLIENT | REV | DATE       | REVISION DETAILS       | APPROVED    | SCALE        | SIZE | PRELIMINARY          | PROJECT     | WORKING FOR WETLANDS |
|--------|-----|------------|------------------------|-------------|--------------|------|----------------------|-------------|----------------------|
|        | A   | 29/10/2013 | ISSUED FOR INFORMATION | D.TOWNSHEND | NOT TO SCALE | A4   | NOT FOR CONSTRUCTION | PROJECT     | WORKING FOR WETLANDS |
|        |     |            |                        |             | DRAWN        |      | APPROVED             | TITLE       | STANDARTD DETAILS    |
|        |     |            |                        |             | A.MNYAKA     |      | ENGINEER             | DESCRIPTION | ROAD STRIPS          |
|        |     |            |                        |             | DESIGNED     |      | DATE                 | DRAWING No. | 109664 - STD-01      |
|        |     |            |                        |             | D.TOWNSHEND  |      |                      |             | 4 OF 6               |
|        |     |            |                        |             | VERIFIED     |      |                      |             | REV                  |
|        |     |            |                        |             | F.NAGDI      |      |                      |             | A                    |



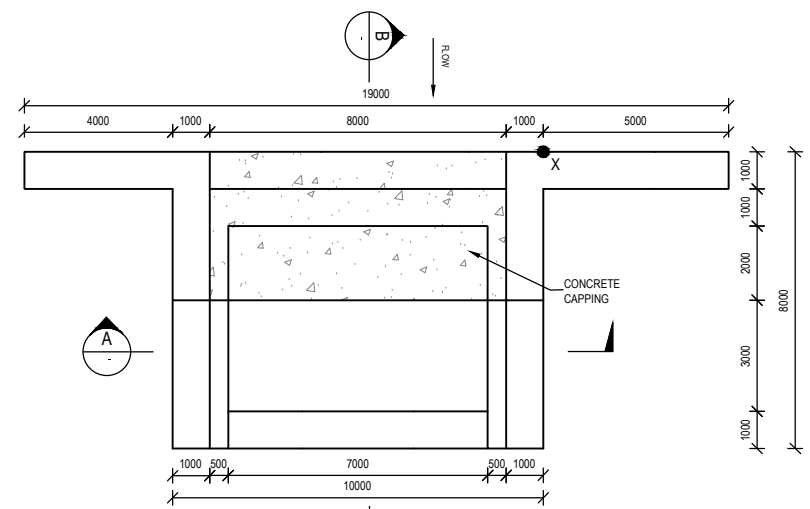




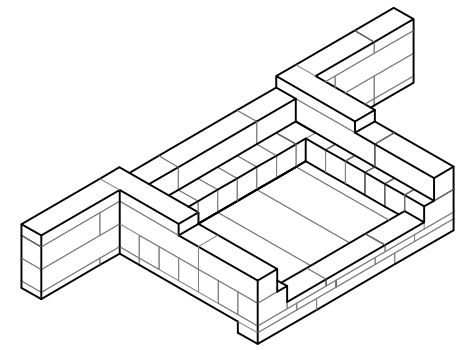


# HARD OPTIONS

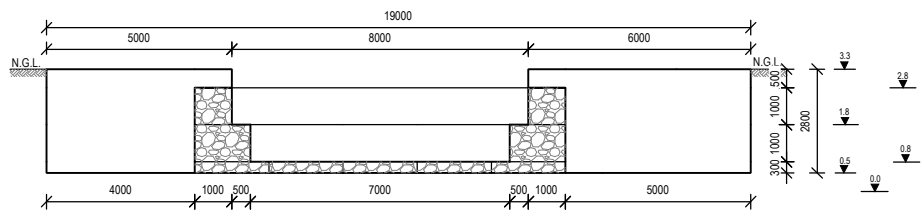
**NOTE: CONFIGURATION AND DIMENSIONS OF STRUCTURE VARY ACCORDING TO SITE CONDITIONS**



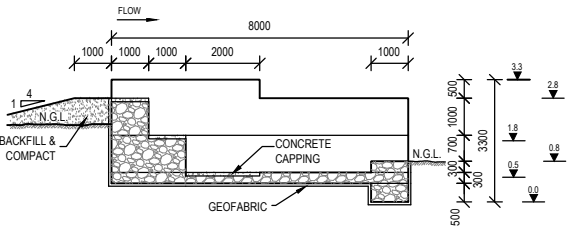
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N.T.S.



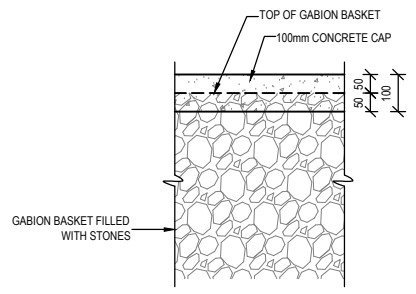
**3D VIEW**  
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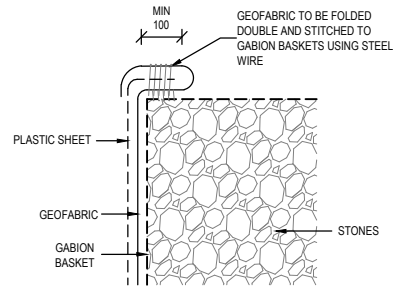
**SECTION A**  
N.T.S.



**SECTION B**  
N.T.S.



**CONCRETE CAPPING DETAIL**  
N.T.S.



**GEOFABRIC AND PLASTIC STITCHING DETAIL**  
N.T.S.

**NOTES**

- AURECON ACCEPTS RESPONSIBILITY FOR THE ENGINEERING DESIGN TO THE EXTENT THAT THIS IS BASED ON AVAILABLE INFORMATION. THE AVAILABLE INFORMATION IS LIMITED TO WHAT COULD BE INTERPRETED DURING A SINGLE SITE VISIT OF NO LONGER THAN A FEW HOURS. NO GEOTECHNICAL, TOPOGRAPHICAL, GEOMORPHOLOGIC AND OTHER ENGINEERING RELATED SURVEYS HAVE BEEN UNDERTAKEN TO INFORM THE DESIGN. THIS IS NON-STANDARD ENGINEERING PRACTICE AND THEREFORE AURECON IS INDEMNIFIED BY THE CLIENT AND DOES NOT ACCEPT RESPONSIBILITY FOR THE ASSOCIATED RISK OF FAILURE FROM THE ABOVE LIMITATIONS OR ANY DAMAGES THAT MAY OCCUR.
- AURECON IS INDEMNIFIED AGAINST ANY ASSOCIATED DAMAGES AND ACCEPTS NO LIABILITY ASSOCIATED WITH THE CONSTRUCTION AND IMPLEMENTATION OF ENGINEERING INTERVENTIONS DUE TO AURECON HAVING LIMITED CONTACT WITH THE IMPLEMENTER DURING THE CONSTRUCTION PHASE RESULTING IN OUR INABILITY TO DILIGENTLY SUPERVISE AND ASSESS ANY PROGRESS.

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- ALL EXPOSED DISTURBED SURFACES TO BE REVEGETATED, UNLESS OTHERWISE SPECIFIED. 100mm OF TOP SOIL TO COVER BERM. REVEGETATION TO BE UNDERTAKEN AT SUITABLE TIMING OF YEAR TO IMPROVE CHANCES OF TAKING.
- SOIL FOR BERMS AND BACKFILL TO BE COMPACTED IN 100mm LAYERS AT OPTIMUM WATER CONTENT

**DISPERSIVE SOILS:**

(ONLY APPLICABLE IN AREAS WITH DISPERSIVE SOILS):

- IT IS CRITICAL TO ENSURE THAT THE FOUNDING SOIL NEVER DRIES OUT AND REMAINS AS UNDISTURBED AS POSSIBLE. THE BASE OF THE INTERVENTION SHOULD THEREFORE BE CONSTRUCTED AS SOON AS A PORTION OF EXCAVATION HAS BEEN FINISHED.
- FILL MATERIAL TO BE GOOD QUALITY, WELL-GRADED GRAVEL OR CLAY (NOT DISPERSIVE CLAY FOUND IN PARTS OF THE FLOOD PLAIN).
- ALL MATERIAL THAT IS EXCAVATED FROM THIS SITE AND RE-USED FOR BACKFILL SHALL BE WELL MIXED WITH 100kg OF LIME PER CUBIC METRE OF SOIL, AND PLACED AND COMPACTED AT OPTIMUM MOISTURE CONTENT.

**GABIIONS:**

- GABION BASKETS AND RENO MATTRESSES TO BE CONSTRUCTED OF DOUBLE TWISTED, HEXAGONAL, PVC COATED, GALVANISED WIRE MESH OF NOMINAL DIAMETER 80mm MESH, WITH 3.4mm o/d FRAME WIRE AND 2.7mm o/d MESH WIRE WITH PARTITIONS AT 1m CENTRES.
- GEOFABRIC TO BE NON-WOVEN, NOT LESS THAN 195g/m<sup>2</sup>, e.g. AG200.
- 100mm - 200mm STONE TO BE USED IN ALL GABIIONS AND RENO MATTRESSES. STONE FILL MUST BE NON-FRIABLE & INSOLUBLE e.g. GRANITE, BASALT, LIMESTONE OR SANDSTONE.
- ALL GABIIONS AND RENO MATTRESSES TO COMPLY WITH SANS-1200-DK.
- CONCRETE CAPPING TO BE MINIMUM 15MPa & MIX: 1 BAG CEMENT, 125L SAND, 120L STONE, 30L WATER
- GEOFABRIC TO BE INSERTED AT ALL SOIL/MESH INTERFACES UNLESS OTHERWISE SPECIFIED.
- GEOFABRIC TO HAVE WEEPHOLES PUNCHED THROUGH USING 10mm STEEL ROD AT APPROXIMATELY 4 HOLES/m<sup>2</sup>.
- 250µ PLASTIC SHEET TO BE USED ON THE UPSTREAM FACE OF ALL STRUCTURES UNLESS OTHERWISE SPECIFIED

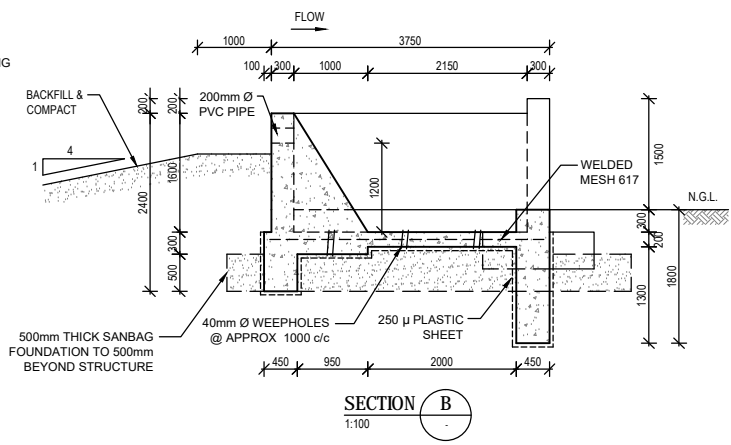
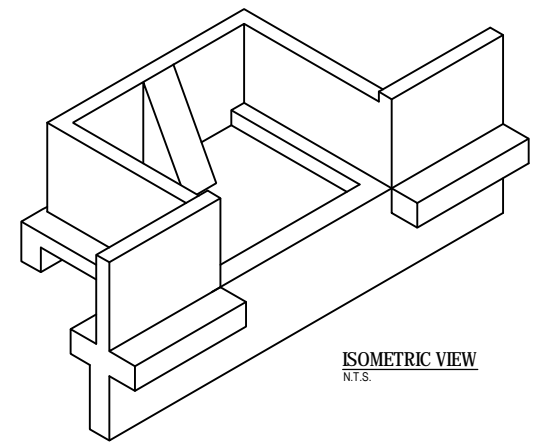
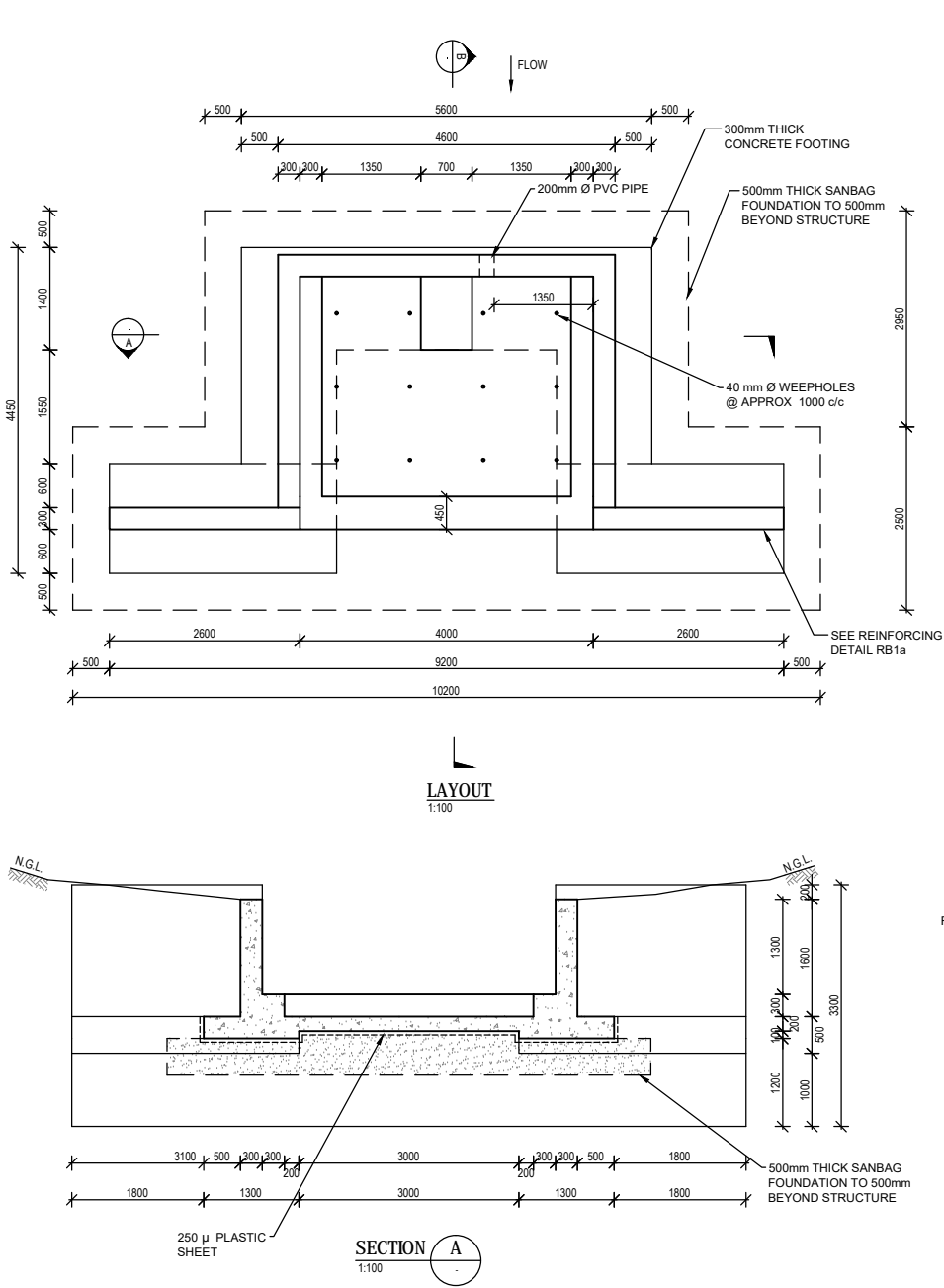


| CLIENT               | REV | DATE       | REVISION DETAILS       | APPROVED    | SCALE        | SIZE |
|----------------------|-----|------------|------------------------|-------------|--------------|------|
| Working for Wetlands | A   | 06/11/2013 | ISSUED FOR INFORMATION | D.TOWNSHEND | NOT TO SCALE | A4   |
|                      |     |            |                        |             | DRAWN        |      |
|                      |     |            |                        |             | A.MNYAKA     |      |
|                      |     |            |                        |             | DESIGNED     |      |
|                      |     |            |                        |             | D.TOWNSHEND  |      |
|                      |     |            |                        |             | VERIFIED     |      |
|                      |     |            |                        |             | F.NAGDI      |      |

| PRELIMINARY NOT FOR CONSTRUCTION |      |
|----------------------------------|------|
| APPROVED                         | DATE |
| ENGINEER                         |      |

| PROJECT                  | WORKING FOR WETLANDS  |
|--------------------------|-----------------------|
| PROVINCE                 |                       |
| INTERVENTION DESCRIPTION | TYPICAL : GABION WEIR |
| DRAWING No.              | 109664 - STD - 20     |

Plot Date: 12/11/2013 8:56:39 AM Office: ZACP1 File Name: P:\PROJECTS\109664 - WORKING - WETLANDS PLAN 2014-2017\ENGINEERING\03 PRI DEL'Z REFERENCE\DRAWING TEMPLATE\STDARD DE TAILLIS\109664-STD-2.DWG



**NOTE: CONFIGURATION AND DIMENSIONS OF STRUCTURE VARY ACCORDING TO SITE CONDITIONS**

- NOTES**
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  - AURECON IS INDEMNIFIED AGAINST ANY ASSOCIATED DAMAGES AND ACCEPTS NO LIABILITY ASSOCIATED WITH THE CONSTRUCTION AND IMPLEMENTATION OF ENGINEERING INTERVENTIONS DUE TO AURECON HAVING LIMITED CONTACT WITH THE IMPLEMENTER DURING THE CONSTRUCTION PHASE RESULTING IN OUR INABILITY TO DILIGENTLY SUPERVISE AND ASSESS ANY PROGRESS.

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  - ALL EXPOSED DISTURBED SURFACES TO BE REVEGETATED, UNLESS OTHERWISE SPECIFIED. 100mm OF TOP SOIL TO COVER BERM. REVEGETATION TO BE UNDERTAKEN AT SUITABLE TIMING OF YEAR TO IMPROVE CHANCES OF TAKING.
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(ONLY APPLICABLE IN AREAS WITH DISPERSIVE SOILS):
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- CONCRETE:**
- NOMINAL SIZE OF STONE AGGREGATE TO BE SIZE 19-26mm.
  - ALL CONCRETE TO BE MIN 30MPa CONCRETE MIX:  
1 BAG CEMENT  
65L SAND  
85L STONE  
21L WATER
  - CONCRETE TO BE PLACED IN 300mm LAYERS AND VIBRATED USING A CONCRETE VIBRATOR.
  - MIN 50mm COVER REQUIRED ON ALL CONCRETE REINFORCING AND MESH UNLESS OTHERWISE SPECIFIED.
  - 250µ PLASTIC SHEET TO BE PLACED UNDER STRUCTURE.
  - ALL CONCRETE WALLS TO BE FULLY SUPPORTED UNTIL THEY ARE BACKFILLED TO THE DESIGNED LEVEL.
  - ALL MESH REINFORCING TO HAVE 500mm OVERLAPS BETWEEN SHEETS
  - BUTRESSES AND WALLS TO BE CAST MONOLITHICALLY WITH FOOTING.
  - CONSTRUCTION JOINTS TO BE USED WHEREVER NEW CONCRETE IS CAST AGAINST PREVIOUSLY CAST CONCRETE.
  - IF REBAR OR MESH CROSSES A CONSTRUCTION JOINT, IT SHOULD BE CONTINUOUS THROUGH THE JOINT AND EXTEND 600mm INTO EACH SIDE.



| CLIENT               | REV | DATE       | REVISION DETAILS   | APPROVED    | SCALE       | SIZE |
|----------------------|-----|------------|--------------------|-------------|-------------|------|
| Working for Wetlands | A   | 06/11/2013 | ISSUED FOR COMMENT | D.TOWNSHEND | AS SHOWN    | A4   |
|                      |     |            |                    |             | DRAWN       |      |
|                      |     |            |                    |             | N.ALLIE     |      |
|                      |     |            |                    |             | DESIGNED    |      |
|                      |     |            |                    |             | O.MOTHELESI |      |
|                      |     |            |                    |             | VERIFIED    |      |
|                      |     |            |                    |             | D.TOWNSHEND |      |

| PRELIMINARY NOT FOR CONSTRUCTION |      |
|----------------------------------|------|
| APPROVED                         | DATE |
|                                  |      |

| PROJECT              | PROVINCE | INTERVENTION DESCRIPTION | DRAWING No.       | REV |
|----------------------|----------|--------------------------|-------------------|-----|
| WORKING FOR WETLANDS |          | TYPICAL : CONCRETE WEIR  | 109664 - STD - 21 | A   |

# **Appendix B**

## **PUBLIC PARTICIPATION**

**Appendix B1: DEA Meeting Minutes**

**Appendix B2: Landowner Agreements**

**Appendix B3: Written Notification**

**Appendix B4: Proof of Mailing**

**Appendix B5: Comments and Responses**

# Working for Wetlands: Eastern Cape Public Participation Report



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## 1 INTRODUCTION

The proposed interventions for wetland rehabilitation require the Working for Wetlands (WfWetlands) Programme to apply for environmental authorisation in terms of the Environmental Impact Assessment (EIA) Regulations (Government Notice (GN) Regulation (R) 982) of the National Environmental Management Act (Act 107 of 1998) (NEMA), as amended. To ensure that the Department of Environmental Affairs (DEA) can make an informed decision, based on a transparent and meaningful process, this Basic Assessment (BA) process must undergo a Public Participation Process (PPP).

This PPP must be undertaken in accordance with regulations 39 - 44 of the EIA Regulations. Additional guidance has also been incorporated from the Western Cape<sup>1</sup> Department of Environmental Affairs and Development Planning (DEA&DP) Guideline Document on Public Participation (March 2013).

This Public Participation Report (PPR) has therefore been compiled to collectively represent the consultation process that has been undertaken through the PPP. The following sections include:

- Section 2 A database of interested and affected parties (I&APs) has been created and updated over the last 13 planning years. This database will be updated and maintained throughout the BA process.
- Section 3 The consultation that was undertaken during the pre-application phase of the project is described in this section. Proof of advertisements, site notices and deliveries are available in Appendix B4.
- Section 4 Describes the consultation process that was undertaken during the BA phase. Proof of notification is available in Appendix B4.
- Section 5 Comments received during original application process is included in this section. All new comments received during the current public comment period will be included and responded to in this section as well. Original comments and responses are available in Appendix B5.
- Section 6 This section explains the way forward once the public participation process has been completed.

## 2 I&AP DATABASE

A register of I&APs has been recorded for WfWetlands over the previous planning years undertaken by Aurecon. The existing national and provincial database has been updated with information from new I&APs responding to the advertisements and site notices throughout the application process. Proactive identification of I&APs, municipal representatives, organs of state, competent authorities and surrounding landowners was also undertaken to update the database specific to the new planning year.

Table 1 on the following page provides a summary of the I&AP database for the Eastern Cape. Please note that contact details have been omitted for privacy reasons.

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<sup>1</sup> These guidelines have been considered as best practice even though the project may be located outside of the province.

Table 1: I&amp;AP Database

| Stakeholder           | Contact                    | Organisation   |
|-----------------------|----------------------------|--|
| National Stakeholders | Mr Mark Anderson           | Birdlife South Africa  |
|                       | Ms Mpume Ntlokwana         | Department of Agriculture Forestry & Fisheries                               |
|                       | Ms Serah Muobeleni         | Department of Agriculture Forestry & Fisheries: Land Use and Soil Management |
|                       | Mr Stanley Tshitwamulomoni | Department of Environmental Affairs: Biodiversity Conservation               |
|                       | Mr Danie Smit              | Department of Environmental Affairs: Sensitive Environments                  |
|                       | Ms Naomi Fourie            | Department of Water and Sanitation   |
|                       | Dr Paul Meulenbeld         | Department of Water and Sanitation   |
|                       | Ms Jackie Jay              | Department of Water and Sanitation   |
|                       | Ms Barbara Weston          | Department of Water and Sanitation   |
|                       | Mr Kelvin Legge            | Department of Water and Sanitation   |
|                       | Mr Bongani Madikizela      | Water Research Commission  |
|                       | Ms Olga Jacobs             | SANParks: Biodiversity and Social Projects                                   |
|                       | Mr Steven Segang           | Endangered Wildlife Trust  |
|                       | Mr Ahmend Khan             | Department of Environmental Affairs  |
|                       | Mr Louwrens Ferreira       | Department of Environmental Affairs  |
|                       | Mr Wemer Roux              | Department of Environmental Affairs  |
|                       | Ms Kerry Morrison          | Endangered Wildlife Trust  |
|                       | Ms Tanya Smith             | Endangered Wildlife Trust  |
|                       | Morgan Griffiths           | WESSA  |
|                       | Mr Dumisani Mabona         | Department of Environmental Affairs: Sensitive Environments                  |
|                       | Mr Umesh Bahadur           | Department of Environmental Affairs: Working for Wetlands                    |
|                       | Mr Farai Tererai           | DEA: Working for Wetlands: Manager: Planning, Monitoring and Evaluation      |
|                       | Mr Seoka Lekota            | DEA: Biodiversity Conservation   |
|                       | Mr Dumisani Mabona         | Department of Environmental Affairs: Directorate Biodiversity Conservation   |
|                       | Khosa Tsunduka             | Department of Water and Sanitation   |
|                       | Malaudzi Nkumbudzeni       | Department of Water and Sanitation   |



| <b>Stakeholder</b>                                | <b>Contact</b>                     | <b>Organisation</b>   |
|---|------------------------------------|---|
|   | Lumka Kuse                         | Department of Water and Sanitation  |
|   | Xolani Hadebe                      | Department of Water and Sanitation  |
| <b>Provincial Stakeholders: State Authorities</b> | Mr Gerry Pienaar                   | Eastern Cape Department of Economic Development, Environmental Affairs and Tourism                      |
|   | Ms Nomalwande Mbangana             | Eastern Cape Department of Agriculture, Forestry and Fisheries  |
|   | Mr Michael Kawa                    | Department of Environmental Affairs   |
|   | Mr Briant Noncembu                 | Eastern Cape Department of Economic Development, Environmental Affairs and Tourism                      |
|   | Mr Melvin Charlie                  | Department of Agriculture, Forestry and Fisheries   |
|   | Ms Fourie Lizna                    | Department of Water and Sanitation  |
|   | Ms V Rwexu                         | Department of Economic Development, Environmental Affairs and Tourism                                   |
|   | Ms ZJ Ngxowa                       | Eastern Cape Department of Agriculture, Forestry and Fisheries  |
|   | Mr Eric Qonya                      | Department of Economic Development, Environmental Affairs and Tourism (DEDEAT): Wetlands Representative |
|   | Ms Tamara Gqamane                  | Department of Economic Development, Environmental Affairs and Tourism                                   |
|   | Ms Sinazo Songca                   | Department of Economic Development, Environmental Affairs and Tourism                                   |
|   | Ms Gwendoline Sqwabe               | Department of Agriculture, Forestry and Fisheries   |
|   | Mr MC Dandala                      | Eastern Cape Department of Agriculture, Forestry and Fisheries  |
|   | Ms Portia Makhanya                 | Department of Water and Sanitation  |
|   | Mr Mxolisi Dan Malgas              | Department of Agriculture, Forestry and Fisheries   |
|   | Mr Kagiso Mangwale                 | Eastern Cape Parks and Tourism Agency   |
| Mr. Elliot Weni                                   | Department of Water and Sanitation |   |

| Stakeholder | Contact                | Organisation   |
|-------------|------------------------|--|
|             | Mr Buntu Mzamo         | Department of Economic Development, Environmental Affairs and Tourism          |
|             | Ms Phumla Mzazi        | Department of Economic Development, Environmental Affairs and Tourism          |
|             | Mr SS Kwinana          | Department of Agriculture  |
|             | Mr Alan Southwood      | Department of Economic Development, Environmental Affairs and Tourism          |
|             | Mr Japie Buckle        | Department of Environmental Affairs  |
|             | Mr Hennie Swanevelder  | Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) |
|             | Ms Carina Potgieter    | Fort Fordyce Nature Reserve (Eastern Cape Parks & Tourism)                     |
|             | Ms Noluntando Bam      | Department of Economic Development, Environmental Affairs and Tourism          |
|             | Mr Dayalan Govender    | Department of Economic Development, Environmental Affairs and Tourism          |
|             | Sinonzulu Mtongana     | Department of Economic Development, Environmental Affairs and Tourism          |
|             | Zizipho Siyeka         | Department of Economic Development, Environmental Affairs and Tourism          |
|             | Philasande Makhuba     | Department of Economic Development, Environmental Affairs and Tourism          |
|             | Chwayita Mapekula      | Department of Economic Development, Environmental Affairs and Tourism          |
|             | Yongama Mbangezeli     | Department of Economic Development, Environmental Affairs and Tourism          |
|             | Viwe Mabongo           | Department of Economic Development, Environmental Affairs and Tourism          |
|             | Masibulele Msongelwa   | Department of Economic Development, Environmental Affairs and Tourism          |
|             | Bongikhaya Ngcango     | Department of Economic Development, Environmental Affairs and Tourism          |
|             | Viwe Banzi             | Department of Economic Development, Environmental Affairs and Tourism          |
| Landowner   | Roelof Pierre Oelofsen | Krugersland 812  |

| Stakeholder                   | Contact                       | Organisation                                |
|-------------------------------|-------------------------------|---|
|                               | T Kritzinger                  | Meltrust (Farm Hendrikskraal)               |
|                               | Tsitsikamma Development Trust | Fingo Reserve                               |
|                               | C Carstens                    | Tsitsikamma                                 |
|                               | Sivuyile Tyali                | Kolomana Communal Land                      |
| <b>Municipal Stakeholders</b> | Gcobisa Dadamasi              | Kouga Local Municipality                    |
|                               | Mr Charl du Plessis           | Kouga Local Municipality                    |
|                               | Dr Thandekile Mnyimba         | Amathole District Municipality              |
|                               | Cllr Nomafusi Nxawe           | Amathole District Municipality              |
|                               | Mr Luyanda Mafumba            | Amathole District Municipality              |
|                               | Mr Lusanda Menze              | Raymond Mhlaba Local Municipality           |
|                               | N Platjies                    | Raymond Mhlaba Local Municipality           |
|                               | Cllr Bandile Ketelo           | Raymond Mhlaba Local Municipality           |
|                               | Jane Galo                     | Buffalo City Metropolitan Municipality      |
|                               | Mathongo Lamani               | Buffalo City Metropolitan Municipality      |
|                               | Mr Ted Pillay                 | Sarah Baartman District Municipality        |
|                               | Cllr Khunjuza Eunice Kekana   | Sarah Baartman District Municipality        |
|                               | Mr Pumelelo Maxwell Kate      | Kou-Kamma Local Municipality                |
|                               | Mr Nathan Jacobs              | Kou-Kamma Local Municipality                |
| <b>General I&amp;APs</b>      | Mr Mark Anderson              | Chairperson Hogsback Conservancy            |
|                               | Ms Laura Conde                | WESSA                                       |
|                               | Mr Ben Cooper                 | Amahlathi Local Municipality                |
|                               | Ms Gcobisa Foxi               | Eastern Cape Parks and Tourism Agency       |
|                               | Dr Ulrike Irlich              | ICLEI (LAB Wetland Projects)                |
|                               | Lehman Lindeque               | United Nations Development Programme (UNDP) |
|                               | Mr Sipho Mayebwa              | Eastern Cape Wetland Forum                  |
|                               | Ms Cikizwa Mbolambi           | Eastern Cape Parks and Tourism Agency       |
|                               | Ms Nonzukiso Mbona            | SANBI                                       |
|                               | Ms Kerry McLean               | WESSA Eastern Cape                          |
|                               | Ms Kululwa Mkosana            | Department of Water and Sanitation          |

| Stakeholder | Contact                  | Organisation   |
|-------------|--------------------------|--|
|             | Mr Edwill Moore          | Gamtoos Irrigation Board   |
|             | Thembilihle Mtamba       | Eastern Cape Parks and Tourism Agency  |
|             | Dr Nikite Muller         | Amatola Water  |
|             | Mr Nkosinathi Nama       | EWT (Amathole Catchment Management Forum representative)                           |
|             | Mr Mpho Nangammbi        | Milongani Eco Consulting   |
|             | Ms Zukiswa Ngxowa        | Department of Agriculture, Forestry and Fisheries                                  |
|             | Ms Shane October         | Eastern Cape Parks and Tourism Agency  |
|             | Ms Kelly Stroebe         | CSIR   |
|             | Dr Jeanne Tarrant        | EWT (Threatened Amphibian Programme Manager) - Amathole Toad Conservation project) |
|             | Mr Loutjie Theron        | Wood@Heart   |
|             | Ms Anitha van der Byl    | Eastern Cape Parks and Tourism Agency  |
|             | Ms Zingisa Xabu          | Eastern Cape Parks and Tourism Agency  |
|             | Mr Samuel Mpumelelo Vuso | Kou-Kamma Local Municipality   |
|             | Mr Mbulelo Xalu          | Department of Economic Development, Environmental Affairs and Tourism              |
|             | Nomhlophe Maxuxuma       | Inkwenkwezi Private College  |

### **3 PRE-APPLICATION PHASE CONSULTATION**

Prior to the circulation of the draft Basic Assessment Report (BAR) and submission of the application form to DEA, the following measures were undertaken to ensure that the legislated 30-day public comment period will reach the relevant parties.

#### **3.1 Pre-application meeting with DEA**

A pre-application meeting was undertaken on 14 August 2019 to discuss a new application process for this project. Please refer to Appendix B1 for a copy of the correspondence received from DEA on this matter.

#### **3.2 Landowner consultation**

Landowner consultation is a vital component of the Working for Wetlands Programme Standard Operating Procedures. Landowners were consulted with during the planned Phase 1 and Phase 2 site visits, and Landowner Agreements must be signed prior to any construction commencing. Although it can be difficult to access landowner agreements for the full wetland system (some wetlands have more than 30 properties intersecting the wetland), landowner agreements have been obtained for work where targeted rehabilitation interventions are planned for the following implementation cycles. Landowner Agreements are included in Appendix B2.

#### **3.3 Advertisements**

An advertisement was placed in a local newspaper, *The Rep*, to allow the public the opportunity to register their interest in the project. Proof of placement will be provided in the final report submitted to the Department upon completion of the 30-day public comment period. Please refer to Figure 1 for a copy of the advertisement text.

#### **3.4 Site notices**

Site notices were fixed at the property boundaries of the affected wetland systems and at public areas such as libraries or municipal buildings. The text of the site notice in English is included in Figure 2 and is followed by proof of placement of the site notices in the sub-section thereafter. The site notice was of a size and content required by the relevant guidelines. Proof of Placement will be provided in the final report submitted to the Department upon completion of the 30-day public comment period.

## PUBLIC PARTICIPATION PROCESS: WORKING FOR WETLANDS PROGRAMME

**Proposal:** The Working for Wetlands (WfWetlands) Programme intends to rehabilitate a number of degraded wetlands within South Africa. The proposed wetland rehabilitation activities may require the construction of hard interventions, for instance gabion and concrete structures, as well as soft options such as re-vegetation and/ or alien plant removal. The number, type, scale and location of each of these interventions vary according to the nature and magnitude of the problem and the state of the wetland (i.e. the receiving environment).

**Legal Framework:** Authorisation is required in terms of the National Environmental Management Act (Act 107 of 1998), as amended, as described below:

**A. National Environment Management Act, No. 107 of 1998 (NEMA), as amended:** The rehabilitation proposals trigger a suite of activities which require Environmental Authorisation by means of a Basic Assessment (BA) process in terms of the 2014 Environmental Impact Assessment (EIA) Regulations (Government Notice Regulation (GN R) 982, as amended) pursuant to NEMA. Aurecon South Africa (Pty) Ltd (Aurecon) has been appointed to undertake the BA processes and separate provincial focused applications will be submitted to the Department of Environmental Affairs (DEA) as the competent authority. The Listed Activities that are relevant to each application in terms of the 2014 EIA Regulations are GN R 983 (as amended): 12, 19, 27 and 48 (Listing Notice 1), GN 984 (as amended): 24 (Listing Notice 2) and GN R 985 (as amended): 12, 14 and 23 (Listing Notice 3).

**B. National Water Act, No. 36 of 1998 (NWA):** In terms of Section 39 of the NWA, a General authorisation (GA) has been granted for certain activities that are listed under the Act that usually require a Water Use Licence; as long as these activities are undertaken for wetland rehabilitation and the primary purpose of the rehabilitation is for conservation purposes (i.e. GN R 1198 of 18 December 2009).

**Opportunity to Participate:** Notice is hereby given of a public participation process in terms of the NEMA EIA Regulations (2014) and the NWA (1998). Interested and Affected Parties (I&APs) are invited to register their interest for future correspondence to the people mentioned below and to submit comments on the Draft BA Reports and Rehabilitation Plans which will be made available for a 30-day public comment period in **October 2019**. Notification will be sent to all identified and registered I&APs prior to the start date of this comment period.

| Province      | Reports |                     | Nearest City / Town(s) |
|---------------|---------|---------------------|------------------------|
|               | BAR     | Rehabilitation Plan |                        |
| Eastern Cape  | Yes     | Amathole            | Seymour                |
| Gauteng       | Yes     | Gauteng North       | Pretoria               |
| KwaZulu-Natal | Yes     | iSimangaliso        | St Lucia               |
| Limpopo       | Yes     | Soutini Baleni      | Giyani                 |

I&APs are requested to please refer to the relevant province and wetland project when registering, and provide their name, contact details and an indication of any direct business, financial, personal or other interest which they have to the contact person indicated below.

**Contact:** Simamkele Ntsengwane / Franci Gresse (of Aurecon)

**E-mail:** [Simamkele.Ntsengwane@aurecongroup.com](mailto:Simamkele.Ntsengwane@aurecongroup.com) / [franci.gresse@aurecongroup.com](mailto:franci.gresse@aurecongroup.com)

**Tel:** 021 526 9560, **Fax:** 021 526 9500, or **Post:** P.O. Box 494, Cape Town, 8000



Agriculture, Forestry and Fisheries  
Environmental Affairs  
Water Affairs and Sanitation



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Figure 1: Advertisement for the Working for Wetlands Programme 2018/2019 Planning Cycle

## PUBLIC PARTICIPATION PROCESS: WORKING FOR WETLANDS PROGRAMME EASTERN CAPE PROVINCE

**Proposal:** The Working for Wetlands (WfWetlands) Programme intends to rehabilitate a number of degraded wetlands within South Africa. The proposed wetland rehabilitation activities may require the construction of hard interventions, for instance gabion and concrete structures, as well as soft options such as re-vegetation and/ or alien plant removal. The number, type, scale and location of each of these interventions vary according to the nature and magnitude of the problem and the state of the wetland (i.e. the receiving environment).

The following wetland rehabilitation projects are proposed in the **Eastern Cape** Province for the 2018/2019 planning cycle:

| PROJECT  | WETLAND SYSTEM | NEAREST TOWN | LATITUDE (DDMMSS) | LONGITUDE (DDMMSS) |
|----------|----------------|--------------|-------------------|--------------------|
| Amathole | Kolomane 1     | Seymour      | 32°25'18.86"S     | 26°46'59.60"E      |
|          | Kolomane 2     |              | 32°27'2.35"S      | 26°46'10.20"E      |
|          | Kolomane 5     |              | 32°24'38.07"S     | 26°45'48.40"E      |
|          | Kolomane 16    |              | 32°24'14.95"S     | 26°45'45.69"E      |

**Legal Framework:** Authorisation is required in terms of the National Environmental Management Act (Act 107 of 1998), as amended, as described below:

**A. National Environment Management Act, No. 107 of 1998 (NEMA), as amended:** The rehabilitation proposals trigger a suite of activities which require Environmental Authorisation by means of a Basic Assessment (BA) process in terms of the 2014 Environmental Impact Assessment (EIA) Regulations (Government Notice Regulation (GN R) 982, as amended) pursuant to NEMA. Aurecon South Africa (Pty) Ltd (Aurecon) has been appointed to undertake the BA processes and separate provincial focused applications will be submitted to the Department of Environmental Affairs (DEA) as the competent authority. The Listed Activities that are relevant to each application in terms of the 2014 EIA Regulations are GN R 983 (as amended): 12, 19, 27 and 48 (Listing Notice 1), GN 984 (as amended): 24 (Listing Notice 2) and GN R 985 (as amended): 12, 14 and 23 (Listing Notice 3).

**B. National Water Act, No. 36 of 1998 (NWA):** In terms of Section 39 of the NWA, a General authorisation (GA) has been granted for certain activities that are listed under the Act that usually require a Water Use Licence; as long as these activities are undertaken for wetland rehabilitation and the primary purpose of the rehabilitation is for conservation purposes (i.e. GN R 1198 of 18 December 2009).

**Opportunity to Participate:** Notice is hereby given of a public participation process in terms of the NEMA EIA Regulations (2014) and the NWA (1998). Interested and Affected Parties (I&APs) are invited to register their interest for future correspondence to the people mentioned below and to submit comments on the Draft BA Reports and Rehabilitation Plans which will be made available for a 30-day public comment period in **October 2019**. Notification will be sent to all identified and registered I&APs prior to the start date of this comment period.

More information can be found in a 'context document' available for download from Aurecon's website (<http://aurecongroup.com/en/public-participation.aspx>).

**Contact:** Simamkele Ntsengwane / Franci Gresse (of Aurecon)

**E-mail:** [Simamkele.Ntsengwane@aurecongroup.com](mailto:Simamkele.Ntsengwane@aurecongroup.com) / [franci.gresse@aurecongroup.com](mailto:franci.gresse@aurecongroup.com)

**Tel:** 021 526 9560 **Fax:** 021 526 9500, or **Post:** P.O. Box 494, Cape Town, 8000



Figure 2: Example of text included in the Eastern Cape site notice

#### **4 BASIC ASSESSMENT PHASE CONSULTATION**

The Basic Assessment Report (BAR) for the Eastern Cape Province was made available for a 30-day public comment period from 11 February to 14 March 2019. However, in response to comments that were received from DEA, it was agreed to make the BAR available for a second public comment period with the applicable rehabilitation plans. The second 30-day comment period occurred from 7 June 2019 to 8 July 2019. Registered I&APs identified in the pre-application phase were notified of this comment period via post or email. The written notification provided to the I&APs is included in Appendix B2.

Due to an unforeseen delay during the submission of the finalised reports to the Department of Environmental Affairs, the application for Environmental Authorisation lapsed, and a new application has been lodged with the Department.

Hard and electronic copies were made available to selected organs of state and municipalities based on their internal requirements. I&APs are able to access the BAR on the Aurecon website: <http://www.aurecongroup.com/en/public-participation.aspx>. Proof of delivery and notification will be provided in Appendix B3 of the final BAR submitted to DEA for decision-making.

#### **5 COMMENTS AND RESPONSES**

Table 2 provides responses to all comments received during the February 2019 public comment period. All comments received during the June 2019 public comment period is available in Table 3. Responses have been provided by Aurecon, the applicant, or the wetland specialist (where appropriate). The original comments and responses are available in Appendix B5.



Table 2: I&amp;AP Comments and Responses (11 February to 14 March 2019)

| No. | Date of comment, format of comment, name of organisation/ I&AP                                     | Comment  | Response from EAP/ Applicant/ Specialist   |
|-----|--|--|--|
| 1   | <p>07 February 2019</p> <p>Email</p> <p><b>Inkwenkwezi Private College (Nomhlope Maxaxuma)</b></p> | <p>This communication is from Inkwenkwezi Private College, an Institution of Learning with offices in Cathcart, in the Amathole District Municipality.</p> <p>We are interested to be part of the programme as a Training and Research Provider. Details of contact person is Nomhlope Maxaxuma, No.45 Carnarvon Street Cathcart 5310-0710376383/0824330951.</p> <p>Please be informed that the area that is closest to us within Amathole Local Municipality in Hogsback.</p> | <p>EAP: Thank you for your interest in the Working for Wetlands Programme.</p> <p>This is to confirm that you have been registered as an Interested and Affected Party (I&amp;AP) for the Eastern Cape Amathole Wetland rehabilitation project. Notification will be sent to all registered I&amp;APs prior to the start date of the Basic Assessment Report (BAR) and project specific rehabilitation plan commenting period.</p> <p>Please note that each year the Working for Wetlands Programme plans work to be undertaken in wetland systems across South Africa through dedicated provincial planning teams. The proposed rehabilitation activities trigger listed activities in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) and therefore requires environmental authorisation from the Department of Environmental Affairs (DEA) before any construction may take place. The advert to which you responded is for such a process and not a call for tenders to undertake the actual work. You have however been registered as an interested and affected party which allows you the opportunity to comment on the Draft Basic Assessment Report during a 30-day public participation process.</p> <p>With regards to potential contract opportunities, please contact Ms Unathi Makati (the Eastern Cape Provincial Coordinator for the Working for Wetlands Programme). Ms Makati can be contacted at EMakati@environment.gov.za / 043 722 0685.</p> |
| 2.  | <p>10 February 2019</p> <p>Email and Telephone</p>   | <p>I register myself an I&amp;AP to the programme.</p>   | <p>EAP: Thank you for your interest in the Working for Wetlands Programme.</p>   |

| No. | Date of comment, format of comment, name of organisation/ I&AP                          | Comment  | Response from EAP/ Applicant/ Specialist   |
|-----|---|--|--|
|     | <b>Spring Forest Trading 578cc (Bunene Zola Kutsu)</b>                                  | <p>I'm also a service provider of Environmental Services and an accredited training provider in Environmental Practises, please provide me with relevant information.</p> <p>Your cooperation will be highly appreciated in this regard.</p>   | <p>Please note that each year the Working for Wetlands Programme plans work to be undertaken in wetland systems across South Africa through dedicated provincial planning teams. The proposed rehabilitation activities trigger listed activities in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) and therefore requires environmental authorisation from the Department of Environmental Affairs (DEA) before any construction may take place. The advert to which you responded is for such a process and not a call for tenders to undertake the actual work. You have however been registered as an interested and affected party for the Eastern Cape, Gauteng and North West Projects respectively, which allows you the opportunity to comment on the Draft Basic Assessment Report during a 30-day public participation process.</p> <p>With regards to potential contract opportunities, please contact the Provincial Coordinator for the Working for Wetlands Programme at the following contact details;</p> <ul style="list-style-type: none"> <li>- Eastern Cape: Ms Unathi Makati (EMakati@environment.gov.za / 043 722 0685);</li> <li>- Gauteng: Keitumetse Mekgoe (KMekgoe@environment.gov.za / 012 399 9321); and</li> <li>- North West: Eric Munzhedzi (EMunshedzi@environment.gov.za)</li> </ul> |
| 3.  | <p>13 February 2019</p> <p>Email</p> <p><b>Department. of Economic Development,</b></p> | <p>We notice that your covering letter refers to Seymour, Kareedouw and Humansdorp, while the table below only refers to Seymour. Can you please clarify? If at any time you need comments on Humansdorp and Kareedouw it will be highly appreciated if you could liaise directly with Mr Andries Struwig in our Sarah Baartman Regional Office in Port Elizabeth.</p> | <p>EAP: Thank you very much for your email and interest in the Working for Wetlands Programme.</p> <p>The notification email sent on 11 February 2019 served as a notification to I&amp;APs of the opportunity to comment on the Basic Assessment Report for the Amathole project - the nearest town to the project area being Seymour.</p>  |

| No. | Date of comment, format of comment, name of organisation/ I&AP  | Comment   | Response from EAP/ Applicant/ Specialist   |
|-----|---|---|--|
|     | <b>Environmental Affairs &amp; Tourism of the Eastern Cape (Gerry Pienaar)</b>                              |   | Reference to Kareedouw and Humansdorp is for the project specific rehabilitation plans which will be made available for public comment in March 2019 to all registered I&APs for a 30-day comment period. Registered I&APs will be informed of the availability of the rehabilitation plans and commencement of the commenting period.<br><br>Thank you for sharing Mr Andries Struwig's details. We have included him in our I&AP database for the Kromme and Tsitsikamma projects to receive information during the process. |
| 4.  | 15 February 2019<br>Email and Telephone<br><b>Department of Water and Sanitation (Lucrecia Sedibana)</b>    | Following our telephone conversation earlier this morning, this email serves to confirm my contact details below.   | EAP: Thank you for your email and for your interest in the Working for Wetlands Programme.<br><br>I will arrange for an electronic copy (a CD) to be dropped off at your office marked for your attention  |
| 5.  | 18 February 2019<br>Email<br><b>Department of Agriculture, Forestry and Fisheries (Nomalwande Mbangana)</b> | Your email was received, and you can expect us to get back to you soon.   | EAP: Thank you for your email and for your interest in the Working for Wetlands Programme.   |
| 6.  | 05 March<br><b>Department of Agriculture, Forestry and Fisheries (Ivan Riggs)</b>                           | I have registered on your website to view the documents online but cannot access them.<br><br>Can you kindly supply the project reference numbers for the those below:<br>Eastern Cape: Amathole, Kromme, Tsitsikamma<br>Free State: Maluti | EAP: You can also access the documents on dropbox by following this link:<br><a href="https://www.dropbox.com/sh/53v4o0lvhyvc5ao/AABMT0VY2JaSSOzRik9JTBbKa?dl=0">https://www.dropbox.com/sh/53v4o0lvhyvc5ao/AABMT0VY2JaSSOzRik9JTBbKa?dl=0</a><br><br>Please note that we have also provided CDs to your Following Colleagues:   |

| No. | Date of comment, format of comment, name of organisation/ I&AP                                       | Comment   | Response from EAP/ Applicant/ Specialist  |
|-----|--|---|---|
|     |  | Gauteng: Gauteng North<br>KwaZulu-Natal: iSimangaliso<br>Limpopo: Soutini-Baleni<br>North West: Madikwe National Park and Molopo.   | <ul style="list-style-type: none"> <li>• Ms Mpume Ntlokwana</li> <li>• Ms Serah Muobeleni</li> </ul> <p>If you continue to have difficulty accessing the documents please let us know for further assistance.</p>   |
| 7.  | 14 March 2019<br><br>Email<br><br><b>Department of Environmental Affairs (Zesipho Makhosayafana)</b> | <p>Comments on the draft Basic Assessment Report for the Proposed Working for Wetlands Programme within Amathole in the Eastern Cape Province</p> <p>The draft Basic Assessment Report (BAR) dated February 2019 and received by the Department on 11 February 2019, refers.</p> <p>This letter serves to inform you that the following information must be included in the final BAR:</p> <p>Please ensure that all relevant listed activities are applied for, are specific and that it can be linked to the development activity or infrastructure as described in the project description.</p> <p>Kindly specify if the project will involve the clearance of indigenous vegetation or alien invasive species as, Activity 27 of GN R983 and activity 12 of GN R985, refer to the clearance of indigenous vegetation, yet your description for its applicability states that there will be clearance of alien invasive species instead.</p> <p>The declaration form of the EAP incorporated into the application form is not signed. You are requested to ensure that the final BAR has a signed declaration form by the EAP.</p> <p>An original signed undertaking under oath or affirmation by the EAP (administered by a Commissioner of Oaths), must be</p> | <p>EAP: Descriptions of interventions associated with the relevant listed activities have been updated to refer to interventions included in the associated rehabilitation plan(s). Note that the descriptions are slightly generic to allow for variations of the general intervention type in the rehabilitation plans.</p> <p>EAP: The Working for Wetlands Programme does include the clearing of alien invasive species as part of the wetland rehabilitation interventions proposed. The regulations pursuant to NEMA refer to the clearing of indigenous vegetation, where "indigenous" by definition is "<i>vegetation consisting of indigenous plant species occurring naturally in the area, regardless of the alien infestation, and where the topsoil has not been lawfully disturbed during the preceding ten years</i>". For this reason, Activity 27 has been included.</p> <p>EAP: An original signature of the EAP will be provided on the declaration form with the Final BAR.</p> <p>EAP: An original signed undertaking under oath or affirmation by the EAP (administered by a Commissioner of Oaths), will be</p> |

| No. | Date of comment, format of comment, name of organisation/ I&AP | Comment  | Response from EAP/ Applicant/ Specialist   |
|-----|--|--|--|
|     |  | <p>included in the final BAR, as per Appendix 1(3)(r) of the EIA Regulations, 2014, which states that the BAR must include:</p> <ul style="list-style-type: none"> <li>➤ an undertaking under oath or affirmation by the EAP in relation to:</li> <li>➤ the correctness of the information provided in the reports:</li> <li>➤ the inclusion of comments and inputs from stakeholders and I&amp;APs;</li> <li>➤ the inclusion of inputs and recommendations from the specialist reports where relevant; and</li> </ul> <p>any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.</p> | <p>included in the Final BAR, as per Appendix 1(3)(r) of the EIA Regulations, 2014 (as amended), and as per the listed inclusions.</p>   |
|     |  | <p>Should the activities applied for in the application form differ from those mentioned in the final BAR, an amended application form must be submitted, inclusive of the abovementioned signed documents. Please note that the Department's application form template has been amended and can be downloaded from the following <a href="https://www.environment.gov.za/documents/forms">link</a> <a href="https://www.environment.gov.za/documents/forms">https://www.environment.gov.za/documents/forms</a>.</p>   | <p>EAP: An amended application form will be submitted with the final BAR to the Department.</p>  |
|     |  | <p>Please also ensure that the BAR includes the period for which the environmental authorisation is required and the date on which the activity will be concluded as per the Appendix 1(3)(1)(q) of the Environmental Impact Assessment (EIA) Regulations, 2014 as amended (GN R. 982).</p>  | <p>EAP: Section 8.2 has been updated in the BAR to provide this information, and the checklist titled "NEMA Requirements for Basic Assessment Reports on pages i-iii has been updated accordingly.</p>   |
|     |  | <p>The report indicates that there will be vehicles to bring construction material on site yet the maps provided do not show any access roads available. Kindly indicate if part of the</p>  | <p>EAP: Existing access roads and tracks will be used by vehicles, and where this is not possible, the site will be accessed on foot. There are no current proposals to develop any new access roads, and certainly none that will trigger additional Listed Activities.</p> |

| No. | Date of comment, format of comment, name of organisation/ I&AP | Comment  | Response from EAP/ Applicant/ Specialist   |
|-----|--|--|--|
|     |  | rehabilitation activities will require the construction of access roads and whether this will trigger the applicable listed activities   |  |
|     |  | The project involves the construction of crossings for both livestock and community members. Please specify the types of crossings these are intended to be.   | EAP: Please refer to the Amathole Rehabilitation Plan for detail on the interventions proposed, including the location, dimensions and designs of any crossings.   |
|     |  | Four areas are considered for rehabilitation in Quaternary catchment S32E according to the report, however the public participation documents state that Tsitsikamma and Kromme will also be considered. Kindly specify the exact project areas being considered for rehabilitation, are Tsitsikamma and Kromme part of these areas?   | EAP: Please note that the BAR focus on four wetlands within the Amathole Project Area. The Kromme <sup>2</sup> and Tsitsikamma <sup>3</sup> projects are not part of the BAR process since they received environmental authorisation during previous planning years. Please also note that the works included in the Tsitsikamma Rehabilitation Project is for maintenance purposes.   |
|     |  | <p>The BAR must provide clear maps of an A3 size, with an indication of all the envisioned areas along the wetland system that will be subject to rehabilitation. All available biodiversity information must be used in the finalisation of this map. Existing infrastructure must be used as far as possible e.g. roads. The map must indicate the following:</p> <ul style="list-style-type: none"> <li>➤ All supporting onsite infrastructure such as laydown area, guard house, control room, and buildings, including accommodation etc.</li> <li>➤ The location of sensitive environmental features on site e.g. CBAs that will be affected; and</li> <li>➤ All “no-go” areas.</li> </ul> | <p>EAP: A map indicating the wetlands earmarked for rehabilitation is provided in Appendix C of the BAR. The associated rehabilitation plan provides a project description and a locality plan of the proposed interventions, although no supporting infrastructure or accommodation will be required.</p> <p>Please note that the entire site is sensitive since the purpose of the project is to rehabilitate degraded wetlands.</p> |
|     |  | Page 4 of the BAR indicates that there are no heritage resources that will be affected by the project which were identified. Kindly provide an A3 size sensitivity map for heritage and palaeontology resources overlain in the proposed project site area   | EAP: Please see Section 2.4 of the BAR regarding the applicability of the National Heritage Resource Act (Act 25 of 1999) to the project. The requirements of the NHRA were considered (Section 2.4 of the BAR), and there is no indication that heritage studies are required in terms of the NHRA. The project was submitted on  |

<sup>2</sup> DEA Ref. No: 14/12/16/3/3/1/1848

<sup>3</sup> DEA Ref. No: 12/12/20/942/1/1 and 12/12/20/942/1/2

| No. | Date of comment, format of comment, name of organisation/ I&AP | Comment   | Response from EAP/ Applicant/ Specialist  |
|-----|--|---|---|
|     |  |   | SAHRIS but no comment has been received to date. Should further heritage studies be required by SAHRA, then such maps can be provided.  |
|     |  | Additionally, please provide a written confirmation from SAHRA indicating that the project area does not have archaeological and or paleontological sensitivities in terms of the National Heritage Resources Act, and that indeed no Heritage Impact Assessment is required.   | EAP: The project was submitted on SAHRIS but no comment has been received to date. Please also see Section 2.4 of the BAR regarding the applicability of the National Heritage Resource Act (Act 25 of 1999) to the project.  |
|     |  | According to page 4 of the report, the wetland specialist provided a high-level strategic assessment during phase 1. In addition, as per the diagram contained on page 15 of the BAR you have indicated that the outcome of Phase 1 will be a finalized Phase 7 report. As such, kindly ensure that the final BAR includes a copy of the final Phase 1 report, detailing the findings of the assessment.  | EAP: Please refer to Appendix B6 for a copy of the Phase 1 report.  |
|     |  | <p>In addition to the above, you are further required to include the Terms of Reference for the wetland specialist.</p> <p>a) The EAP must ensure that the terms of reference (TOR) for all the identified specialist studies must include the following:</p> <ul style="list-style-type: none"> <li>➤ A detailed description of the study's methodology; indication of the locations and descriptions of the development footprint, and all other associated infrastructures that they have assessed and are recommending for authorisations.</li> <li>➤ Provide a detailed description of all limitations to the studies. All specialist studies must be conducted in the right season and providing that as a limitation will not be allowed.</li> </ul> | <p>EAP: The terms of reference (TOR) for the Wetland Specialist is summarised in Section 3 of the General Methodology of the Rehabilitation Plan. The Wetland Specialist (Retief Grobler) provided a Phase 2: Status Quo Assessment (Appendix A of the BAR) that included:</p> <ul style="list-style-type: none"> <li>– A detailed description of the study's methodology (Section 2); an indication of the locations and descriptions of the development footprint (Sections 3 and 5), and all other associated infrastructures that they have assessed and are recommending for authorisations (N/A - this is not a development proposal, interventions are provided in the Intervention Booklet: Appendix C of the Rehabilitation Plans).</li> <li>– A detailed description of all limitations to the study (Section 4). All specialist field work was conducted in the appropriate season.</li> </ul> |

| No. | Date of comment, format of comment, name of organisation/ I&AP | Comment  | Response from EAP/ Applicant/ Specialist   |
|-----|--|--|--|
|     |  | <ul style="list-style-type: none"> <li>➤ Please note that the Department considers a 'no-go' area, as an area where no development of any infrastructure is allowed; therefore, no development of associated infrastructure including access roads is allowed in the 'no-go' areas.</li> <li>➤ Should the specialist definition of 'no-go' area differ from the Departments definition; this must be clearly indicated. The specialist must also indicate the 'no-go' area's buffer if applicable.</li> <li>➤ All specialist studies must be final, and provide detailed/practical mitigation measures and recommendations, and must not recommend further studies to be completed post EA. Should specialists recommend specific mitigation measures, these must be clearly indicated.</li> </ul> | <ul style="list-style-type: none"> <li>– It is important to note that:</li> <li>– The Specialist's definition of a 'No-Go' area concurs with that of the Departments definition. The specialist was required to indicate any 'No-Go' areas, as well as their buffers, if applicable.</li> <li>– The Phase 2: Status Quo Assessment provided is the Final version.</li> <li>– Detailed/practical mitigation measures and recommendations are provided in the Rehabilitation Plans (EMP) and specific mitigation per intervention (where required) is provided in the Intervention Booklet (Appendix C of the Rehabilitation Plan).</li> <li>– No further studies are required to be completed post EA.</li> </ul> |
|     |  | <p>b) You are further reminded to provide proof to show that the registered interested and affected parties and organ of states received written notification of the proposed activities, as per the requirements of regulation 41(2)(b) of the EIA Regulations, 2014. This proof may include any of the following:</p> <ul style="list-style-type: none"> <li>➤ e-mail delivery reports;</li> <li>➤ registered mail receipts;</li> <li>➤ courier waybills;</li> <li>➤ Signed acknowledgements of receipt;</li> </ul>  | <p>EAP: Please refer to Annexure B4.</p>   |



| No. | Date of comment, format of comment, name of organisation/ I&AP | Comment  | Response from EAP/ Applicant/ Specialist   |
|-----|--|--|--|
|     |  | and/or any other proof as agreed upon by the competent authority.  |  |
|     |  | Proof of the notice boards placed in the proposed site area or any alternative site.   | EAP: Please refer to Section 3.4 of this document.   |
|     |  | Please ensure that all issues raised, and comments received during the circulation of the draft BAR to registered I&APs and organs of state which have jurisdiction (including this Department's Biodiversity & Conservation Branch) in respect of the proposed activity are adequately addressed in the final BAR.                  | EAP: All issues raised, and comments received to date is included in this table. Note that no comments have been received from the DEA: Biodiversity and Conservation to date.   |
|     |  | A Comments and Response (C&R) report must be submitted with the final BAR. The C&R report must incorporate all comments received for this development. Please note that a response such as "Noted" is not regarded as an adequate response to I&APs' comments.   | EAP: All issues raised, and comments received to date is included in this table. All comments received during the second 30-day public comment period will also be included in this table and responded to prior to the BAR being finalised for submission to DEA. |
|     |  | The EAP must indicate based on the assessment, the specialist assessment conducted and the various engineering methods, which interventions at which locations will be most suited and should be authorised for this project. The mitigation measures and recommendations to be included in EMPr should also be provided by the EAP. | EAP: Please refer to the Amathole Rehabilitation Plan for information on the rehabilitation interventions that have been identified to achieve specific wetland rehabilitation objectives.   |
|     |  | The BAR, specialist studies and EMPr must ensure compliance to the relevant appendices as outlined in the EIA Regulations, 2014 as amended.  | EAP: The checklist titled "NEMA Requirements for Basic Assessment Reports" is provided on pages i-iii.   |
|     |  | The final BAR must include a copy of the Memorandum of Understanding for Working for Wetlands Programme referred to on page 4 of the draft BAR received on February 2019.  | EAP: Please note that the Working for Wetlands Programme was unable to provide a copy of the Memorandum of Understanding. Subsequently, the section has been removed from the BAR.   |

| No. | Date of comment, format of comment, name of organisation/ I&AP | Comment  | Response from EAP/ Applicant/ Specialist  |
|-----|--|--|---|
|     |  | <p>Please also ensure that the final BAR includes the period for which the Environmental Authorisation is required and the date on which the activity will be concluded as per Appendix 1 (3)(1)(q) of the NEMA EIA Regulations, 2014, as amended</p> <p>I. You are further reminded to comply with Regulation 19(1)(a) of the NEMA EIA Regulations, 2014, as amended, which states that:</p> <p><i>“Where basic assessment must be applied to an application, the applicant must, within 90 days of receipt of the application by the competent authority, submit to the competent authority- (a) basic assessment report, inclusive of specialist reports, an EMPr, and where applicable a closure plan, which have been subjected to a public participation process of at least 30 days and which reflects the incorporation of comments received, including any comments of the competent authority.”</i></p> <p>II. Should there be significant changes or new information that has been added to the BAR or EMPr which changes or information was not contained in the reports or plans consulted on during the initial public participation process, you are required to comply with Regulation 19(b) of the NEMA EIA Regulations, 2014, as amended, which states that:</p> <p><i>“the applicant must, within 90 days of receipt of the application by the competent authority, submit to the competent authority — (b) a notification in writing that the basic assessment report, inclusive of specialist reports an EMPr, and where applicable, a closure plan, will be submitted within 140 days of receipt of the application by the competent authority, as significant changes</i></p> | <p>EAP: Section 8.2 has been updated in the BAR to provide this information, and the checklist titled "NEMA Requirements for Basic Assessment Reports on pages i-iii has been updated accordingly.</p> <p>EAP: The Department’s reminder is appreciated. An extension in terms of Section 19(1)(b) of the NEMA EIA Regulations, 2014, as amended, has been obtained. Please refer to Appendix B6 for a copy of the letter that was submitted to DEA in this regard.<sup>4</sup></p> <p>EAP: A Section 19(1)(b) of the NEMA EIA Regulations, 2014, as amended, extension was obtained to allow for the project specific wetland rehabilitation plan (that are mentioned in the BAR) to be made available to the public for comment with the updated BAR.</p> |

<sup>4</sup> Please note that this letter has subsequently been removed from the PPR as it is not applicable to the new application process.

| No. | Date of comment, format of comment, name of organisation/ I&AP | Comment  | Response from EAP/ Applicant/ Specialist  |
|-----|--|--|---|
|     |  | <p><i>have been made or significant new information has been added to the basic assessment report or EMPr or, where applicable, a closure plan, which changes or information was not contained in the reports or plans consulted on during the initial public participation process contemplated in sub regulation (1)(a) and that the revised reports or, EMPr or, where applicable, a closure plan will be subjected to another public participation process of at least 30 days'.</i></p> |   |
|     |  | <p>Further note that in terms of Regulation 45 of the EIA Regulations, 2014, this application will lapse if the applicant fails to meet any of the timeframes stipulated in Regulation 19, unless an extension has been granted in terms of Regulation 3 (7).</p>  | <p>EAP: The Department's comment is noted.</p>  |
|     |  | <p>You are requested to submit one (1) copy of the final BAR to the Department and at least one (1) unprotected electronic copy (USB/CD/DVD) of the complete final report with the hard copy documents.</p>  | <p>EAP: One (1) hard copy and one (1) electronic copy of the final BAR will be submitted to the Department for consideration.</p> |
|     |  | <p>You are hereby reminded of Section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorisation being granted by the Department.</p>   | <p>EAP: The Department's reminder is noted.</p>   |

Table 3: I&amp;AP Comments and Responses (7 June 2019 – 8 July 2019)

| No. | Date of comment, format of comment, name of organisation/ I&AP                             | Comment  | Response from EAP/ Applicant/ Specialist  |
|-----|--|--|---|
| 1.  | 07 June 2019<br>Email<br><br><b>Department of Water and Sanitation (Dr Wietsche Roets)</b> | You are mentioning the GA1198 in your document, please ensure that you comply to the requirements set out in GA1198 and submit relevant registration documents to the relevant regional operations of DWS. | EAP: Thank you for your comment. The necessary General Authorisation approval process will be undertaken by the applicant.  |
| 2.  | 07 June 2019<br>Email<br><br><b>Department of Water and Sanitation (Pieter Ackerman)</b>   | <p>My comments include:</p> <ol style="list-style-type: none"> <li>1. Hydrological and ecological connectivity must be catered for in the designs.</li> </ol>  | <p>EAP: The rehabilitation objectives for the WFWetlands planning are to secure and improve the overall integrity of the systems, particularly focusing on maintaining and improving the hydrological conditions where possible. In turn the overall functioning of the systems and the conditions that support a range of wetland dependent fauna and flora will be secured and enhanced.</p> <p>During the planning phase, the wetland specialists assess the ecological status and characteristics of the wetland in terms of the Wet-Health methodology, taking into consideration hydrology, geomorphology, terrestrial ecology and vegetation). The findings of this assessment are then used to determine the rehabilitation objectives for the wetland as well as the most appropriate design intervention to achieve these objectives. The key purposes of implementing design interventions also include restoring hydrological integrity, raising the general water table and redistributing water across the wetland area and recreating wetland habitats towards the conservation of biodiversity.</p> |
|     |  | <ol style="list-style-type: none"> <li>2. It must be monitored if and how the ecological category changed after rehabilitation. PES of category D to PES of B.</li> </ol>                                  | EAP: The monitoring and evaluation of the wetland systems relies on collecting relevant baseline information, with collected data including fixed point photographs. It also includes the number of wetlands rehabilitated, number of HGM units rehabilitated, hectare  |

| No. | Date of comment, format of comment, name of organisation/ I&AP | Comment   | Response from EAP/ Applicant/ Specialist  |
|-----|--|---|---|
|     |  |   | <p>equivalent gained, and area secured. The Present Ecological State (PES) assessments compares current changes to the expected natural wetland properties. The ecological integrity or PES of the Wetlands were assessed based on perceived modifications to wetland hydrology, geomorphology and vegetation. These components of the ecological integrity of the wetland were assessed for the current status quo and post-rehabilitation.</p>  |
|     |  | <p>3. Scientific buffers must be included taking into account hydro-pedological flow drivers in the landscape</p> | <p>EAP: The wetland assessments undertaken by the wetland specialists are in accordance with the methodology prescribed by WET-EcoServices and WET-Health assessment techniques, which consider Hydrological, geomorphological and vegetation drivers. In addition, Ecological Importance and Sensitivity (EIS) assessments were also undertaken (see Section 2.1 of the Wetland Status Quo Assessments; Annexure A of the rehabilitation plans). Specifically, these assessments consider (amongst others):</p> <ul style="list-style-type: none"> <li>• Regulatory and supporting benefits (including flood attenuation, streamflow regulation and water quality);</li> <li>• Biodiversity maintenance benefits;</li> <li>• Ecological importance and sensitivity;</li> <li>• Hydro-functional importance;</li> <li>• Wetland hydrology;</li> <li>• Wetland geomorphology and</li> <li>• Structural and compositional state of the vegetation.</li> </ul> |

| No. | Date of comment, format of comment, name of organisation/ I&AP | Comment   | Response from EAP/ Applicant/ Specialist   |
|-----|--|---|--|
|     |  | 4. A guideline with concept designs must be compiled on how wetlands and pans can be re-created taking into account destruction of pans by mines.....OR a clear statement that the recreation is not possible in most cases.....In which cases can it work. | EAP: Your request has been forwarded to the Working for Wetlands management team to be addressed separately from the Basic Assessment process.   |
|     |  | 5. A guideline with concept designs for constructed wetlands.   | EAP: Your request has been forwarded to the Working for Wetlands management team to be addressed separately from the Basic Assessment process.   |
|     |  | 6. Lessons learned  | EAP: Wetland assessments are carried out in accordance with WET-Rehab-Evaluate, which include monitoring and evaluation facilitating the dissemination of lessons learnt and provide a means of reporting on the success of specific wetland rehabilitation initiatives. The monitoring and evaluation (M&E) of an identified wetland rehabilitation project's performance is therefore considered vital to inform the evaluation of wetland rehabilitation success. |
|     |  | 7. Re-introduction of plants and animals must be taken into account   | EAP: The Wetland rehabilitation objectives consider the recreation of wetland habitat towards the conservation of biodiversity, which includes the re-introduction of plants.  |
|     |  | 8. Environmental awareness training for protection of the system in future.   | EAP: Noted. Other activities that form part of the WfWetlands programme include raising awareness of wetlands among landowners, workers and general public, providing education and training, and technical skills transfer. This involves capacity building through education and training community members who would monitor the progress of rehabilitated wetlands.  |
|     |  | 9. Follow ups   | EAP: During Phase 3 of the planning process, constructed interventions are visited by the Working for Wetlands Provincial Coordinator to monitor the functioning of the intervention and to determine if any maintenance is required. Follow-up visits are also  |

| No. | Date of comment, format of comment, name of organisation/ I&AP                              | Comment   | Response from EAP/ Applicant/ Specialist  |
|-----|---|---|---|
|     |   |   | required in terms of the monitoring and evaluation process that the Programme applies.  |
| 3.  | 28 June 2019<br>Email<br><b>Amathole District Municipality (Pamela Ngabase)</b>             | This is to acknowledge the receipt of the Draft BAR for Wetlands Rehabilitation. If there are any comments, they will follow at a later stage.  | EAP. The Amathole District Municipality's acknowledgement of receipt is appreciated.  |
| 4.  | 4 July 2019<br>Letter<br><b>Department of Environmental Affairs (Zesipho Makhosayafana)</b> | <p>This letter serves to inform you that the following information must be included in the final BAR:</p> <p>a) Kindly specify if the project will involve the clearance of indigenous vegetation or alien invasive species as, Activity 27 of GN R983 and activity 12 of GN R985, refer to the clearance of indigenous vegetation, yet your description to its applicability states that there will be clearance of alien invasive species instead.</p> <p>b) The declaration form of the EAP incorporated into the application form is not signed. You are requested to ensure that the final BAR has a signed declaration form by the EAP.</p> | <p>EAP: Clearing of indigenous vegetation may be required during the excavation of foundations for interventions such as gabion/ concrete weirs.</p> <p>EAP: An updated EAP declaration has been included in the Final BAR.</p> |

| No. | Date of comment, format of comment, name of organisation/ I&AP | Comment   | Response from EAP/ Applicant/ Specialist                               |
|-----|--|---|--|
|     |  | <p>c) An original signed undertaking under oath or affirmation by the EAP (administered by a Commissioner of Oaths), must be included in the final BAR, as per Appendix 1(3)(r) of the EIA Regulations, 2014, which states that the BAR must include:</p> <ul style="list-style-type: none"> <li>• an undertaking under oath or affirmation by the EAP in relation to:</li> <li>• the correctness of the information provided in the reports:</li> <li>• the inclusion of comments and inputs from stakeholders and I&amp;APs;</li> <li>• the inclusion of inputs and recommendations from the specialist reports where relevant; and</li> <li>• any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties”.</li> </ul> | EAP: An updated EAP declaration has been included in the Final BAR.    |
|     |  | <p>d) Should the activities applied for in the application form differ from those mentioned in the final BAR, an amended application form must be submitted, inclusive of the abovementioned signed documents. Please note that the Department’s application form template has been amended and can be downloaded from the following link <a href="https://www.environment.gov.za/documents/forms">https://www.environment.gov.za/documents/forms</a>.</p>  | EAP: An updated application form has been submitted to the Department. |
|     |  | <p>e) Please also ensure that the BAR includes the period for which the environmental authorisation is required and the date on which the activity will be concluded as per the Appendix 1(3)(1)(q) of the Environmental Impact Assessment (EIA) Regulations, 2014 as amended (GN R. 982).</p>  | EAP: Please refer to Section 8.2 of the final BAR.                     |



| No. | Date of comment, format of comment, name of organisation/ I&AP | Comment  | Response from EAP/ Applicant/ Specialist   |
|-----|--|--|--|
|     |  | <p>f) The report indicates that there will be vehicles to bring construction material on site yet the maps provided do not show any access roads available. Kindly indicate if part of the rehabilitation activities will require the construction of access roads and whether this will trigger the applicable listed activities.</p> | <p>EAP: We can confirm that no roads will be constructed to provide access to wetlands for rehabilitation purposes. Only existing roads will be used. Should roads not existing, material required for the interventions will be taken to the site manually by the contractors from the closest road.</p>  |
|     |  | <p>g) The project involves the construction of crossings for both livestock and community members. Please specify the types of crossings these are intended to be.</p>   | <p>EAP: Crossings will mostly consist of geocell-covered berms that are designed to protect the channel. These interventions will also de-activate in-channel erosion and lift the water table in the wetland.</p> <p>Concerns were also raised by the community regarding dangerous stream crossings, for which concrete splash-through crossings are proposed. These interventions will also assist with the protection of banks from continued erosion taking place (especially during the wet season).</p> <p>Please refer to the Amathole Rehabilitation Plan for more detail regarding the proposed crossings.</p> |
|     |  | <p>h) Four areas are considered for rehabilitation in Quaternary catchment S32E, according to the report, however the public participation document states that Tsitsikamma and Kromme will also be considered. Kindly specify the project areas considered for rehabilitation.</p>  | <p>EAP: The wetland systems for both the Tsitsikamma and Kromme project areas received Environmental Authorisation during previous years. Approval of these rehabilitation plans are thus requested as a condition of the relevant Environmental Authorisation.<sup>5</sup></p>  |
|     |  | <p>i) The BAR must provide a clear map at an appropriate scale (A3 size) with an indication of all the envisioned areas along the wetland system that will be subject to rehabilitation. All available biodiversity information must be used in the finalisation of this map. Existing infrastructure</p>                              | <p>EAP: Please note that the entire project is located in a sensitive area due to the nature of the proposed wetland rehabilitation activities. Maps have thus been included in the BAR showing CBAs, the location of the wetlands requiring rehabilitation interventions, etc.</p>  |

<sup>5</sup> Please note that approval for these rehabilitation plans have been received subsequently.

| No. | Date of comment, format of comment, name of organisation/ I&AP | Comment   | Response from EAP/ Applicant/ Specialist  |
|-----|--|---|---|
|     |  | <p>must be used as far as possible e.g. roads. The map must indicate the following:</p> <ul style="list-style-type: none"> <li>• All supporting onsite infrastructure such as laydown area, guard house, control room, and buildings, including accommodation etc.</li> <li>• The location of sensitive environmental features on site e.g. CBAs, heritage sites, wetlands, drainage lines etc. that will be affected:</li> <li>• Buffer areas; and</li> <li>• All “no-go” areas.</li> </ul>  | <p>All maps have been printed on A3 size paper in the Final BAR.</p>  |
|     |  | <p>j) You are further reminded to provide proof to show that the registered interested and affected parties and organ of states received written notification of the proposed activities, as per the requirements of regulation 41(2)(b) of the EIA Regulations, 2014. This proof may include any of the following:</p> <ul style="list-style-type: none"> <li>• e-mail delivery reports;</li> <li>• registered mail receipts;</li> <li>• courier waybills;</li> <li>• Signed acknowledgements of receipt; and/or any other proof as agreed upon by the competent authority.</li> </ul> | <p>EAP: Please refer to Appendix B4 for proof of delivery.<sup>6</sup></p>  |
|     |  | <p>k) Proof of the notice boards placed in the proposed site area or any alternative site.</p>  | <p>EAP: Please refer to Section 3.4 of this document.<sup>6</sup></p>   |
|     |  | <p>l) Please ensure that all issues raised and comments received during the circulation of the draft BAR to registered I&amp;APs and organs of state which have jurisdiction (including this Department's Biodiversity &amp;</p>  | <p>EAP: All issues raised, and comments received to date is included in this table. Note that no comments have been received from the DEA: Biodiversity and Conservation to date.</p> |

<sup>6</sup> Please note that proof of delivery for the previous application process has been removed since it is not applicable to the current application process.

| No. | Date of comment, format of comment, name of organisation/ I&AP | Comment  | Response from EAP/ Applicant/ Specialist   |
|-----|--|--|--|
|     |  | Conservation Branch) in respect of the proposed activity are adequately addressed in the final BAR.  |  |
|     |  | m) Proof of correspondence with the various stakeholders must be included in the final BAR, Should you be unable to obtain comments, proof must be submitted to the Department of the attempts that were made to obtain comments. The public participation process must be conducted in terms of Regulation 38, 40, 41, 42, 43 and 44 of the Environmental Impact Assessment (EIA) Regulations, 2014, as amended.  | EAP: Please refer to Appendix B4 for proof of delivery and correspondence with stakeholders and registered I&APs. <sup>6</sup>   |
|     |  | n) A Comments and Response (C&R) report must be submitted with the final BAR. The C&R report must incorporate all comments received for this development. Please note that a response such as “Noted” is not regarded as an adequate response to I&APs’ comments.  | EAP: All issues raised, and comments received to date is included in this table. All comments received during the second 30-day public comment period have also been included in this table and responded to prior to the BAR being finalised for submission to DEA. Any additional comments received after the submission of the Final BAR, will be captured and responded to in an additional Comments and Response Report for submission to the Department. |
|     |  | <p>General</p> <p>You are further reminded that the final BAR to be submitted to this Department must comply with all the requirements in terms of the basic assessment report and EMPr in accordance with Appendix 1, Appendix 4 and Regulation 19 of the Environmental Impact Assessment Regulations (2014), as amended.</p> <p>Further note that in terms of Regulation 45 of the EIA Regulations, 2014, this application will lapse if the applicant fails to meet any of the timeframes stipulated in Regulation 19, unless an extension has been granted in terms of Regulation 3 (7).</p> | <p>EAP. The Department’s comment is acknowledged and appreciated.</p> <p>One (1) printed copy and two (2) unprotected electronic copies (DVD) of the complete Final Basic Assessment Reports have been submitted to the Department.</p>  |

| No. | Date of comment, format of comment, name of organisation/ I&AP                            | Comment   | Response from EAP/ Applicant/ Specialist   |
|-----|---|---|--|
|     |   | <p>You are requested to submit one (1) copy of the final BAR to the Department and at least two (2) unprotected electronic copy (CD/DVD) of the complete final report with the hard copy documents. You are hereby reminded of Section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorisation being granted by the Department.</p> |  |
|     | <p>8 July 2019<br/>Email<br/><b>Department of Water and Sanitation (Naomi Fourie)</b></p> | <p>Thanks for your message, it is appreciated.<br/><br/>I am however no longer involved in the licensing of wetland/ watercourse matters. Would you pls remove my email address from your list of contacts relating to this?</p>  | <p>EAP: Ms Naomi Fourie has been removed from the Interested and Affected Party (I&amp;AP) database.</p> |

## **6 WAY FORWARD**

Following the 30-day public comment period, the BAR will be updated by incorporating any I&AP comments received on the reports (where relevant). All comments will be recorded and responded to in this PPR which will be circulated to all who have provided comment. The updated BAR will then be submitted to DEA for their decision-making process. Once DEA has made their decision on the proposed project, all registered I&APs will be notified of the outcome of the decision within fourteen (14) calendar days of the decision and the right to appeal projects.

## **7 Appendices**

Appendix B1 | DEA Meeting Minutes

Appendix B2 | Landowner Agreement(s)

Appendix B3 | Written Notification

Appendix B4 | Proof of Delivery

Appendix B5 | Comments

Appendix B6 | Additional Information Don't ask me why she did no

## **Appendix B1**

### **DEA PRE-APPLICATION MEETING MINUTES**

# Meeting Record

|                 |  |              |                   |
|-----------------|--|--------------|-------------------|
| Project number  | <b>113223</b>  | Meeting date | <b>2019-08-14</b> |
| Project name    | <b>Working for Wetlands Pre-application meeting: DEA</b> | Recorded by  | <b>NX</b>         |
| Meeting/subject | <b>Meeting minutes</b>                                   | Total pages  | <b>2</b>          |

| Present                             | Apology                  | Copy                     | Name                       | Organisation                   | Contact details                   |
|-------------------------------------|--------------------------|--------------------------|----------------------------|--------------------------------|-----------------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Coenrad Agenbach (CA)      | DEA                            | cagenbach@environment.gov.za      |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Dakalo Netshiombo          | DEA                            | DNetshiombo@environment.gov.za    |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Fiona Grimett (FG)         | DEA                            | FGrimett@environment.gov.za       |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Makhosazane Yeni (MY)      | DEA                            | MYeni@environment.gov.za          |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Mmamohale Kabasa (MK)      | DEA                            | MKabasa@environment.gov.za        |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Mpho Monyai (MM)           | DEA                            | MMonyai@environment.gov.za        |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Thando Booï (TB)           | DEA                            | TBooi@environment.gov.za          |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Thulisile Nyalunga (TN)    | DEA                            | TNyalunga@environment.gov.za      |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Zesipho Makhosayafana (ZM) | DEA                            | Zmakhosayafana@environment.gov.za |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Franci Gresse (FGr)        | Aurecon South Africa (Pty) Ltd | Franci.Gresse@aurecongroup.com    |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Noluyolo Xorile (NX)       | Aurecon South Africa (Pty) Ltd | Noluyolo.Xorile@aurecongroup.com  |

The following key notes provide a record of the meeting that took place at the Department of Environmental Affairs (DEA) in Pretoria at 10:00 am on Wednesday, 14 August 2019:

## 1. Purpose and Background

- A meeting with DEA was requested to discuss the re-application process requirements for the following Working for Wetlands projects: Eastern Cape, Gauteng, KwaZulu-Natal and Limpopo.
- The submission deadline of the Final Basic Assessment Reports for these projects were missed and the applications lapsed in June 2019.

## 2. Application Process Requirements

- DEA indicated that the Environmental Impact Assessment Regulation (Government Notice Regulation (GN R) 982 of 4 December 2014), as amended, does not allow for a re-application process for Basic Assessment application. The Department will thus consider these projects as new applications in terms of the Regulations. All requirements in terms of the Regulations for a Basic Assessment application must be followed.
- A copy of the key notes from the Pre-application meeting must be submitted to the Department with the application forms.

## ■ **Public Participation Process Requirements**

- Basic Assessment Reports were made available to the public twice during the original application process. No objections were received against the proposed rehabilitation projects.
- All Basic Assessment Reports must be made available for a 30-day public comment period during which time DEA will also provide comment.
- Comments received during the original application process from the Department should be addressed in the reports. Motivations must be provided when it is felt that comments are not applicable to the project.
- The option to use posters and adverts from the original application process was discussed. It was noted that the Regulations does not indicate timeframes within which these must be placed. It also does not require DEA's reference numbers to be shown on them.
- FGr was requested to send an email to IQ to determine if it is acceptable to use the posters and adverts from the original application process. Case officers should be copied in the email to IQ.

## **3. Timeframes**

- A request to DEA IQ will be send by Friday, 16 August at the latest.
- Key notes from the meeting will be distributed to DEA as soon as possible.
- DEA requested that the key notes be distributed by Monday 26 August if Aurecon is unable to send it by Friday, 16 August since they will be at the IAIAAsa conference.

## **4. Site Visits**

- Case officers will decide whether a site visit is needed after reviewing the Draft Basic Assessment Reports. If the case officers are of the opinion that the site is sensitive and/or are unclear about the content of the document, a site visit will be requested.
- It was requested that site visit requests be communicated to Aurecon as soon as possible (i.e. before the end of the public comment period if possible) to start with preparations for site visits and to clear diaries with the Provincial Coordinators to accompany the case officers to site.
- DEA confirmed that an agreement was reached with Millicent Solomons that the Working for Wetlands' (WfWetlands) Provincial Coordinators may accompany the case officers to site instead of the Environmental Assessment Practitioner.
- DEA indicated that a site visit to a rehabilitated wetland would be beneficial to assist the case officer with familiarising themselves with the interventions that are used by WfWetlands.

## **5. Way Forward**

- Meeting minutes will be circulated to all attendees for review and approval.
- Aurecon will submit a query to DEA IQ regarding the use of the posters and adverts from the previous application process.



## WORKING FOR WETLANDS: CONTEXT DOCUMENT

### 1. Introduction

Working for Wetlands (WfWetlands) is a government programme managed by the Natural Resource Management Programme (NRMP) of the Department of Environmental Affairs, and is a joint initiative with the Departments of Water and Sanitation (DWS), and Agriculture, Forestry and Fisheries (DAFF). In this way the programme is an expression of the overlapping wetland-related mandates of the three parent departments, and besides giving effect to a range of policy objectives, it also honours South Africa's commitments under several international agreements, especially the Ramsar Convention on Wetlands.

The programme is mandated to protect pristine wetlands, promote their wise-use and rehabilitate those that are damaged throughout South Africa, with an emphasis on complying with the principles of the Expanded Public Works Programme (EPWP) and using only local Small, Medium and Micro Enterprises (SMMEs). The EPWP seeks to draw significant numbers of unemployed people into the productive sector of the economy, gaining skills while they work and increasing their capacity to earn an income.

### 2. Wetlands and their importance

Once considered valueless wastelands that needed to be drained or converted to more useful land use purposes, wetlands are now seen in an entirely different light. Today wetlands are more commonly perceived as natural assets and natural infrastructure able to provide a range of products, functions and services free of charge.

That which actually constitutes a wetland is often not fully understood. Common misconceptions have been that wetlands must be wet, must have a river running through them, or must always be situated in low-lying areas. The definition of a wetland is much broader and more textured: they are characterised more by soil properties and flora than by an abundance of water.

The National Water Act, No. 36 of 1998 defines a wetland as:

*"land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil".*

The Ramsar Convention defines wetlands as:

*"areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6m" (Article 1, Ramsar Convention on Wetlands. 1971).*

Wetlands can therefore be seasonal and may experience regular dry spells (sometimes even staying dry for up to several years), or they can be frequently or permanently wet. Wetlands can occur in a variety of locations across the landscape (**Plate A**), and may even occur at the top of a hill, nowhere near a river. A pan, for example, is a wetland which forms in a depression. Wetlands also come in many sizes; they can be as small as a few square metres (e.g. at a low point along the side of a road) or cover a significant portion of a country (e.g. the Okavango Delta).



**Plate A:** A large, seasonal wetland identifiable by the characteristic flora. This wetland contained no surface water at the time of the photograph

Wetland ecosystems provide a range of ecological and social services which benefit people, society and the economy at large:

- Improving the ecological health of an ecosystem by performing many functions that include flood control, water purification, sediment and nutrient retention and export, recharge of groundwater, as well as acting as vital habitats for diverse plant and animal species.
- Providing ecological infrastructure replacing the need for municipal infrastructure by providing the same or better benefit at a fraction of the cost, for example:
  - The movement of water in the landscape is slowed down by wetlands, which offers the dual benefit of flood control as well as a means of purification.
  - The slow movement of water allows heavier impurities to settle and phreatic vegetation and micro-bacteria the opportunity to remove pollutants and nutrients.
- Functioning as valuable open spaces and create recreational opportunities for people that include hiking along wetlands, fishing, boating, and bird-watching.
- Having cultural and spiritual significance for the communities living nearby. Commercially, products such as reeds and peat are also harvested from wetlands (**Plate B**).



**Plate B: Commercial products made by locals from reeds harvested from wetlands**

Wetlands are thus considered to be critically important ecosystems as they provide both direct and indirect benefits to the environment and society.

### 3. Wetland degradation

It has been estimated that originally over 10% of the Republic of South Africa (RSA) was covered by wetlands. However, this figure decreases significantly every year owing to unsustainable land-use practices. It is estimated that more than 50% of South Africa's wetlands have been destroyed through drainage of wetlands for crops and pastures, poorly managed burning regimes, overgrazing, disturbances to wetland soils, vegetation clearing as well as industrial and urban development (including mining activities).

Although wetlands are high-value ecosystems that make up only a small fraction of the country, they rank among the most threatened ecosystems in South Africa. According to a recent Council of Scientific Research (CSIR) study (Nel and Driver, 2012), South Africa's remaining wetlands were identified as the most threatened of all South Africa's ecosystems, with 48% of wetland ecosystem types being critically endangered, 12% endangered and 5% vulnerable. Only 11% of wetland ecosystem types are well protected, with 71% not protected at all.

The remaining wetland systems suffer from severe erosion and sedimentation, undesirable plant species and aquatic fauna infestations, unsustainable exploitation, artificial drainage and damming, and pollution. The continued degradation of wetlands will impact on biodiversity, ecological function, and the provision of ecosystem services with subsequent impacts on livelihoods and economic activity, as well as health and wellbeing of communities. In the absence of functional wetlands, the carbon cycle, the nutrient cycle and the water cycle would be significantly altered, mostly detrimentally.

Wetland conservation and rehabilitation should be at the heart of water management. It is necessary to prioritise South Africa's remaining wetlands such that those that offer valuable ecosystem services and are least impacted by current pressures or threats are offered immediate attention to avoid further loss, conversion or degradation.

#### 4. The Working for Wetlands Programme

South Africa is a dry country, but is endowed with exceptionally rich biodiversity. The nation has a pressing reason to value the water-related services that wetlands provide. It is estimated that by 2025, South Africa will be one of fourteen African countries classified as "*subject to water scarcity*" (UNESCO, 2000). The conservation of wetlands is fundamental to the sustainable management of water quality and quantity, and wetland rehabilitation is therefore essential to conserving water resources in South Africa.

The guiding principles of the National Water Act, No. 36 of 1998, recognise the need to protect water resources. In responding to the challenge of stemming the loss of wetlands and maintaining and enhancing the benefits they provide, government has recognised that, in order to be truly effective, strategies for wetland conservation need to include a combination of proactive measures for maintaining healthy wetlands, together with interventions for rehabilitating those that have been degraded. These objectives are currently being expressed in a coordinated and innovative way through the WfWetlands Programme.

Working for Wetlands pursues its mandate of wetland protection, wise use and rehabilitation in a manner that maximises employment creation, supports small emerging businesses, and transfers skills amongst vulnerable and marginalised groups. In the 13 years since 2004, the WfWetlands Programme has invested just under R1 billion in wetland rehabilitation and has been involved in over 1,300 wetlands, thereby improving or securing the health of over 70 000 hectares of wetland environment. The WfWetlands Programme has a current budget of just over R 130 million, of which approximately 35% is allocated directly to paying wages. Being part of the EPWP, the WfWetlands Programme has created more than 27 000 jobs and over 3 million person-days of paid work. The local teams are made up of a minimum of 55% women, 55% youth and 2% disabled persons.

Wetlands are not easy ecosystems to map at a broad scale as they are numerous, often small and difficult to recognise and delineate on remotely sensed imagery such as satellite photos. The WfWetlands Programme houses the National Wetlands Inventory Project (NWI) which aims to provide clarity on the extent, distribution and condition of South Africa's wetlands. The project clarifies how many and which rivers and wetlands have to be maintained in a natural condition to sustain economic and social development, while still conserving South Africa's freshwater biodiversity.

The National Freshwater Ecosystem Priority Areas (NFEPA) has used the NWI data to produce the most comprehensive national wetland map to date, called the NFEPA Atlas. This atlas enables the planning of wetland rehabilitation on a catchment scale.

Other activities that form part of the WfWetlands Programme include:

- Raising awareness of wetlands among workers, landowners and the general public; and
- Providing adult basic education and training, and technical skills transfer (in line with the emphasis of the EPWP on training, the WfWetlands Programme has provided 250,000 days of training in vocation and life skills).

#### 5. Rehabilitation interventions

The successful rehabilitation of a wetland requires that the cause of damage or degradation is addressed, and that the natural flow patterns of the wetland system are re-established (flow is encouraged to disperse rather than to concentrate). Approximately 800 interventions are implemented every year in the WfWetlands Programme. The key purposes of implementing interventions include:

- Restoration of hydrological integrity (e.g. raising the general water table or redistributing the water across the wetland area);
- Recreation of wetland habitat towards the conservation of biodiversity; and
- Job creation and social upliftment.

Typical activities undertaken within the projects include:

- Plugging artificial drainage channels created by development or historical agricultural practices to drain wetland areas for other land use purposes;

- Constructing structures (gabions, berms, weirs) to divert or redistribute water to more natural flow paths, or to prevent erosion by unnatural flow rates that have resulted from unsustainable land use practices or development; and
- Removing invasive alien or undesirable plant species from wetlands and their immediate catchments (in conjunction with the Working for Water initiative).

Methods of wetland rehabilitation may include hard engineering interventions such as:

- Earth berms or gabion systems to block artificial channels that drain water from or divert polluted water to the wetland;
- Concrete and gabion weirs to act as settling ponds, to reduce flow velocity or to re-disperse water across former wetland areas thereby re-establishing natural flow paths;
- Earth or gabion structure plugs to raise channel floors and reduce water velocity;
- Concrete or gabion structures to stabilise head-cut or other erosion and prevent gullies;
- Concrete and/or reno mattress strips as road crossings to address channels and erosion in wetlands from vehicles; and
- Gabion structures (mattresses, blankets or baskets) to provide a platform for the growth of desired wetland vegetation.

Soft engineering interventions also offer successful rehabilitation methods, and the following are often used together with the hard engineering interventions:

- The use of biodegradable or natural soil retention systems such as eco-logs, Macmat-R plant plugs, grass or hay bales, and brush-packing techniques;
- The re-vegetation of stabilised areas with appropriate wetland and riparian plant species;
- Alien invasive plant clearing, which is an important part of wetland rehabilitation (this is supported by the Working for Water Programme).
- The fencing off of sensitive areas within the wetland to keep grazers out and to allow for the re-establishment of vegetation;
- In some instances, the use of appropriate fire management and burning regimes. The removal of undesirable plant and animal species; and
- In some wetlands, it may be possible to involve the community to develop a management plan for wise use within a wetland. This can involve capacity building through educating and training the community members who would monitor the progress. A plan could involve measures such as rotational grazing with long term benefits for rangeland quality.

## 6. Programme, projects and phases

In order to manage the **WfWetlands Programme**, wetlands have been grouped into “projects”, and each **Wetland Project** encompasses several smaller wetland systems which are each divided into smaller, more manageable and homogenous wetland units. A Wetland Project may be located within one or more quaternary catchments within a Province. The WfWetlands Programme is currently managing 37 Wetland Projects countrywide, and rehabilitation activities range from stabilising degradation to the more ambitious restoration of wetlands to their original conditions.

Each Wetland Project is managed in three phases (as shown in the flow diagram in **Plate C**) over a two-year cycle. The first two phases straddle the first year of the cycle and involve planning, identification, design and authorisation of interventions. The third phase is implementation, which takes place during the second year.

In order to undertake these three phases, a collaborative team has been established as follows. The **Programme Team** currently comprises two subdirectories: a) Implementation and After Care and b) Planning, Monitoring and Evaluation. The Assistant Directors for Wetlands Programmes (ASDs)<sup>1</sup> report to the Implementation and After Care Deputy Director and are responsible for the identification and implementation of projects in their regions. The Programme Team is further supported by a small team that fulfil various roles such as Geographical Information Systems (GIS) and training. Independent Design Engineers and Environmental Assessment Practitioners (EAPs) are appointed to undertake the

<sup>1</sup> Previously referred to as Provincial Coordinators (PCs).

planning, design and authorisation components of the project. The project team is assisted by a number of wetland specialists who provide scientific insight into the operation of wetlands and bring expert and often local knowledge to the project teams. They are also assisted by the landowners and implementers who have valuable local knowledge of these wetlands.

The first phase is the identification of suitable wetlands which require intervention. The purpose of Phase 1 and the associated reporting is to identify:

- Priority catchments and associated wetlands/ sites within which rehabilitation work needs to be undertaken; and
- Key stakeholders who will provide meaningful input into the planning phases and wetland selection processes, and who will review and comment on the rehabilitation proposals.

**Phase 1** commences with a catchment and wetland prioritisation process for every province. The Wetland Specialist responsible for a particular province undertakes a desktop study to determine the most suitable wetlands for the WfWetlands rehabilitation efforts. The involvement of Provincial Wetland Forums and other key stakeholders is a critical component of the wetland identification processes since these stakeholders are representative of diverse groups with shared interests (e.g. from government institutions to amateur ecological enthusiasts). This phase also involves initial communication with local land-owners and other Interested and Affected Parties (I&APs) to gauge the social benefits of the work. Aerial surveys of the areas in question may be undertaken, as well as limited fieldwork investigations or site visits to confirm the inclusion of certain wetland projects or units. Once wetlands have been prioritised and agreed on by the various parties, specific rehabilitation objectives are determined for each wetland following a rapid wetland assessment undertaken by the Wetland Specialist.

**Phase 2** requires site visits attended by the fieldwork team comprising a Wetland Specialist, a Design Engineer, an EAP, and an ASD. Other interested stakeholders or authorities, landowners and in some instances the Implementing Agents (IAs) may also attend the site visits. This allows for a highly collaborative approach, as options are discussed by experts from different scientific disciplines, as well as local inhabitants with deep anecdotal knowledge. While on site, rehabilitation opportunities are investigated. The details of the proposed interventions are discussed, some survey work is undertaken by the engineers, and Global Positioning System (GPS) coordinates and digital photographs are taken for record purposes. Furthermore, appropriate dimensions of the locations are recorded in order to design and calculate quantities for the interventions. At the end of the site visit the rehabilitation objectives together with the location layout of the proposed interventions are agreed upon by the project team.

During Phase 2, monitoring systems are put in place to support the continuous evaluation of the interventions. The systems monitor both the environmental and social benefits of the interventions. As part of the Phase 2 site visit, a maintenance inventory of any existing interventions that are damaged and/or failing and thus requiring maintenance is compiled by the ASD, in consultation with the Design Engineer.

Based on certain criteria and data measurements (water volumes, flow rates, and soil types); the availability of materials such as rock; labour intensive targets; maintenance requirements etc., the interventions are then designed. Bills of quantity are calculated for the designs and cost estimates made. Maintenance requirements for existing interventions in the assessed wetlands are similarly detailed and the costs calculated. The Design Engineer also reviews and, if necessary, adjusts any previously planned interventions that are included into the historical Rehabilitation Plans.

Phase 2 also comprises a reporting component where Rehabilitation Plans are prepared for each Wetland Project. The Rehabilitation Plans include details of each intervention to be implemented, preliminary construction drawings and all necessary documentation required by applicable legislation. The Rehabilitation Plans are reviewed by various government departments, stakeholders and the general public before a specific subset of interventions are selected for implementation.

**Landowner consent** is an important component of each phase in each Wetland Project. The flow diagram, **Plate C**, demonstrates the point at which various consent forms must be approved via signature from the directly affected landowner. The ASDs are responsible for undertaking the necessary landowner engagement and for ensuring that the requisite landowner consent forms required as part of Phase 1 and 2 of this project are signed.

These include:

- WW(0): Standard operating procedure,
- WW(1): Wetland survey and Inspection consent,
- WW(2): Terms and Conditions for carrying out wetland rehabilitation,
- WW(3): Wetland Rehabilitation Activities Consent,
- WW(4): Property Inspection Prior to Wetland Rehabilitation, and
- WW(5): Notification of Completion of Rehabilitation.

Without these signed consent forms the WfWetlands Programme will not be able to implement rehabilitation interventions on the affected property.

**Phase 3** requires that certain Environmental Authorisations are obtained before work can commence in the wetlands (please see subsequent sections of this document for detail on Environmental Authorisations). Upon approval of the wetland Rehabilitation Plans by DEA, the work detailed for the project will be implemented within a year with on-going monitoring being undertaken thereafter. The Rehabilitation Plans are considered to be the primary working document for the implementation of the project via the construction/ undertaking of interventions<sup>2</sup> listed in the Plan.

It is typically at this point in the process when the final construction drawings are issued to the IAs. IAs are currently employed in the WfWetlands Programme and are responsible for employing contractors and their teams (workers) to construct the interventions detailed in each of the Rehabilitation Plans. For all interventions that are based on engineering designs (typically hard engineered interventions), the Design Engineer is required to visit the site before construction commences to ensure that the original design is still appropriate in the dynamic and ever-changing wetland system. The Design Engineer will assist the IAs in pegging and setting-out interventions. The setting-out activities often coincide with the Phase 1 activities for the next planning cycle. Phase 3 concludes with the construction of the interventions, but there is an on-going monitoring and auditing process that ensures the quality of interventions, the rectification of any problems, and the feedback to the design team regarding lessons learnt.

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<sup>2</sup> This could include soft options such as alien clearing or eco-logs, as well as hard structures for example weirs.

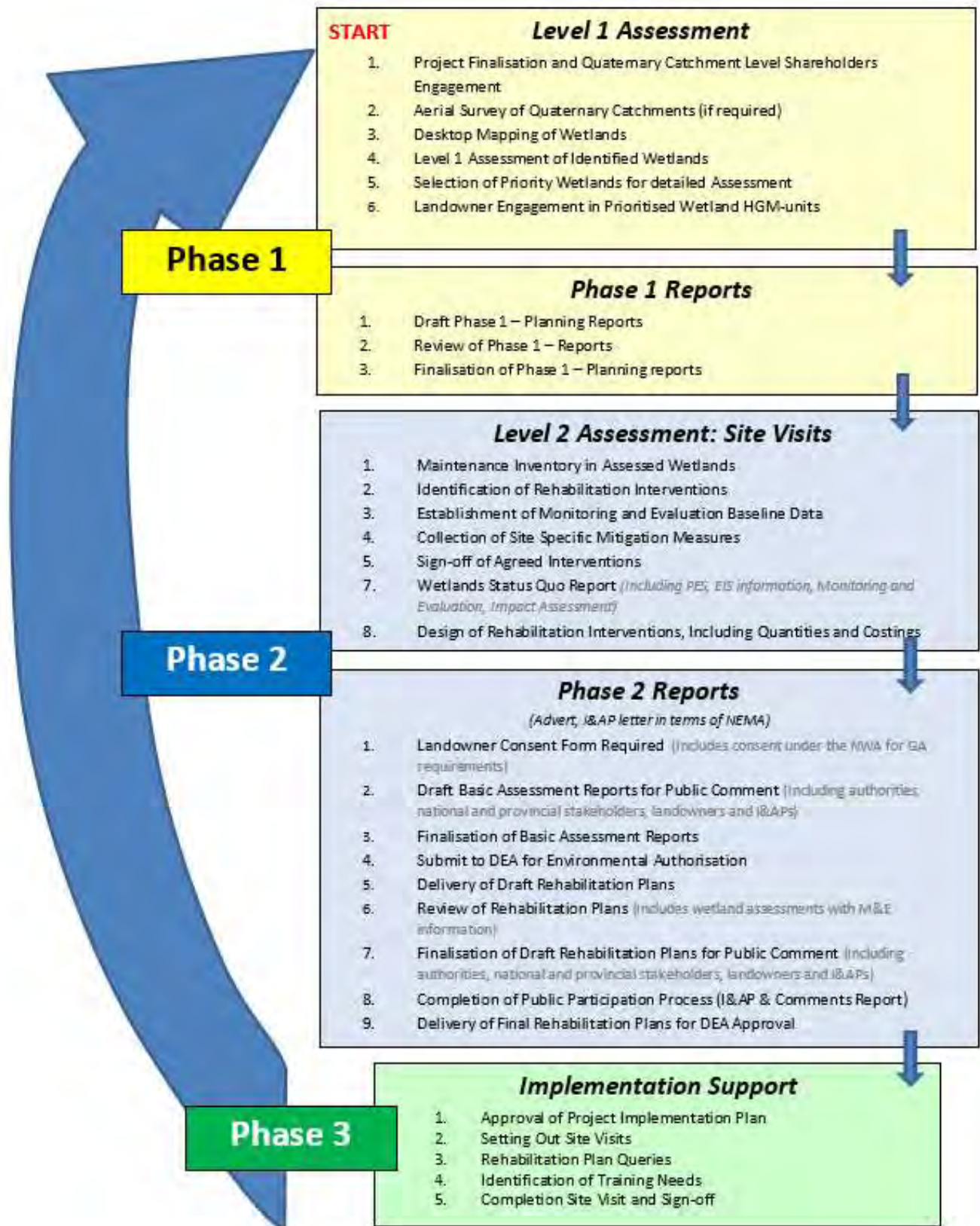


Plate C: The Working for Wetlands planning process (Phase 1 to Phase 3)

### Rehabilitation work within floodplain systems

Based on lessons learnt and project team discussions held during the National Prioritisation workshop in November 2010 the WfWetlands Programme took an in-principle decision regarding work within floodplain systems.

Recognising the ecosystem services provided by floodplain wetlands and the extent to which they have been transformed, WfWetlands do not intend to stop undertaking rehabilitation work in floodplains entirely. Instead, WfWetlands propose to adopt an approach to the rehabilitation of floodplain areas that takes into account the following guiding principles:

- a) As a general rule, avoid constructing hard interventions within an active floodplain channel; and rather
- b) Explore rehabilitation opportunities on the floodplain surface using smaller (possibly more) softer engineering options outside of the main channel.

When rehabilitation within a floodplain setting is being contemplated, it will be necessary to allocate additional planning resources, including the necessary specialist expertise towards ensuring an adequate understanding of the system and appropriate design of the interventions.

## 7. Environmental legislation

One of the core purposes of the WfWetlands Programme is the preservation of South Africa's valuable wetland systems through rehabilitation and restoration.

South Africa has rigorous and comprehensive environmental legislation aimed at preventing degradation of the environment, including damage to wetland systems. The following legislation is of relevance:

- The National Environmental Management Act, No. 107 of 1998 (NEMA), as amended
- The National Water Act, No.36 of 1998 (NWA)
- The National Heritage Resources Act, No. 25 of 1999 (NHRA)

Development proposals within or near any wetland system are subject to thorough bio-physical and socio-economic assessment as mandatory processes of related legislation. These processes are required to prevent degradation of the environment and to ensure sustainable and environmentally conscientious development.

The WfWetlands Programme requires that both hard and soft interventions are implemented in the wetland system, and it is the activities associated with the construction of these interventions that triggers requirements for various authorisations, licenses or permits. However, it is important to note that the very objective of the WfWetlands Programme is to improve both environmental and social circumstances. The WfWetlands Programme gives effect to a range of policy objectives of environmental legislation, and also honours South Africa's commitments under several international agreements, especially the Ramsar Convention on Wetlands.

### Memorandum of Understanding for Working for Wetlands Programme

A Memorandum of Understanding (MoU) has been entered into between DEA, DAFF and DWS for the WfWetlands Programme. Through co-operative governance and partnerships, this MoU aims to streamline the authorisation processes required by the National Environmental Management Act (Act 107 of 1998), the National Water Act (Act 36 of 1998), and the National Heritage Resources Act (Act 25 of 1999) to facilitate efficient processing of applications for authorisation of wetland rehabilitation activities.



Table A: List of applicable legislation

| Title of legislation, policy or guideline   | Administering authority                         | Date        |
|---|---|-------------|
| The Constitution of South Africa, Act No.108 of 1996  | National Government                             | 1996        |
| National Environmental Management Act, No.107 of 1998   | Department of Environmental Affairs             | 1998        |
| The National Water Act, No. 36 of 1998  | Department of Water and Sanitation              | 1998        |
| Conservation of Agricultural Resources Act, No. 43 of 1983  | Department of Agriculture, Forestry & Fisheries | 1983        |
| National Heritage Resources Act, No. 25 of 1999   | National Heritage Resources Agency              | 1999        |
| World Heritage Conventions Act, No. 49 of 1999  | Department of Environmental Affairs             | 1999        |
| The National Environmental Management: Biodiversity Act, No. 10 of 2004   | Department of Environmental Affairs             | 2004        |
| National Environmental Management: Protected Areas Act, No. 57 of 2003  | Department of Environmental Affairs             | 2003        |
| The Mountain Catchments Areas Act, No. 63 of 1970   | Department of Water and Sanitation              | 1970        |
| EIA Guideline Series, in particular: <ul style="list-style-type: none"> <li>Guideline 5 – Companion to the NEMA EIA Regulations, 2010 (DEA, October 2012)</li> <li>Guideline 7 – Public Participation in the EIA process, 2012 (DEA, October 2012)</li> <li>Guideline 9 - Guideline on Need and Desirability, 2010 (DEA, October 2014)</li> <li>DEA&amp;DP. 2013. Guideline on Public Participation (DEA&amp;DP, March 2013).</li> <li>DEA&amp;DP. 2013. Guideline on Alternatives (DEA&amp;DP, March 2013).</li> </ul> | Department of Environmental Affairs             | 2012 - 2014 |
| International Conventions, in particular: <ul style="list-style-type: none"> <li>The Ramsar Convention</li> <li>Convention on Biological Diversity</li> <li>United Nations Conventions to Combat Desertification</li> <li>New Partnership for Africa's Development (NEPAD)</li> <li>The World Summit on Sustainable Development (WSSD)</li> </ul>   | International Conventions                       | N/A         |

Of particular relevance in **Table A** is the following legislation and the WfWetlands Programme has put systems in place to achieve compliance:

- The National Environmental Management Act, No. 107 of 1998 (NEMA), as amended
  - In terms of the 2014 Environmental Impact Assessment Regulations pursuant to the NEMA, certain activities that may have a detrimental impact on the environment (termed Listed Activities) require an Environmental Authorisation (EA) from the DEA. The implementation of interventions will trigger NEMA Listing Notices 1 and 3 (G.N. R983 and G.N R985 as amended by R327 and R324 respectively). In order to meet the requirements of these Regulations, it is necessary to undertake a Basic Assessment (BA) Process and apply for an EA. This was previously undertaken on an annual basis per Province for each individual wetland unit. However as of 2014, applications were submitted (per Province) for wetland systems, allowing WfWetlands to undertake planning in subsequent years within these wetlands without having to undertake a BA process. The rehabilitation plans still however require approval from the competent authority (i.e. DEA).
  - **Basic Assessment Reports** (BARs) will be prepared for each Province where work is proposed by the WfWetlands Programme. These BARs will present all Wetland Projects that are proposed in a particular province, together with information regarding the quaternary catchments and the wetlands that have been prioritised for the next few planning cycles (anywhere from one to three planning cycles depending

on the information gained through the Catchment Prioritisation Process). The EA's will be inclusive of all Listed Activities that may be triggered and will essentially authorise any typical wetland rehabilitation activities required during the WfWetlands Programme implementation phase. Note that certain Listed Activities have been excluded from the Basic Assessment as they fall under the ambit of a 'maintenance management plan' in the form of the Rehabilitation Plan for each project and are therefore subject to exclusion. The impacts thereof have however been considered within the respective Rehabilitation Plans.

- A condition of the EAs is that **Rehabilitation Plans** will be prepared every year after sufficient field work has been undertaken in the wetlands that have an EA. These Rehabilitation Plans will be made available to registered Interested and Affected Parties (I&APs) before being submitted to DEA for approval. The Rehabilitation Plans will describe the combination and number of interventions selected to meet the rehabilitation objectives for each Wetland Project, as well as an indication of the approximate location and approximate dimensions (including footprint) of each intervention.
- The National Water Act, No.36 of 1998 (NWA)
  - In terms of Section 39 of the NWA, a General authorisation<sup>3</sup> (GA) has been granted for certain activities that are listed under the NWA that usually require a Water Use License; as long as these activities are undertaken for wetland rehabilitation. These activities include '*impeding or diverting the flow of water in a watercourse*<sup>4</sup>' and '*altering the bed, banks, course or characteristics of a watercourse*<sup>5</sup>' where they are specifically undertaken for the purposes of rehabilitating<sup>6</sup> a wetland for conservation purposes. The WfWetlands Programme is required to register the 'water use' in terms of the GA.
- The National Heritage Resources Act, No. 25 of 1999 (NHRA)
  - In terms of Section 38 of the NHRA; any person who intends to undertake a development as categorised in the NHRA must at the very earliest stages of initiating the development notify the responsible heritage resources authority, namely the South African Heritage Resources Agency (SAHRA) or the relevant provincial heritage agency. These agencies would in turn indicate whether or not a full Heritage Impact Assessment (HIA) would need to be undertaken. Should a permit be required for the damaging or removal of specific heritage resources, a separate application will be submitted to SAHRA or the relevant provincial heritage agency for the approval of such an activity. WfWetlands has engaged with SAHRA regarding the wetland planning process and has committed to achieving full compliance with the heritage act over the next few years.

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<sup>3</sup>Government Notice No. 1198, 18 December 2009

<sup>4</sup>Section 21(c) of the NWA, No. 36 of 1998

<sup>5</sup>Section 21(i) of the NWA, No. 36 of 1998

<sup>6</sup>Defined in the NWA as "*the process of reinstating natural ecological driving forces within part of the whole of a degraded watercourse to recover former or desired ecosystem structure, function, biotic composition and associated ecosystem services*".

## **Appendix B2**

### **LANDOWNER AGREEMENTS**



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA



# Working for Wetlands Programme

## Wetlands Rehabilitation Activities Consent

| Property Details       |                        |
|------------------------|------------------------|
| Property Type:         | KOKOMANA COMMUNAL LAND |
| Registration Division: | N/A                    |
| Farm Number:           | N/A                    |
| Portion Number:        | N/A                    |
| Farm Name:             | N/A                    |
| Surveyor-General Key:  | N/A                    |
| Province:              | EASTERN CAPE PROVINCE  |
| Unique Wetland Number: | S32E-03                |

| Owner Details   |  |  |                                |  |
|---|--|--|--------------------------------|--|
| Owner Name:<br>(Full Names/Full Registered Name)              | SIVUYIKI JACKSON TYALI   |  |                                |  |
| Person Type:  | <input type="checkbox"/> Company   | <input type="checkbox"/> Close corporation | <input type="checkbox"/> Trust | <input checked="" type="checkbox"/> Natural person |
| Registration/Identity Number:                                 | M611075570082<br>(Where applicable. For a trust, attach a copy of the latest letters of trusteeship issued by the Master of the High Court.) |  |                                |  |
| Owner's chosen address for delivery of notices and documents: | Postal Address:  | Physical Address:                          |                                |  |
|   | Telephone Number:  | Email Address:                             |                                |  |
|   | KOKOMANA ADMIN AREA<br>Box 11<br>5450  |  |                                |  |
|   | 0743624006   |  |                                |  |

**Project Name:** WORKING FOR WETLAND - KOKOMANA

I/We hereby consent to the Working for Wetlands Programme and its appointed implementers undertaking the wetland rehabilitation activities listed in annexure "WFW 003A" attached hereto, for the project referred to above, subject to my/our approval of the relative Wetland Rehabilitation Plan, on the property described above of which I am the owner.

|                  |                  |                 |                           |
|------------------|------------------|-----------------|---------------------------|
| <b>Name</b>      | SIVUYILE JACKSON | <b>Position</b> | SENIOR TRADITIONAL LEADER |
| <b>Signature</b> | S. TYAM          | <b>Date</b>     | 22.01.2019                |

|   |  |
|---|--|
| <p><b>Please fax or post this form to:</b></p> <p>_____</p> <p>_____</p> <p>_____</p> | <p><b>With a copy to:</b></p> <p>Dr Farai Tererai, PhD, Deputy Director: Planning, Monitoring and Evaluation Working for Wetlands, Natural Resources Management Programme, Department of Environmental Affairs, Environment House, Private Bag X447, Pretoria, 0001</p> <p>Email: <a href="mailto:ftererai@environment.gov.za">ftererai@environment.gov.za</a></p> |
|---|--|



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA



# Working for Wetlands Programme

## Wetlands Rehabilitation Activities Consent

| Property Details       |                        |
|------------------------|------------------------|
| Property Type:         | KOLOMANA COMMUNAL LAND |
| Registration Division: | N/A                    |
| Farm Number:           | N/A                    |
| Portion Number:        | N/A                    |
| Farm Name:             | N/A                    |
| Surveyor-General Key:  | N/A                    |
| Province:              | EASTERN CAPE           |
| Unique Wetland Number: | S32E-04                |

| Owner Details   |   |
|---|---|
| Owner Name:<br>(Full Names/Full Registered Name)              | SWUSILE JACKSON TYALI   |
| Person Type:  | <input type="checkbox"/> Company <input type="checkbox"/> Close corporation <input type="checkbox"/> Trust <input checked="" type="checkbox"/> Natural person |
| Registration/Identity Number:                                 | 7611075540082<br>(Where applicable. For a trust, attach a copy of the latest letters of trusteeship issued by the Master of the High Court.)                  |
| Owner's chosen address for delivery of notices and documents: | Postal Address:<br>KOLOMANA ADMIN AREA<br>BOX 11<br>5450  |
|   | Telephone Number:<br>0743624006   |
|   | Physical Address:<br><br>Email Address:   |

**Project Name:** Working For WETLANDS KOLONANA

I/We hereby consent to the Working for Wetlands Programme and its appointed implementers undertaking the wetland rehabilitation activities listed in annexure "WFW 003A" attached hereto, for the project referred to above, subject to my/our approval of the relative Wetland Rehabilitation Plan, on the property described above of which I am the owner.

|                  |                 |                 |                           |
|------------------|-----------------|-----------------|---------------------------|
| <b>Name</b>      | SIMONILE TSHALI | <b>Position</b> | SENIOR TRADITIONAL LEADER |
| <b>Signature</b> | S-TSHALI        | <b>Date</b>     | 22.01.2019                |

|  |  |
|--|--|
| <p><b>Please fax or post this form to:</b></p> <hr/> <hr/> <hr/> | <p><b>With a copy to:</b></p> <p>Dr Farai Tererai, PhD, Deputy Director: Planning, Monitoring and Evaluation Working for Wetlands, Natural Resources Management Programme, Department of Environmental Affairs, Environment House, Private Bag X447, Pretoria, 0001</p> <p>Email: <a href="mailto:ftererai@environment.gov.za">ftererai@environment.gov.za</a></p> |
|--|--|



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA



# Working for Wetlands Programme

## Wetlands Rehabilitation Activities Consent

| Property Details       |                        |
|------------------------|------------------------|
| Property Type:         | KOLOMANA COMMUNAL LAND |
| Registration Division: | N/A                    |
| Farm Number:           | N/A                    |
| Portion Number:        | N/A                    |
| Farm Name:             | N/A                    |
| Surveyor-General Key:  | N/A                    |
| Province:              | EASTERN CAPE           |
| Unique Wetland Number: | S32E-01                |

| Owner Details   |   |
|---|---|
| Owner Name:<br>(Full Names/Full Registered Name)              | SIVUSILE JACKSON TYAKU  |
| Person Type:  | <input type="checkbox"/> Company <input type="checkbox"/> Close corporation <input type="checkbox"/> Trust <input checked="" type="checkbox"/> Natural person |
| Registration/Identity Number:                                 | 7611075540082<br>(Where applicable. For a trust, attach a copy of the latest letters of trusteeship issued by the Master of the High Court.)                  |
| Owner's chosen address for delivery of notices and documents: | Postal Address:<br>KOLOMANA ADMIN AREA<br>Box 11<br>5450  |
|   | Telephone Number:<br>044 3624006  |
|   | Physical Address:<br><br>Email Address:   |



**Project Name:** Working For WETLANDS KOLONANA

I/We hereby consent to the Working for Wetlands Programme and its appointed implementers undertaking the wetland rehabilitation activities listed in annexure "WFW 003A" attached hereto, for the project referred to above, subject to my/our approval of the relative Wetland Rehabilitation Plan, on the property described above of which I am the owner.

|                  |               |                 |                           |
|------------------|---------------|-----------------|---------------------------|
| <b>Name</b>      | SIMONDE TSHAM | <b>Position</b> | SENIOR TRADITIONAL LEADER |
| <b>Signature</b> | S. TSHAM      | <b>Date</b>     | 22.01.2019                |

|   |  |
|---|--|
| <p><b>Please fax or post this form to:</b></p> <p>_____</p> <p>_____</p> <p>_____</p> | <p><b>With a copy to:</b></p> <p>Dr Farai Tererai, PhD, Deputy Director: Planning, Monitoring and Evaluation Working for Wetlands, Natural Resources Management Programme, Department of Environmental Affairs, Environment House, Private Bag X447, Pretoria, 0001</p> <p>Email: <a href="mailto:ftererai@environment.gov.za">ftererai@environment.gov.za</a></p> |
|---|--|

## **Appendix B3**

### **WRITTEN NOTIFICATION**



14 October 2019

Dear Sir / Madam,

WORKING FOR WETLANDS REHABILITATION PROJECT  
PUBLIC PARTICIPATION PROCESS:  
AVAILABILITY OF BASIC ASSESSMENT REPORTS AND REHABILITATION PLANS FOR COMMENT

*This letter is available in any of the official languages on written request.*

Our previous communication of 06 June 2019 regarding the availability of the Draft Basic Assessment Reports (BARs) and Rehabilitation Plans for the above-mentioned project has reference.

Aurecon South Africa (Pty) Ltd is lodging new applications for Environmental Authorisation with the Department of Environmental Affairs (DEA) for the Eastern Cape, Gauteng, KwaZulu-Natal and Limpopo provinces. Due to an unforeseen delay during the submission of the finalised reports for these projects, the previous application lapsed, requiring new applications to be lodged with the Department. The June 2019 reports have subsequently been updated for the current 30-day public comment period required for the new application processes. All comments received during the previous application process are available in Appendix B of the Basic Assessment Reports.

## 1. BACKGROUND INFORMATION

WfWetlands is a government programme managed by the Natural Resource Management (NRM) directorate of the Department of Environmental Affairs (DEA), and is a joint initiative with the Department of Water and Sanitation (DWS) and the Department of Agriculture, Fisheries and Forestry (DAFF). The programme is mandated to rehabilitate damaged wetlands and to protect pristine wetlands throughout South Africa. Emphasis is placed on complying with the principles of the Expanded Public Works Programme (EPWP) which seeks to draw significant numbers of unemployed people into the productive sector of the economy, gaining skills while they work and increase their ability to earn an income.

The Aurecon team comprises Design Engineers and Environmental Assessment Practitioners (EAPs) who undertake the planning, design and authorisation components of the project. The Aurecon Team, in partnership with GroundTruth, is assisted by an external team of Wetland Specialists who provide scientific insight into the operation of wetlands and bring expert and often local knowledge of the wetlands. The project team is also complimented by the Assistant Director for Wetlands Programmes (ASDs) who are each responsible for provincial planning and implementation.

## 2. THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, NO. 107 OF 1998 (AS AMENDED) (NEMA)

### 2.1 Basic Assessment

In terms of the environmental management principles of NEMA certain activities that may have a detrimental impact on the environment (termed Listed Activities) require Environmental Authorisation (EA) from DEA. Many of the activities associated with the rehabilitation of the wetland are listed Activities in terms of Government Notice Regulation (GN R) 983 Listing Notice 1 and GN R985 Listing Notice 3 of NEMA (as amended):

- Listing Notice 1: Activities 12, 19, 27 and 48
- Listing Notice 3: Activities 12, 14 and 23

In terms of GN R982 (as amended), activities identified in Listing Notices 1 and 3 require a Basic Assessment (BA) process to be undertaken during which potential biophysical and socio-economic impacts are identified and assessed. Aurecon has undertaken this process on behalf of WfWetlands, and separate BA applications for each of the provinces listed in the table below, has been submitted to the DEA for consideration.

| Province      | Project        | Nearest Town(s): |
|---------------|----------------|------------------|
| Eastern Cape  | Amathole       | Seymour          |
| Gauteng       | Gauteng North  | Pretoria         |
| KwaZulu-Natal | iSimangaliso   | St Lucia         |
| Limpopo       | Soutini-Baleni | Giyani           |

The provincial level Basic Assessment Reports (BARs) provide the findings of the associated investigations and are available for public comment. The BARs describe the wetland systems that were identified as priorities for this planning cycle, together with the baseline information on the quaternary catchment.

## 2.2 Rehabilitation Plans

The project specific wetland rehabilitation plans include specialist reports prepared by the Wetland Specialist (which provide a site description, detailed baseline information, and the wetland context within the greater catchment). The rehabilitation plans also include the proposed interventions, objectives, their design details and specification, and proposed locations. Project specific rehabilitation plans were compiled for each project and describe the combination and number of interventions selected to meet the rehabilitation objectives for each Wetland Project, as well as an indication of the approximate location and approximate dimensions (including footprint) of each intervention.

## 3. THE NATIONAL WATER ACT, NO. 36 OF 1998 (NWA)

**Activities associated with the rehabilitation of wetlands may constitute “water use” in terms of the NWA** and may therefore require general authorisation or licenses from DWS. In general, a water use must be licensed unless:

- It is listed in Schedule one (1) of the NWA,
- It is existing lawful use,
- It is permissible under a General Authorisation (GA), and
- If a responsibility authority waives the need for a licence.

In terms of Section 39 of the NWA, a GA has been granted for certain activities that are listed and usually require a Water Use License. Such a GA (i.e. GN R1198 of 18 December 2009) exists for wetland rehabilitation as long as the activities are for conservation purposes.

## 4. OPPORTUNITY TO PARTICIPATE

Public Participation procedures are specified as a minimum requirement (Section 41 of GN R982) of the BA Process and must ensure that all Interested and Affected Parties (I&APs) (including State Departments) have an opportunity to participate. Accordingly, notice is hereby given of an additional 30-day public participation process (PPP) on the draft Basic Assessment Reports and Rehabilitation Plans. The BARs and Rehabilitation Plans will be made available for a 30-day comment period from 14 October 2019 until 12 November 2019.

The reports will be available from 14 October 2019 for download from the Aurecon Website: <http://aurecongroup.com/en/public-participation.aspx>. Please be aware that you will be required to register on the website and then again on the project to access the documents. Should you have any trouble accessing the documents,

please do not hesitate to contact Mr Simamkele Ntsengwane (details below).

I&APs have until 12 November 2019 to submit their comments on the BARs and rehabilitation plans to the EAPs below. I&APs should refer to the relevant province and specifically the wetland project (if applicable). Please include your name, contact details and an indication of any direct business, financial, personal or other interest that you may have in the applications in your submission.

|                 |  |  |
|-----------------|--|--|
| Contact Person: | Mr Simamkele Ntsengwane  | Miss Franci Gresse   |
| Tel:            | (021) 526 9560   | (021) 526 6022   |
| Email:          | <a href="mailto:Simamkele.Ntsengwane@arecongroup.com">Simamkele.Ntsengwane@arecongroup.com</a> | <a href="mailto:Franci.Gresse@arecongroup.com">Franci.Gresse@arecongroup.com</a> |
| Fax:            | (021) 526 9500   |  |
| Mail:           | PO Box 494, Cape Town, 8000  |  |

## 5. WAY FORWARD

Following the 30-day public comment period, the BARs and rehabilitation plans will be updated by incorporating any I&AP comments received on the reports (where relevant), All comments received during the first application have been incorporated in the BARs and Public Participation Reports . All comments will be recorded and responded to in a Comments and Response Report which will be circulated to all who have provided comment. The updated BARs and/or rehabilitation plans will then be submitted to DEA for their decision. Once DEA has made their decision on the proposed projects, all registered I&APs will be notified of the outcome of the decision within fourteen (14) calendar days of the decision and the right to appeal.

Yours sincerely  
AURECON



Franci Gresse  
Senior Environmental Practitioner  
Aurecon, Environment and Planning Services

**APPENDIX B4**  
**PROOF OF MAILING**

## **Appendix B5**

### **COMMENTS AND RESPONSES**

Any comments received and responses sent during the 30-day public comment period will be included with the Final Basic Assessment Report submitted to the Department of Environmental Affairs.

## Simamkele Ntsengwane

---

**From:** Simamkele Ntsengwane  
**Sent:** Monday, February 11, 2019 10:58 AM  
**To:** 'nomhlophe@inkwenkwezicollege.co.za'  
**Cc:** Franci Gresse  
**Subject:** RE: Public Participation Process: Working for Wetlands Programme

Dear Nomhlophe,

Please note that each year the Working for Wetlands Programme plans work to be undertaken in wetland systems across South Africa through dedicated provincial planning teams. The proposed rehabilitation activities trigger listed activities in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) and therefore requires environmental authorisation from the Department of Environmental Affairs (DEA) before any construction may take place. The advert to which you responded is for such a process and not a call for tenders to undertake the actual work. You have however been registered as an interested and affected party which allows you the opportunity to comment on the Draft Basic Assessment Report during a 30-day public participation process.

With regards to potential contract opportunities, please contact Ms Unathi Makati (the Eastern Cape Provincial Coordinator for the Working for Wetlands Programme). Ms Makati can be contacted at [EMakati@environment.gov.za](mailto:EMakati@environment.gov.za) / 043 722 0685

Kind Regards

**Simamkele Ntsengwane** BSc (Hons) Env. Geography  
Senior Consultant, Environment and Planning, Aurecon  
T +27 21 526 9560 M +27 76 225 3548

[www.linkedin.com/in/simamkele-ntsengwane-205689a3/](https://www.linkedin.com/in/simamkele-ntsengwane-205689a3/)

[Simamkele.Ntsengwane@aurecongroup.com](mailto:Simamkele.Ntsengwane@aurecongroup.com)

Aurecon Centre, 1 Century City Drive, Waterford Precinct, Century City South Africa 7441  
PO Box 494, Cape Town 8000 South Africa

[aurecongroup.com](http://aurecongroup.com)



---

### DISCLAIMER

**From:** nomhlophe@inkwenkwezicollege.co.za <nomhlophe@inkwenkwezicollege.co.za>  
**Sent:** Thursday, February 7, 2019 5:13 PM  
**To:** Simamkele Ntsengwane <Simamkele.Ntsengwane@aurecongroup.com>  
**Subject:** RE: Public Participation Process: Working for Wetlands Programme

Good afternoon Simamkele

Please be informed that the area that is closest to us within Amathole Local Municipality in Hogsback.

Regards  
Nomhlophe Maxaxuma



---

**From:** Simamkele Ntsengwane <[Simamkele.Ntsengwane@arecongroup.com](mailto:Simamkele.Ntsengwane@arecongroup.com)>  
**Sent:** Thursday, 07 February 2019 2:18 PM  
**To:** [nomhlophe@inkwenkwezicollege.co.za](mailto:nomhlophe@inkwenkwezicollege.co.za)  
**Cc:** Franci Gresse <[Franci.Gresse@arecongroup.com](mailto:Franci.Gresse@arecongroup.com)>  
**Subject:** RE: Public Participation Process: Working for Wetlands Programme

Good Afternoon Nomhlophe,

Thank you for your interest in the Working for Wetlands Programme.

This is to confirm that you have been registered as an Interested and Affected Party (I&AP) for the Eastern Cape Amathole Wetland rehabilitation project. Notification will be sent to all registered I&APs prior to the start date of the Basic Assessment Report (BAR) and project specific rehabilitation plan commenting period.

Kind Regards

**Simamkele Ntsengwane** BSc (Hons) Env. Geography  
Senior Consultant, Environment and Planning, Aurecon  
T +27 21 526 9560 M +27 76 225 3548

[www.linkedin.com/in/simamkele-ntsengwane-205689a3/](https://www.linkedin.com/in/simamkele-ntsengwane-205689a3/)

[Simamkele.Ntsengwane@arecongroup.com](mailto:Simamkele.Ntsengwane@arecongroup.com)

Aurecon Centre, 1 Century City Drive, Waterford Precinct, Century City South Africa 7441

PO Box 494, Cape Town 8000 South Africa

[arecongroup.com](http://arecongroup.com)



---

**DISCLAIMER**

**From:** [nomhlophe@inkwenkwezicollege.co.za](mailto:nomhlophe@inkwenkwezicollege.co.za) <[nomhlophe@inkwenkwezicollege.co.za](mailto:nomhlophe@inkwenkwezicollege.co.za)>  
**Sent:** Thursday, February 7, 2019 8:49 AM  
**To:** Simamkele Ntsengwane <[Simamkele.Ntsengwane@arecongroup.com](mailto:Simamkele.Ntsengwane@arecongroup.com)>; Franci Gresse <[Franci.Gresse@arecongroup.com](mailto:Franci.Gresse@arecongroup.com)>  
**Subject:** Public Participation Process: Working for Wetlands Programme

Good morning Simam

This communication is from Inkwenkwezi Private College, an Institution of Learning with offices in Cathcart, in the Amathole District Municipality.

We are interested to be part of the programme as a Training and Research Provider. Details of contact person is Nomhlophe Maxaxuma, No.45 Carnarvon Street Cathcart 5310- 0710376383/0824330951.

Regards

Nomhlophe Maxaxuma



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## Simamkele Ntsengwane

---

**From:** nomhlophe@inkwenkwezi college.co.za  
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Kind Regards

**Simamkele Ntsengwane** BSc (Hons) Env. Geography  
Senior Consultant, Environment and Planning, Aurecon  
T +27 21 526 9560 M +27 76 225 3548

[www.linkedin.com/in/simamkele-ntsengwane-205689a3/](https://www.linkedin.com/in/simamkele-ntsengwane-205689a3/)

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Aurecon Centre, 1 Century City Drive, Waterford Precinct, Century City South Africa 7441

PO Box 494, Cape Town 8000 South Africa

[aurecongroup.com](http://aurecongroup.com)



---

### DISCLAIMER

**From:** [nomhlophe@inkwenkwezi college.co.za](mailto:nomhlophe@inkwenkwezi college.co.za) <[nomhlophe@inkwenkwezi college.co.za](mailto:nomhlophe@inkwenkwezi college.co.za)>  
**Sent:** Thursday, February 7, 2019 8:49 AM  
**To:** Simamkele Ntsengwane <[Simamkele.Ntsengwane@aurecongroup.com](mailto:Simamkele.Ntsengwane@aurecongroup.com)>; Franci Gresse <[Franci.Gresse@aurecongroup.com](mailto:Franci.Gresse@aurecongroup.com)>  
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Regards  
Nomhlophe Maxaxuma

---



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## Simamkele Ntsengwane

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**From:** Simamkele Ntsengwane  
**Sent:** Thursday, February 7, 2019 2:18 PM  
**To:** nomhlophe@inkwenkwezicollege.co.za  
**Cc:** Franci Gresse  
**Subject:** RE: Public Participation Process: Working for Wetlands Programme

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Kind Regards

**Simamkele Ntsengwane** BSc (Hons) Env. Geography  
Senior Consultant, Environment and Planning, Aurecon  
T +27 21 526 9560 M +27 76 225 3548

[www.linkedin.com/in/simamkele-ntsengwane-205689a3/](https://www.linkedin.com/in/simamkele-ntsengwane-205689a3/)

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PO Box 494, Cape Town 8000 South Africa

[aurecongroup.com](http://aurecongroup.com)



---

### DISCLAIMER

**From:** nomhlophe@inkwenkwezicollege.co.za <nomhlophe@inkwenkwezicollege.co.za>  
**Sent:** Thursday, February 7, 2019 8:49 AM  
**To:** Simamkele Ntsengwane <Simamkele.Ntsengwane@aurecongroup.com>; Franci Gresse <Franci.Gresse@aurecongroup.com>  
**Subject:** Public Participation Process: Working for Wetlands Programme

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Regards  
Nomhlophe Maxaxuma



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## Simamkele Ntsengwane

---

**From:** Simamkele Ntsengwane  
**Sent:** Monday, February 11, 2019 12:33 PM  
**To:** 'Zola Kutsu'  
**Subject:** RE: Working for Wetlands Programme

Good day Bunene,

Thank you for your interest in the Working for Wetlands Programme.

Please note that each year the Working for Wetlands Programme plans work to be undertaken in wetland systems across South Africa through dedicated provincial planning teams. The proposed rehabilitation activities trigger listed activities in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) and therefore requires environmental authorisation from the Department of Environmental Affairs (DEA) before any construction may take place. The advert to which you responded is for such a process and not a call for tenders to undertake the actual work. You have however been registered as an interested and affected party for the Eastern Cape, Gauteng and North West Projects respectively, which allows you the opportunity to comment on the Draft Basic Assessment Report during a 30-day public participation process.

With regards to potential contract opportunities, please contact the Provincial Coordinator for the Working for Wetlands Programme at the following contact details;

- Eastern Cape: Ms Unathi Makati ([EMakati@environment.gov.za](mailto:EMakati@environment.gov.za) / 043 722 0685);
- Gauteng: Keitumetse Mekgoe ([KMekgoe@environment.gov.za](mailto:KMekgoe@environment.gov.za) / 012 399 9321) ; and
- North West: Eric Munzhedzi ([EMunzhedzi@environment.gov.za](mailto:EMunzhedzi@environment.gov.za) )

Kind Regards

**Simamkele Ntsengwane** BSc (Hons) Env. Geography  
Senior Consultant, Environment and Planning, Aurecon  
T +27 21 526 9560 M +27 76 225 3548

[www.linkedin.com/in/simamkele-ntsengwane-205689a3/](https://www.linkedin.com/in/simamkele-ntsengwane-205689a3/)

[Simamkele.Ntsengwane@aurecongroup.com](mailto:Simamkele.Ntsengwane@aurecongroup.com)

Aurecon Centre, 1 Century City Drive, Waterford Precinct, Century City South Africa 7441

PO Box 494, Cape Town 8000 South Africa

[aurecongroup.com](http://aurecongroup.com)



### DISCLAIMER

**From:** Zola Kutsu <zola.bunene@gmail.com>  
**Sent:** Sunday, February 10, 2019 10:44 AM  
**To:** Franci Gresse <Franci.Gresse@aurecongroup.com>; Simamkele Ntsengwane <Simamkele.Ntsengwane@aurecongroup.com>  
**Subject:** PPP: Working for Wetlands Programme

Dear All

I register my self and I&AP to the programme

I'm also a service provider of Environmental Services and an accredited training provider in Environmental Practices please provide me with relevant information.

Your cooperation will be highly appreciated in this regard

Yours Faithfully  
Bunene Zola Kutsu

--

Bunene Zola Kutsu  
Managing Member  
Spring Forest Trading 578cc

071 228 6436  
086 532 5573  
[zola.bunene@gmail.com](mailto:zola.bunene@gmail.com)

Our offices are in:

|            |             |            |                  |                |
|------------|-------------|------------|------------------|----------------|
| North West | Gauteng     | Mpumalanga | East Cape Border | East Cape      |
| PO Box 483 | PO Box 7399 | PO Box 184 | PO Box 423       | PO Box 70167   |
| Klerksdorp | Fairland    | Ermelo     | Stutterheim      | Port Elizabeth |
| 2750       | 2030        | 2350       | 4930             | 6032           |

## Simamkele Ntsengwane

---

**From:** Gerry Pienaar <Gerry.Pienaar@dedea.gov.za>  
**Sent:** Wednesday, February 13, 2019 11:29 AM  
**To:** Simamkele Ntsengwane  
**Cc:** Andries Struwig; Franci Gresse; Claire Blanché  
**Subject:** RE: WORKING FOR WETLANDS: PUBLIC PARTICIPATION PROCESS

Noted with thanks!

---

**From:** Simamkele Ntsengwane [mailto:Simamkele.Ntsengwane@aurecongroup.com]  
**Sent:** 13 February 2019 11:22  
**To:** Gerry Pienaar <Gerry.Pienaar@dedea.gov.za>  
**Cc:** Andries Struwig <Andries.Struwig@dedea.gov.za>; Franci Gresse <Franci.Gresse@aurecongroup.com>; Claire Blanché <Claire.Blanche@aurecongroup.com>  
**Subject:** RE: WORKING FOR WETLANDS: PUBLIC PARTICIPATION PROCESS

Good day Gerry,

Thank you very much for your email and interest in the Working for Wetlands project.

The notification email sent on 11 February 2019 was to notify to I&APs of the opportunity to comment on the Basic Assessment Report for the Amathole project, the Basic Assessment Process is being undertaken for the Amathole project with the nearest town to the project area being Seymour.

Reference to Kareedouw and Humansdorp is for the project specific rehabilitation plans which will be made available for public comment in March 2019 to all registered I&APs for a 30-day comment period. Registered I&APs will be informed of the availability of the rehabilitation plans and commencement of the commenting period.

Thank you for sharing Mr Andries Struwig's details, we have included him in our I&AP database for the Kromme and Tsitsikamma projects to receive information during the process.

Kind Regards

**Simamkele Ntsengwane** BSc (Hons) Env. Geography  
Senior Consultant, Environment and Planning, Aurecon  
T +27 21 526 9560 M +27 76 225 3548  
[www.linkedin.com/in/simamkele-ntsengwane-205689a3/](http://www.linkedin.com/in/simamkele-ntsengwane-205689a3/)  
[Simamkele.Ntsengwane@aurecongroup.com](mailto:Simamkele.Ntsengwane@aurecongroup.com)  
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PO Box 494, Cape Town 8000 South Africa  
[aurecongroup.com](http://aurecongroup.com)



---

### DISCLAIMER

**From:** Gerry Pienaar <[Gerry.Pienaar@dedea.gov.za](mailto:Gerry.Pienaar@dedea.gov.za)>  
**Sent:** Wednesday, February 13, 2019 10:54 AM



**To:** Simamkele Ntsengwane <[Simamkele.Ntsengwane@arecongroup.com](mailto:Simamkele.Ntsengwane@arecongroup.com)>; Franci Gresse <[Franci.Gresse@arecongroup.com](mailto:Franci.Gresse@arecongroup.com)>; Claire Blanché <[Claire.Blanche@arecongroup.com](mailto:Claire.Blanche@arecongroup.com)>  
**Cc:** Andries Struwig <[Andries.Struwig@dedea.gov.za](mailto:Andries.Struwig@dedea.gov.za)>  
**Subject:** RE: WORKING FOR WETLANDS: PUBLIC PARTICIPATION PROCESS  
**Importance:** High

Dear Simamkele,

We notice that your covering letter refers to Seymour, Kareedouw and Humansdoro, while the table below only refers to Seymour. Can you please clarify? If at any time you need comments on Humansdorp and Kareedouw it will be highly appreciated if you could liaise directly with Mr Andries Struwig in our Sarah Baartman Regional Office in Port Elizabeth.

Kind regards

Gerry Pienaar  
Director Environmental Impact Management DEDEAT  
[Gerry.pienaar@dedea.gov.za](mailto:Gerry.pienaar@dedea.gov.za)  
0824584593

---

**From:** Simamkele Ntsengwane [<mailto:Simamkele.Ntsengwane@arecongroup.com>]  
**Sent:** 11 February 2019 14:31  
**To:** Franci Gresse <[Franci.Gresse@arecongroup.com](mailto:Franci.Gresse@arecongroup.com)>; Claire Blanché <[Claire.Blanche@arecongroup.com](mailto:Claire.Blanche@arecongroup.com)>  
**Subject:** WORKING FOR WETLANDS: PUBLIC PARTICIPATION PROCESS  
**Importance:** High

Dear Sir/Madam

We would like to notify you of the opportunity to comment on the Basic Assessment Reports for proposed wetland rehabilitation activities in terms of Regulations pursuant to the National Environmental Management Act (Act 107 of 1998 (as amended) (NEMA).

Please find herewith attached a cover letter with more details, the letter includes information on a brief background to the proposed project, information on the environmental process, where to access the documents in full and opportunities to participate.

The Basic Assessment Reports for the projects listed in the table below are now available for a 30 day comment period. Electronic copies of these reports are available On Dropbox: <https://www.dropbox.com/sh/53v4o0lvhyvc5ao/AABMT0VY2JaSSOzRik9JTBbKa?dl=0> and Aurecon's website (<http://www.arecongroup.com/en/public-participation.aspx>).

| Province      | Project                          | Nearest Town (s):             |
|---------------|----------------------------------|-------------------------------|
| Eastern Cape  | Amathole                         | Seymour                       |
| Free State    | Maluti                           | Harrismith and Phuthaditjhaba |
| Gauteng       | Gauteng North                    | Pretoria                      |
| KwaZulu-Natal | Isimangaliso                     | St Lucia                      |
| Limpopo       | Soutini Baleni                   | Giyani                        |
| North West    | Madikwe National Park and Molopo | Zeerust and Mahikeng          |

Should you wish to register as an interested and affected party (I&AP), please submit your comments on the reports to the contact people below and include the applicable province and wetland system where relevant, before **14 March 2019**. Also include your **name, contact details** and an indication of any **direct business, financial, personal or other interest** that you may have in the applications in your submission.

Simamkele Ntsengwane: Tel: 021 526 9560; Email: [Simamkele.Ntsengwane@arecongroup.com](mailto:Simamkele.Ntsengwane@arecongroup.com); or  
Franci Gresse: Tel: (021) 526 6022; Email: [franci.gresse@arecongroup.com](mailto:franci.gresse@arecongroup.com); or  
Fax: (021) 526 9500; or Mail: PO Box 494, Cape Town, 8000

Furthermore, should you have received this email but are no longer interested in the project, kindly let one of the above contacts know and you will be removed from the database.

Kind Regards

**Simamkele Ntsengwane** BSc (Hons) Env. Geography  
Senior Consultant, Environment and Planning, Aurecon  
T +27 21 526 9560 M +27 76 225 3548

[www.linkedin.com/in/simamkele-ntsengwane-205689a3/](http://www.linkedin.com/in/simamkele-ntsengwane-205689a3/)

[Simamkele.Ntsengwane@aurecongroup.com](mailto:Simamkele.Ntsengwane@aurecongroup.com)

Aurecon Centre, 1 Century City Drive, Waterford Precinct, Century City South Africa 7441  
PO Box 494, Cape Town 8000 South Africa

[aurecongroup.com](http://aurecongroup.com)



**DISCLAIMER**

## Simamkele Ntsengwane

---

**From:** Sedibana Lucrecia(ELS) <SedibanaL@dws.gov.za>  
**Sent:** Friday, February 15, 2019 9:18 AM  
**To:** Simamkele Ntsengwane  
**Subject:** Basic Assessment Report: Working for Wetlands

Dear Simamkele,

Following our telephone conversation earlier this morning, this email serves to confirm my contact details below.

Kind Regards,

Lucrecia Sedibana (Cert.Sci.Nat)  
Resource Protection  
Department of Water & Sanitation  
Ocean Terrace Building, Moore Street  
Quigney, East London  
Tel no : + 27 43 701 0296/2296  
Email : [SedibanaL@dws.gov.za](mailto:SedibanaL@dws.gov.za)



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## Simamkele Ntsengwane

---

**From:** Nomalwande Mbananga <NomalwandeM@daff.gov.za>  
**Sent:** Monday, February 18, 2019 8:53 AM  
**To:** Simamkele Ntsengwane  
**Subject:** RE: WORKING FOR WETLANDS: PUBLIC PARTICIPATION PROCESS

Good day Simamkele

Your email was received and you can expect us to get back to you soon.

Regards  
N Mbananga

---

**From:** Simamkele Ntsengwane <Simamkele.Ntsengwane@aurecongroup.com>  
**Sent:** Monday, 11 February 2019 2:31 PM  
**To:** Franci Gresse <Franci.Gresse@aurecongroup.com>; Claire Blanché <Claire.Blanche@aurecongroup.com>  
**Subject:** WORKING FOR WETLANDS: PUBLIC PARTICIPATION PROCESS  
**Importance:** High

Dear Sir/Madam

We would like to notify you of the opportunity to comment on the Basic Assessment Reports for proposed wetland rehabilitation activities in terms of Regulations pursuant to the National Environmental Management Act (Act 107 of 1998 (as amended) (NEMA).

Please find herewith attached a cover letter with more details, the letter includes information on a brief background to the proposed project, information on the environmental process, where to access the documents in full and opportunities to participate.

The Basic Assessment Reports for the projects listed in the table below are now available for a 30 day comment period. Electronic copies of these reports are available On Dropbox: <https://www.dropbox.com/sh/53v4o0lvhyvc5ao/AABMT0VY2JaSSOzRik9JTBbKa?dl=0> and Aurecon's website (<http://www.aurecongroup.com/en/public-participation.aspx>).

| Province      | Project                          | Nearest Town (s):             |
|---------------|----------------------------------|-------------------------------|
| Eastern Cape  | Amathole                         | Seymour                       |
| Free State    | Maluti                           | Harrismith and Phuthaditjhaba |
| Gauteng       | Gauteng North                    | Pretoria                      |
| KwaZulu-Natal | Isimangaliso                     | St Lucia                      |
| Limpopo       | Soutini Baleni                   | Giyani                        |
| North West    | Madikwe National Park and Molopo | Zeerust and Mahikeng          |

Should you wish to register as an interested and affected party (I&AP), please submit your comments on the reports to the contact people below and include the applicable province and wetland system where relevant, before **14 March 2019**. Also include your **name, contact details** and an indication of any **direct business, financial, personal or other interest** that you may have in the applications in your submission.

Simamkele Ntsengwane: Tel: 021 526 9560; Email: [Simamkele.Ntsengwane@aurecongroup.com](mailto:Simamkele.Ntsengwane@aurecongroup.com); or  
Franci Gresse: Tel: (021) 526 6022; Email: [franci.gresse@aurecongroup.com](mailto:franci.gresse@aurecongroup.com); or  
Fax: (021) 526 9500; or Mail: PO Box 494, Cape Town, 8000

Furthermore, should you have received this email but are no longer interested in the project, kindly let one of the above contacts know and you will be removed from the database.

Kind Regards

**Simamkele Ntsengwane** BSc (Hons) Env. Geography  
Senior Consultant, Environment and Planning, Aurecon  
T +27 21 526 9560 M +27 76 225 3548

[www.linkedin.com/in/simamkele-ntsengwane-205689a3/](https://www.linkedin.com/in/simamkele-ntsengwane-205689a3/)

[Simamkele.Ntsengwane@aurecongroup.com](mailto:Simamkele.Ntsengwane@aurecongroup.com)

Aurecon Centre, 1 Century City Drive, Waterford Precinct, Century City South Africa 7441

PO Box 494, Cape Town 8000 South Africa

[aurecongroup.com](http://aurecongroup.com)



**DISCLAIMER**

## Simamkele Ntsengwane

---

**From:** Franci Gresse  
**Sent:** Wednesday, March 6, 2019 10:18 AM  
**To:** IvanR  
**Cc:** Simamkele Ntsengwane  
**Subject:** RE: Working for Wetlands Rehabilitation Project

Dear Mr Riggs

You can also access the documents on Dropbox by following this link:  
<https://www.dropbox.com/sh/53v4o0lvhyvc5ao/AABMT0VY2JaSSOzRIk9JTBbKa?dl=0>

Please note that we have also provided CDs to your following colleagues:

- Ms Mpume Ntlokwana
- Ms Serah Muobeleni

If you continue to have difficulty accessing the documents, please let us know for further assistance.

Kind regards  
Franci

**Franci Gresse**  
Senior Consultant, Environment and Planning, Aurecon  
T +27 21 5266022 F +27 86 7231750  
[Franci.Gresse@aurecongroup.com](mailto:Franci.Gresse@aurecongroup.com)

---

### DISCLAIMER

**From:** IvanR <IvanR@daff.gov.za>  
**Sent:** Tuesday, March 5, 2019 10:00 AM  
**To:** Franci Gresse <Franci.Gresse@aurecongroup.com>  
**Subject:** Working for Wetlands Rehabilitation Project

Good day

I have registered on your website to view the documents online but cannot access them.

Can you kindly supply the project reference numbers for the those below.

| Province      | Project                          | Nearest Town(s):      |
|---------------|----------------------------------|-----------------------|
| Eastern Cape  | Amathole, Kromme and Tsitsikamma | Seymour, Kareedouw    |
| Free State    | Maluti                           | Harrismith and Phutha |
| Gauteng       | Gauteng North                    | Pretoria              |
| KwaZulu-Natal | iSimangaliso                     | St Lucia              |
| Limpopo       | Soutini-Baleni                   | Giyani                |
| North West    | Madikwe National Park and Molopo | Zeerust and Mahikeng  |

Regards

Ivan Riggs  
Regional Manager  
Directorate Land Use and Soil Management  
Department of Agriculture, Forestry and Fisheries

Tel: 012 319 7562  
Cell: 082 574 7650  
[IvanR@daff.gov.za](mailto:IvanR@daff.gov.za)



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

Private Bag X 447· PRETORIA · 0001· Environment House · 473 Steve Biko Road, Arcadia, PRETORIA  
Tel (+ 27 12) 399 9372

**DEA Reference:** 14/12/16/3/3/1/1993

**Enquiries:** Ms Zesipho Makhosayafana

**Telephone:** 012-399-8741 **E-mail:** [zmakhosayafana@environment.gov.za](mailto:zmakhosayafana@environment.gov.za)

Ms Jennifer Youthed  
Aurecon South Africa (Pty) Ltd  
PO Box 19553  
**TECOMA**  
5214

Tel No: 043 721 0900

E-Mail: [Jenny.youthed@aurecongroup.com](mailto:Jenny.youthed@aurecongroup.com)

Dear Ms Youthed

### **COMMENTS ON THE DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED WORKING FOR WETLANDS PROGRAMME WITHIN AMATHOLE IN THE EASTERN CAPE PROVINCE**

The draft Basic Assessment Report (BAR) dated February 2019 and received by the Department on 11 February 2019, refers.

This letter serves to inform you that the following information must be included in the final BAR:

- a) Please ensure that all relevant listed activities are applied for, are specific and that it can be linked to the development activity or infrastructure as described in the project description.
- b) Kindly specify if the project will involve the clearance of indigenous vegetation or alien invasive species as, Activity 27 of GN R983 and activity 12 of GN R985, refer to the clearance of indigenous vegetation, yet your description for its applicability states that there will be clearance of alien invasive species instead.
- c) The declaration form of the EAP incorporated into the application form is not signed. You are requested to ensure that the final BAR has a signed declaration form by the EAP.
- d) An original signed undertaking under oath or affirmation by the EAP (administered by a Commissioner of Oaths), must be included in the final BAR, as per Appendix 1(3)(r) of the EIA Regulations, 2014, which states that the BAR must include:
  - an undertaking under oath or affirmation by the EAP in relation to:
  - the correctness of the information provided in the reports;
  - the inclusion of comments and inputs from stakeholders and I&APs;
  - the inclusion of inputs and recommendations from the specialist reports where relevant; and
  - any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties".
- e) Should the activities applied for in the application form differ from those mentioned in the final BAR, an amended application form must be submitted, inclusive of the abovementioned signed documents. Please note that the Department's application form template has been amended and can be downloaded from the following link <https://www.environment.gov.za/documents/forms>.
- f) Please also ensure that the BAR includes the period for which the environmental authorisation is required and the date on which the activity will be concluded as per the Appendix 1(3)(1)(q) of the Environmental Impact Assessment (EIA) Regulations, 2014 as amended (GN R. 982).

SLS



- g) The report indicates that there will be vehicles to bring construction material on site yet the maps provided do not show any access roads available. Kindly indicate if part of the rehabilitation activities will require the construction of access roads and whether this will trigger the applicable listed activities.
- h) The project involves the construction of crossings for both livestock and community members. Please specify the types of crossings these are intended to be.
- i) Four areas are considered for rehabilitation in Quaternary catchment S32E according to the report, however the public participation documents state that Tsitsikama and Kromme will also be considered. Kindly specify the exact project areas being considered for rehabilitation, are Tsitsikama and Kromme part of these areas?
- j) The BAR must provide clear maps of an A3 size, with an indication of all the envisioned areas along the wetland system that will be subject to rehabilitation. All available biodiversity information must be used in the finalisation of this map. Existing infrastructure must be used as far as possible e.g. roads. The map must indicate the following:
- All supporting onsite infrastructure such as laydown area, guard house, control room, and buildings, including accommodation etc.
  - The location of sensitive environmental features on site e.g. CBAs that will be affected; and
  - All "no-go" areas
- k) Page 4 of the BAR indicates that there are no heritage resources that will be affected by the project which were identified. Kindly provide an A3 size sensitivity map for heritage and paleontology resources overlain in the proposed project site area.
- l) Additionally, please provide a written confirmation from SAHRA indicating that the project area does not have archaeological and or paleontological sensitivities in terms of the National Heritage Resources Act, and that indeed no Heritage Impact Assessment is required.
- m) According to page 4 of the report, the wetland specialist provided a high-level strategic assessment during phase 1. In addition, as per the diagram contained on page 15 of the BAR you have indicated that the outcome of Phase 1 will be a *finalized Phase 1 report*. As such, kindly ensure that the final BAR includes a copy of the final Phase 1 report, detailing the findings of the assessment.
- n) In addition to the above, you are further required to include the Terms of Reference for the wetland specialist.
- o) The EAP must ensure that the terms of reference (TOR) for all the identified specialist studies must include the following:
- A detailed description of the study's methodology; indication of the locations and descriptions of the development footprint, and all other associated infrastructures that they have assessed and are recommending for authorisations.
  - Provide a detailed description of all limitations to the studies. All specialist studies must be conducted in the right season and providing that as a limitation will not be allowed.
  - Please note that the Department considers a 'no-go' area, as an area where no development of any infrastructure is allowed; therefore, no development of associated infrastructure including access roads is allowed in the 'no-go' areas.
  - Should the specialist definition of 'no-go' area differ from the Departments definition; this must be clearly indicated. The specialist must also indicate the 'no-go' area's buffer if applicable.
  - All specialist studies must be final, and provide detailed/practical mitigation measures and recommendations, and must not recommend further studies to be completed post EA.
  - Should specialists recommend specific mitigation measures, these must be clearly indicated.
- p) You are further reminded to provide proof to show that the registered interested and affected parties and organ of states received written notification of the proposed activities, as per the requirements of regulation 41(2)(b) of the EIA Regulations, 2014. This proof may include any of the following:
- e-mail delivery reports;
  - registered mail receipts;
  - courier waybills;
  - Signed acknowledgements of receipt; and/or any other proof as agreed upon by the competent authority.
- q) Proof of the notice boards placed in the proposed site area or any alternative site.

- r) Please ensure that all issues raised and comments received during the circulation of the draft BAR to registered I&APs and organs of state which have jurisdiction (including this Department's Biodiversity & Conservation Branch) in respect of the proposed activity are adequately addressed in the final BAR.
- s) Proof of correspondence with the various stakeholders must be included in the final BAR. Should you be unable to obtain comments, proof must be submitted to the Department of the attempts that were made to obtain comments. The public participation process must be conducted in terms of Regulation 39, 40, 41, 42, 43 and 44 of the Environmental Impact Assessment (EIA) Regulations, 2014, as amended.
- t) A Comments and Response (C&R) report must be submitted with the final BAR. The C&R report must incorporate all comments received for this development. Please note that a response such as "Noted" is not regarded as an adequate response to I&APs' comments.

### General

- i. The EAP must indicate based on the assessment, the specialist assessment conducted and the various engineering methods, which interventions at which locations will be most suited and should be authorised for this project. The mitigation measures and recommendations to be included in EMPr should also be provided by the EAP.
- ii. The BAR, specialist studies and EMPr must ensure compliance to the relevant appendices as outlined in the EIA Regulations, 2014 as amended.
- iii. The final BAR must include a copy of the Memorandum of Understanding for Working for Wetlands Programme referred to on page 4 of the draft BAR received on February 2019.
- iv. Please also ensure that the final BAR includes the period for which the Environmental Authorisation is required and the date on which the activity will be concluded as per Appendix 1 (3)(1)(q) of the NEMA EIA Regulations, 2014, as amended.
- v. You are further reminded to comply with Regulation 19(1)(a) of the NEMA EIA Regulations, 2014, as amended, which states that:  
*"Where basic assessment must be applied to an application, the applicant must, within 90 days of receipt of the application by the competent authority, submit to the competent authority - (a) a basic assessment report, inclusive of specialist reports, an EMPr, and where applicable a closure plan, which have been subjected to a public participation process of at least 30 days and which reflects the incorporation of comments received, including any comments of the competent authority."*
- vi. Should there be significant changes or new information that has been added to the BAR or EMPr which changes or information was not contained in the reports or plans consulted on during the initial public participation process, you are required to comply with Regulation 19(b) of the NEMA EIA Regulations, 2014, as amended, which states that:  
*"the applicant must, within 90 days of receipt of the application by the competent authority, submit to the competent authority - (b) a notification in writing that the basic assessment report, inclusive of specialist reports an EMPr, and where applicable, a closure plan, will be submitted within 140 days of receipt of the application by the competent authority, as significant changes have been made or significant new information has been added to the basic assessment report or EMPr or, where applicable, a closure plan, which changes or information was not contained in the reports or plans consulted on during the initial public participation process contemplated in subregulation (1)(a) and that the revised reports or, EMPr or, where applicable, a closure plan will be subjected to another public participation process of at least 30 days".*

Further note that in terms of Regulation 45 of the EIA Regulations, 2014, this application will lapse if the applicant fails to meet any of the timeframes stipulated in Regulation 19, unless an extension has been granted in terms of Regulation 3 (7).

You are requested to submit one (1) copy of the final BAR to the Department and at least one (1) unprotected electronic copy (USB/CD/DVD) of the complete final report with the hard copy documents.

You are hereby reminded of Section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorisation being granted by the Department.

Yours sincerely



**Mr Sabelo Malaza**  
**Chief Director: Integrated Environmental Authorisations**  
**Department of Environmental Affairs**  
**Letter signed by: Ms Sindiswa Diomo**  
**Designation: Deputy Director: Public Sector**  
**Date: 14/03/2019**

|                      |                      |                                    |
|----------------------|----------------------|------------------------------------|
| CC: Dr Farai Tererai | Working for Wetlands | Email: FTererai@environment.gov.za |
|----------------------|----------------------|------------------------------------|

## Franci Gresse

---

**From:** Ackerman Pieter <AckermanP@dws.gov.za>  
**Sent:** Friday, June 7, 2019 8:49 AM  
**To:** Simamkele Ntsengwane; Franci Gresse  
**Cc:** Mulaudzi Nkhumbudzeni; Kuse Lumka; Roets Wietsche; Meulenbeld Paul; Khosa Tsunduka; Tonjeni Mzuvukile; Naidoo Bronwyn Roxanne  
**Subject:** Working for Wetlands rehabilitation projects in all provinces: Comments to Aurecon

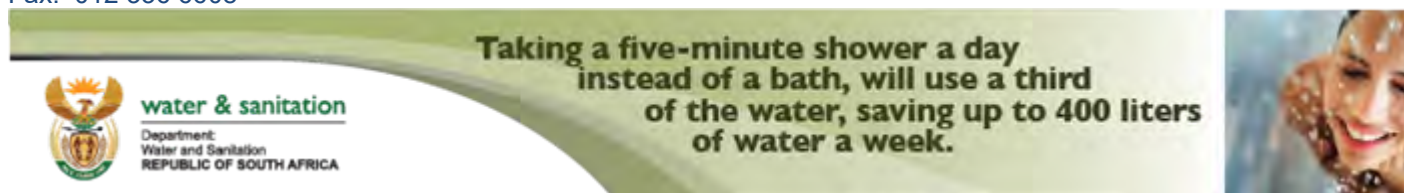
Hi Simamkele and Franci

My comments include:

1. Hydrological and ecological connectivity must be catered for in the designs.
2. It must be monitored if and how the ecological category changed after rehabilitation. PES of category D to PES of B.
3. Scientific buffers must be included taking into account hydrogeological flow drivers in the landscape
4. A guideline with concept designs must be compiled on how wetlands and pans can be re-created taking into account destruction of pans by mines.....OR a clear statement that the recreation is not possible in most cases.....In which cases can it work
5. A guideline with concept designs for constructed wetlands.
6. Lessons learned
7. Re introduction of plants and animals must be taken into account
8. Environmental awareness training for protection of the system in future.
9. Follow ups

Regards

Pieter Ackerman (PrLArch)  
Chief Landscape Architect  
Department of Water and Sanitation (DWS), South Africa  
Sub Directorate Instream Water Use  
Tel: 012 336 8217  
Cell: 082 807 3512  
Fax: 012 336 6608



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## Franci Gresse

---

**From:** Roets Wietsche <RoetsW@dws.gov.za>  
**Sent:** Friday, June 7, 2019 8:44 AM  
**To:** Simamkele Ntsengwane; Franci Gresse; Claire Blanché  
**Subject:** RE: WORKING FOR WETLANDS REHABILITATION PROJECT: PUBLIC PARTICIPATION PROCESS: EXTENSION OF TIMEFRAMES AND AVAILABILITY OF BASIC ASSESSMENT REPORTS AND REHABILITATION PLANS FOR COMMENT

Dear Simamkele

You are mentioning the GA1198 in your document, please ensure that you comply to the requirements set out in GA1198 and submit relevant registration documents to the relevant regional operations of DWS.

Kind regards

**Wietsche Roets** (PhD) Pr.Sci.Nat.  
Specialist Scientist  
Sub-Directorate: In-stream Water Use

185 Francis Baard Street, Sedibeng Bldg, Room 437A  
P/Bag X313, PRETORIA, 0001  
Tel +27(0)12 336 6510  
Cell +27(0)82 604 7730  
Email: [RoetsW@dws.gov.za](mailto:RoetsW@dws.gov.za)

---

**From:** Simamkele Ntsengwane [mailto:Simamkele.Ntsengwane@aurecongroup.com]  
**Sent:** 06 June 2019 04:48 PM  
**To:** Franci Gresse; Claire Blanché  
**Subject:** WORKING FOR WETLANDS REHABILITATION PROJECT: PUBLIC PARTICIPATION PROCESS: EXTENSION OF TIMEFRAMES AND AVAILABILITY OF BASIC ASSESSMENT REPORTS AND REHABILITATION PLANS FOR COMMENT  
**Importance:** High

Dear Interested and Affected Party,

**WORKING FOR WETLANDS REHABILITATION PROJECT: PUBLIC PARTICIPATION PROCESS: EXTENSION OF TIMEFRAMES AND AVAILABILITY OF BASIC ASSESSMENT REPORTS AND REHABILITATION PLANS FOR COMMENT**

Our previous communication of 11 February 2019 regarding the availability of the Draft Basic Assessment Report (BAR) for the above-mentioned project has reference.

We Wish to inform you that The Department of Environmental Affairs (DEA) has granted an extension of timeframes in accordance with Regulation 19(1) (b) of GN R 982 of December 2014, as amended. This provision allows for the competent authority to extend the relevant prescribed timeframes and agree with the applicant on the length of such extension.

You are thereby invited to submit comments on the Revised Draft Basic Assessment Report (BAR) and Draft Rehabilitation Plan which is subject to a further 30-day Public Participation Process from **07 June 2019** up until **08 July 2019**.

Please find attached a cover letter with more details, the letter includes information on a brief background to the proposed project, information on the environmental process, where to access the documents in full and opportunities to participate.

The Basic Assessment Reports and Rehabilitation Plans for the projects listed in the table below are now available for a 30-day comment period. Electronic copies of these reports are available on Dropbox:

<https://www.dropbox.com/sh/5hjupbn99xju93/AAACkvlondnqa48pGraop1YQa?dl=0> and Aurecon's website (<http://www.aurecongroup.com/en/public-participation.aspx>).

## Franci Gresse

---

**From:** Pamela Ngabase <pamelang@amathole.gov.za>  
**Sent:** Friday, June 28, 2019 12:17 PM  
**To:** Franci Gresse; Simamkele Ntsengwane; Claire Blanché  
**Subject:** WORKING FOR WETLANDS REHABILITATION: BASIC ASSESSMENT REPORTS AND REHABILITATION PLANS

Good day

This is to acknowledge the receipt for Draft BAR for Wetland Rehabilitation. If there are any comments, they will follow at a later stage.

Regards  
Pamela Ngabase  
SEO (ADM)

---

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## environmental affairs

Department:  
Environmental Affairs  
**REPUBLIC OF SOUTH AFRICA**

Private Bag X 447 · PRETORIA · 0001 · Environment House · 473 Steve Biko Road, Arcadia, · PRETORIA  
Tel (+ 27 12) 399 9372

**DEA Reference:** 14/12/16/3/3/1/1993

**Enquiries:** Ms Zesipho Makhosayafana

**Telephone:** 012-399-8741 **E-mail:** [zmakhosayafana@environment.gov.za](mailto:zmakhosayafana@environment.gov.za)

Ms Jennifer Youthed  
Aurecon South Africa (Pty) Ltd  
PO Box 19553  
**TECOMA**  
5214

Tel No: 043 721 0900  
E-Mail: [Jenny.youthed@aurecongroup.com](mailto:Jenny.youthed@aurecongroup.com)

Dear sir/ madam

### **COMMENTS ON THE DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED WORKING FOR WETLANDS PROGRAMME IN AMATHOLE IN THE EASTERN CAPE PROVINCE**

The draft Basic Assessment Report (BAR) dated February 2019 and received by the Department on 11 February 2019, refers.

This letter serves to inform you that the following information must be included in the final BAR:

- a) Kindly specify if the project will involve the clearance of indigenous vegetation or alien invasive species as, Activity 27 of GN R983 and activity 12 of GN R985, refer to the clearance of indigenous vegetation, yet your description to its applicability states that there will be clearance of alien invasive species instead.
- b) The declaration form of the EAP incorporated into the application form is not signed. You are requested to ensure that the final BAR has a signed declaration form by the EAP.
- c) An original signed undertaking under oath or affirmation by the EAP (administered by a Commissioner of Oaths), must be included in the final BAR, as per Appendix 1(3)(r) of the EIA Regulations, 2014, which states that the BAR must include:
  - an undertaking under oath or affirmation by the EAP in relation to:
  - the correctness of the information provided in the reports;
  - the inclusion of comments and inputs from stakeholders and I&APs;
  - the inclusion of inputs and recommendations from the specialist reports where relevant; and
  - any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties".
- d) Should the activities applied for in the application form differ from those mentioned in the final BAR, an amended application form must be submitted, inclusive of the abovementioned signed documents. Please note that the Department's application form template has been amended and can be downloaded from the following link <https://www.environment.gov.za/documents/forms>.
- e) Please also ensure that the BAR includes the period for which the environmental authorisation is required and the date on which the activity will be concluded as per the Appendix 1(3)(1)(q) of the Environmental Impact Assessment (EIA) Regulations, 2014 as amended (GN R. 982).
- f) The report indicates that there will be vehicles to bring construction material on site yet the maps provided do not show any access roads available. Kindly indicate if part of the rehabilitation activities will require the construction of access roads and whether this will trigger the applicable listed activities.

- g) The project involves the construction of crossings for both livestock and community members. Please specify the types of crossings these are intended to be.
- h) Four areas are considered for rehabilitation in Quaternary catchment S32E, according to the report, however the public participation document states that Tsitsikama and Kromme will also be considered. Kindly specify the project areas considered for rehabilitation
- i) The BAR must provide a clear map at an appropriate scale (A3 size) with an indication of all the envisioned areas along the wetland system that will be subject to rehabilitation. All available biodiversity information must be used in the finalisation of this map. Existing infrastructure must be used as far as possible e.g. roads. The map must indicate the following:
  - All supporting onsite infrastructure such as laydown area, guard house, control room, and buildings, including accommodation etc.
  - The location of sensitive environmental features on site e.g. CBAs, heritage sites, wetlands, drainage lines etc. that will be affected;
  - Buffer areas; and
  - All "no-go" areas
- j) You are further reminded to provide proof to show that the registered interested and affected parties and organ of states received written notification of the proposed activities, as per the requirements of regulation 41(2)(b) of the EIA Regulations, 2014. This proof may include any of the following:
  - e-mail delivery reports;
  - registered mail receipts;
  - courier waybills;
  - Signed acknowledgements of receipt; and/or any other proof as agreed upon by the competent authority.
- k) Proof of the notice boards placed in the proposed site area or any alternative site.
- l) Please ensure that all issues raised and comments received during the circulation of the draft BAR to registered I&APs and organs of state which have jurisdiction (including this Department's Biodiversity & Conservation Branch) in respect of the proposed activity are adequately addressed in the final BAR.
- m) Proof of correspondence with the various stakeholders must be included in the final BAR. Should you be unable to obtain comments, proof must be submitted to the Department of the attempts that were made to obtain comments. The public participation process must be conducted in terms of Regulation 39, 40, 41, 42, 43 and 44 of the Environmental Impact Assessment (EIA) Regulations, 2014, as amended.
- n) A Comments and Response (C&R) report must be submitted with the final BAR. The C&R report must incorporate all comments received for this development. Please note that a response such as "Noted" is not regarded as an adequate response to I&APs' comments.

### **General**

You are further reminded that the final BAR to be submitted to this Department must comply with all the requirements in terms of the basic assessment report and EMPr in accordance with Appendix 1, Appendix 4 and Regulation 19 of the Environmental Impact Assessment Regulations (2014), as amended.

Further note that in terms of Regulation 45 of the EIA Regulations, 2014, this application will lapse if the applicant fails to meet any of the timeframes stipulated in Regulation 19, unless an extension has been granted in terms of Regulation 3 (7).

You are requested to submit one (1) copy of the final BAR to the Department and at least two (2) unprotected electronic copy (CD/DVD) of the complete final report with the hard copy documents.



You are hereby reminded of Section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorisation being granted by the Department.

Yours sincerely



**Mr Sabelo Malaza**

**Chief Director: Integrated Environmental Authorisations**

**Department of Environmental Affairs**

**Letter signed by: Ms Sindiswa Dlomo**

**Designation: Deputy Director: Integrated Environmental Authorisations: Public Sector**

**Date: 07/07/2019**

|     |                  |                      |                                    |
|-----|------------------|----------------------|------------------------------------|
| CC: | Dr Farai Tererai | Working for Wetlands | Email: FTererai@environment.gov.za |
|-----|------------------|----------------------|------------------------------------|

**APPENDIX B6**  
**ADDITIONAL INFORMATION**

WORKING FOR WETLANDS  
PROVINCE: EASTERN CAPE  
PROJECT: AMATHOLE



Phase 1: Wetland Rehabilitation Planning Report

FINAL

FEBRUARY 2019

Report Reference: GTW561-040219-01



## Report Control

| Document control        |  |                                |                                       |
|-------------------------|--|--------------------------------|---------------------------------------|
| <b>Report title</b>     | Amathole Phase 1: Wetland Rehabilitation Planning Report   |                                |                                       |
| <b>Document ID</b>      | GTW561-040219-01   | <b>Client project number</b>   | 113223                                |
| <b>Prepared by</b>      | GroundTruth  |                                |                                       |
| <b>Client</b>           | Aurecon South Africa (Pty) Ltd<br>PO Box 494<br>Cape Town<br>8000  |                                |                                       |
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| <b>Rev</b>              | <b>Date</b>  | <b>Revision details/status</b> | <b>Approver</b>                       |
| 0                       |  |                                |                                       |
| 1                       |  |                                |                                       |
| <b>Contributors</b>     |  |                                |                                       |
| <b>Report reference</b> | <i>Working for Wetlands Programme. 2019. Amathole Phase 1: Wetland Rehabilitation Planning Report. Prepared by GroundTruth as part of the planning phase for the Working for Wetlands Rehabilitation Programme. Report No GTW561-040219-01</i> |                                |                                       |

| Approval                |  |             |            |
|-------------------------|--|-------------|------------|
| <b>Author signature</b> |  | <b>Date</b> | 04/02/2019 |
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| <b>Title</b>            | Amathole Phase 1: Wetland Rehabilitation Planning Report |             |            |

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## List of Acronyms

| <b>Acronym</b> | <b>Explanation</b>                                |
|----------------|---|
| ASD            | Assistant Directors                               |
| AZf 3          | Eastern Temperate Freshwater Wetlands             |
| DAFF           | Department of Agriculture, Forestry and Fisheries |
| DWS            | Department of Water and Sanitation                |
| EPWP           | Expanded Public Works Programme                   |
| FEPA           | Freshwater Ecosystem Priority Area                |
| Gd 1           | Amathole Montane Grassland                        |
| GIS            | Geographic Information System                     |
| IDPs           | Integrated Development Plans                      |
| MAP            | Mean Annual Precipitation                         |
| NDA            | National Department of Agriculture                |
| NEMA           | National Environmental Management Act             |
| NFEPA          | National Freshwater Ecosystem Priority Areas      |
| NWA            | National Water Act                                |
| PET            | Potential Evapotranspiration                      |
| PIP            | Project Implementation Plan                       |
| SMMEs          | Small, Medium and Micro Enterprises               |
| WfWets         | Working for Wetlands                              |

---

## Glossary of Terms

| Term                                 | Explanation   |
|--------------------------------------|---|
| Best Management Practise (BMP)       | Procedures and guidelines to ensure the effective and appropriate implementation of wetland rehabilitation by WfWetlands implementers. Such practises are informed by applied research.   |
| Biophysical                          | The biological and physical components of the environment (Cowden and Kotze 2008).  |
| Catchment                            | All the land area from mountaintop to seashore which is drained by a single river and its tributaries. Each catchment in South Africa has been subdivided into secondary catchments, which in turn have been divided into tertiary catchments. Finally, all tertiary catchments have been divided into interconnected quaternary catchments. A total of 1946 quaternary catchments have been identified for South Africa. These subdivided catchments provide the main basis on which catchments are subdivided for the integrated catchment planning and management (Cowden and Kotze 2008). |
| Ecosystem services or 'eco services' | The service, such as sediment trapping or water supply, supplied by an ecosystem (in this case a wetland ecosystem).  |
| Enhancement                          | The modification of specific structural features of an existing wetland to increase one or more functions based on management objectives, typically done by modifying site elevations or the proportion of open water   |
| Intervention                         | A method of wetland rehabilitation that aims to address the objectives of the particular wetland system, namely to restore the hydrological integrity of the system and support associated biodiversity. It can be in the form of hard (structures made of hard materials which are fixed e.g. a concrete weir) or soft (e.g. re-vegetation) interventions  |
| Mitigation                           | Actions to reduce the impact of a particular activity   |
| Maintenance                          | The replacement, repair or the reconstruction of an existing structure within the same footprint, the same location, having the same capacity and performing the same function as the previous structure ('like for like').   |
| Project                              | An area of WfWetlands intervention generally defined by a quaternary catchment or similar management unit such as a national park in which a single implementer operates.   |
| Quantum GIS                          | A GIS software programme that is used to present data at a spatial scale  |
| Quaternary catchments                | "A fourth order catchment in a hierarchical classification system in which a primary catchment is the major unit: and that is also the "principal water management unit in South Africa' (DWS, 2011).   |
| Rehabilitation                       | 1) The recovery of a degraded wetland's health and ecosystem service delivery by reinstating the natural ecological driving forces or 2) halting the decline in health of a wetland that is in the process of degrading, so as to maintain its health and ecosystem service-delivery" (Kotze et al. 2008:p14) . A system that is rehabilitated is not expected to be restored back to its reference state/benchmark   |



|                      |  |
|----------------------|--|
| Significant impact   | An impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.   |
| Wetland              | “Wetland means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil” (National Water Act No. 36 of 1998). |
| Working for Wetlands | Working for Wetlands (WfWets) is a government programme managed under the Natural Resource Management Programme (NRM) of the Department of Environmental Affairs. It is a joint initiative with the Departments of Water and Sanitation (DWS), and Agriculture, Forestry and Fisheries (DAFF).   |

## 1 OVERVIEW OF WORKING FOR WETLANDS

Working for Wetlands (WfWets) is a government programme managed under the Natural Resource Management Programme (NRM) of the Department of Environmental Affairs. It is a joint initiative with the Departments of Water and Sanitation (DWS), and Agriculture, Forestry and Fisheries (DAFF). In this way the programme is an expression of the overlapping wetland-related mandates of the three parent departments, and besides giving effect to a range of policy objectives, it also honours South Africa's commitments under several international agreements, especially the Ramsar Convention on Wetlands.

The programme is mandated to protect pristine wetlands, promote their wise-use and rehabilitate those that are degraded throughout South Africa, with an emphasis on complying with the principles of the Expanded Public Works Programme (EPWP) and using only local Small, Medium and Micro Enterprises (SMMEs). The EPWP seeks to draw significant numbers of unemployed people into the productive sector of the economy, gaining skills while they work and increasing their capacity to earn an income.

While the programme's primary focus is wetland rehabilitation; the protection, rehabilitation and sustainable use of those wetlands is simultaneously entrenched in the programme's core objectives. Given this approach of linking wetland conservation to sustainable socio-economic development, the programme shares in its focus on incorporating unemployed, poor people into employment and skills development opportunities.

The newly identified strategic framework of WfWets has underlined the need for a more refined process that the programme is embarking on with catchment-scale planning. Catchment-scale planning seeks to promote ecosystem-scale outcomes, long-term custodianship, and embedding of rehabilitation in broader local institutions and frameworks. The recent move to a systematic wetland rehabilitation planning process has provided a fertile and conducive platform for partnerships to be formed and/or strengthened as it draws in a much wider stakeholder base. Furthermore, WfWets is undergoing a strategic shift from focussing on heavily degraded wetland systems to lightly degraded ones. This will enable the programme to achieve a wider footprint with less complex, "softer" and cheaper interventions. Leveraging the benefits of the application of legislation and a strong advocacy drive are other strategies being considered in order to stretch the rand value given the enormous number of wetlands that require conservation.

### 1.1 Objectives of Working for Wetlands

WfWets engages with provinces, especially government departments and agencies responsible for biodiversity and environment, and municipalities through individual projects. A stronger working relationship with these spheres of government is being promoted through the programme's emphasis on partnership. In particular, coherence of Integrated Development Plans (IDPs) and wetland rehabilitation projects' objectives will be a key area of future focus. WfWets encourages municipalities to participate in provincial wetland forums because they are the platform for the roll out of all the programme's processes, including planning for future work. Provincial forums also offer support from the government departments and private sectors that are represented. Partnerships with non-governmental

organizations and the private sector are also critical, requiring collaboration and cooperation with a wider range of stakeholders and role players in the wetland management field.

## 1.2 Relevant legislation, policies and guidelines applicable to the project

WfWets operates within the context of the Constitution (1996), which states that everyone has the right to have the environment protected, and the following national legislation, amongst others, by which the environment is protected:

- National Environmental Management Act, No 107 of 1998 (NEMA), as amended;
- National Environmental Management: Biodiversity Act, No 10 of 2004 (NEMBA);
- National Water Act, No 36 of 1998 (NWA); and
- Conservation of Agricultural Resources Act, No 43 of 1983 (CARA).

This legislation both directs WfWets in its vision and objectives and regulates the wetland rehabilitation activities. WfWets has put in place systems to achieve compliance with all legislation. For example, Basic Assessments for environmental authorisation are carried out for all listed activities of wetland rehabilitation to comply with NEMA and a Memorandum of Agreement is in place with DWS to ensure compliance with the water licensing requirements of the NWA.

## 2 STUDY AREA

This section provides an overview of the study area, in terms of the biophysical (geography, vegetation, geomorphology etc.) and climate attributes.

### 2.1 Project description

The Amathole study site includes the wetland areas within the Amathole mountain range and the Hogsback areas. WfWet has been involved in rehabilitation planning and implementation within the Hogsback area, situated within the Q94A quaternary catchment. Since majority of the rehabilitation opportunities within the Hogsback area have been exhausted, systems beyond Hogsback and into the Amathole mountain ranges were reviewed. A need to expand into the greater project area was identified in 2018 through consultation with relevant stakeholders (**Table 2.1**). As such, priority areas were identified in the S32E quaternary catchment, near the Amathole mountain range and just outside the towns of Seymour and Hogsback in the Eastern Cape Province. Following a desktop review and discussion with members of the rehabilitation team, large wetland systems were identified as having rehabilitation opportunities with fairly large gains and these systems were prioritised for Phase 1 planning.

**Table 2.1 Key stakeholders involved in identifying the focus areas within the greater Amathole project area**

| Stakeholder          | Organisation   |
|----------------------|--|
| Unathi Makati        | Working for Wetlands   |
| Margaret Lowies      | Aurecon  |
| Japie Buckle         | Department of Environmental Affairs: Natural Resource Management                 |
| Hennie Swanevelder   | Eastern Cape Department: Economic Development, Environmental Affairs and Tourism |
| Eric Qonya           | Eastern Cape Department: Economic Development, Environmental Affairs and Tourism |
| Craig Cowden         | GroundTruth  |
| Jenny Youthed        | Aurecon  |
| Piet-Louis Grundling | Working for Wetlands   |

As mentioned, the focus area for this rehabilitation planning is a new area for WfWets rehabilitation, and exhibits great opportunities to rehabilitate fairly intact wetlands mostly affected by active erosion, historical cultivation initiatives, and alien invasive vegetation encroachment; where the anticipated gains associated with rehabilitation within this area is promising. The study area as described in this rehabilitation plan refers to the wetlands visited within Chief Tyhali's tribal land boundary, which is located within S32E (**Figure 2.1**).

**Table 2.2 Description of the quaternary catchment included in the study**

|                          |              |
|--------------------------|--------------|
| Province                 | Eastern Cape |
| Quaternary Catchment     | S32E         |
| Project Name             | Amathole     |
| Land Owner / Partnership | Tribal land  |
| Planning Phase           | Phase 1      |
| Nearest Town             | Seymour      |
| Previous Work            | No           |

## 2.2 Quaternary catchment location

The S32E quaternary catchment is the focus of the study area, as described in **Table 2.2** and illustrated in **Figure 2.1**. The systems within the catchment flow north into Waterdown Dam on the Klipplaat River, near Whittlesea. This dam is the main source of drinking water for the Queenstown residents. The system then flows east ultimately joining into the Great Kei River and entering the ocean through the Kei River mouth.

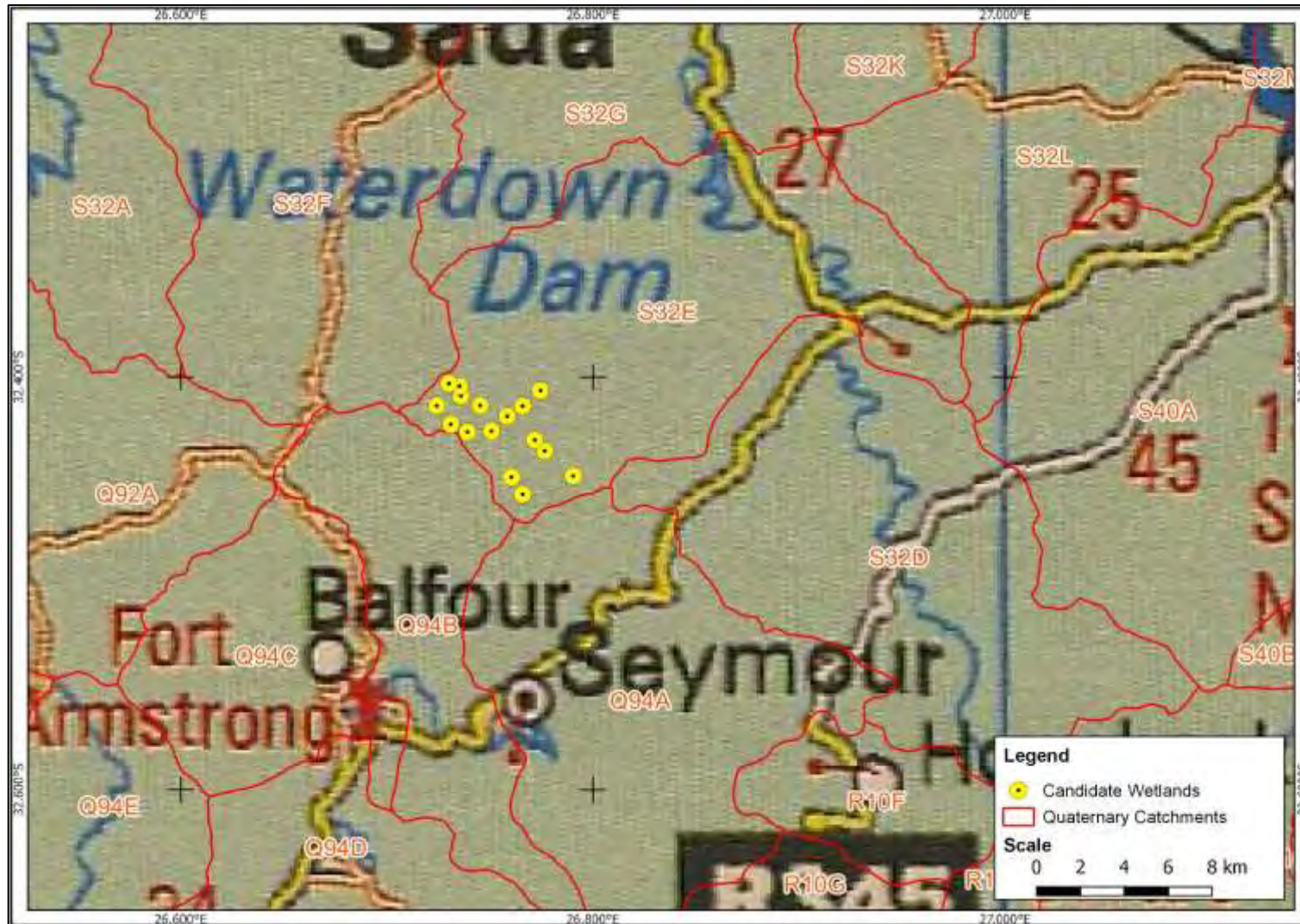


Figure 2.1 Location of identified wetlands within, and in relation to, their respective quaternary catchments

### 2.3 Wetland conservation context

South Africa is a semi-arid country, and thus wetlands are important features within the landscape as they provide ecosystem services directly related to water quantity and quality. Approximately 300'000ha of wetlands or 2.4% of South Africa's surface area remain. It is estimated that over 50% of South Africa's wetlands have been lost, and of the remaining systems, 48% are classified as critically endangered (Nel and Driver 2012).

Within the Eastern Cape region, wetlands have been subjected to high levels of modification and destruction (Kotze *et al.* 1995). The factors contributing towards the degradation of the systems vary greatly, but the predominant impacts include urbanisation, abstraction, dams, current and historical cultivation, drainage and over-grazing. The loss of wetland habitat within Eastern Cape is considered to be of concern due to the value of wetlands in terms of contributions to water quantity and quality, supporting unique biological diversity and other ecosystem services (Kotze *et al.* 2007).

Taking into consideration the above-mentioned degradation of wetland ecosystems, ecosystem rehabilitation is viewed as a means of maintaining the current levels of ecosystem service delivery, and where possible, enhancing the systems' ability to supply these benefits and services.

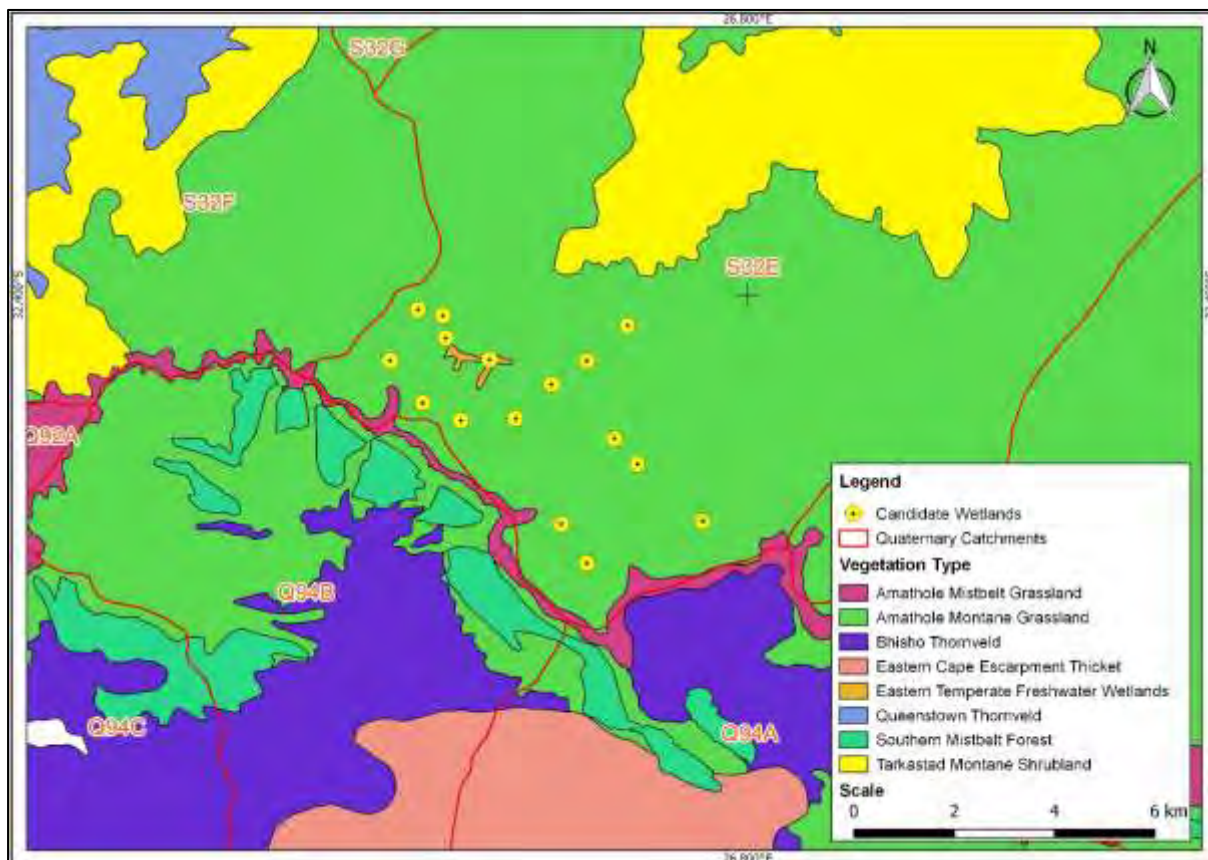
### 2.4 Climate

This section provides an overview of the climate within the quaternary catchment associated with the project area. An understanding of the climate, *i.e.* the sensitivity of catchments to hydrological impacts influences rehabilitation planning activities. The candidate wetlands are all located within the S32E quaternary catchment. The Mean Annual Precipitation (MAP) is 641.9mm and the Potential Evapotranspiration (PET) is 1730.2mm (Schulze 2007) for the S32E catchment, making the hydrological sensitivity of the wetlands within this catchment to be *Moderately High* (Macfarlane *et al.* 2007).

### 2.5 Vegetation types

Under natural conditions the surrounding landscape and study site would have been characterised by particular vegetation types. The historical dominant vegetation type present would have been a combination of two vegetation types (**Figure 2.2**), including:

- Amathole Montane Grassland (Gd 1); and
- Eastern Temperate Freshwater Wetlands (AZf 3).



**Figure 2.2 Overview of historical dominant vegetation types in the vicinity of the identified wetlands (Mucina and Rutherford 2006)**

The Amathole Montane Grassland (Gd 1) falls under the Drakensberg Grassland (Gd) bioregion (Mucina and Rutherford 2006; Nel et al. 2011). The vegetation type has been classified as ‘Least Threatened’. Of the remaining 89.7%, a small percentage (5%) is statutorily conserved in the Mpofu Game Reserve, Fort Fordyce, Bosberg, Kubusi, Hogsback and a few more conservation areas. The vegetation extends through the Eastern Cape, ranging from Amathole, Winterberg and Kologha Mountains, as well as the mountains just north of Somerset East. The vegetation can be found at altitudes between 650 – 1500m (Mucina and Rutherford 2006).

The Eastern Temperate Freshwater Wetlands (AZF 3) falls under the Azonal Vegetation bioregion (AZ) (Mucina and Rutherford 2006). The vegetation type has been classified as ‘Least Threatened’. Of the remaining 85.1%, a small percentage (4.6%) is statutorily conserved in the Blesbokspruit, Hogsback, Seekoeivlei, Wakkerstroom Wetland and Umngeni Vlei Nature Reserves. The majority of the impacts stem from the transformation to cultivated land and plantations. The vegetation extends through the Northern Cape, Free State, North-West, Gauteng, Mpumalanga and KwaZulu-Natal Provinces and can be found at altitudes ranging from 750-2000m (Mucina and Rutherford 2006).



## 2.6 National Freshwater Ecosystem Priority Areas

The National Freshwater Ecosystem Priority Areas (NFEPA) is a tool developed to assist in the conservation and sustainable use of South Africa's freshwater ecosystems, including rivers, wetlands and estuaries. Nel et al. (2011) classified the freshwater ecosystems according to their Present Ecological State 'AB', 'C', and 'DEF' or 'Z' (**Table 2.3**).

**Table 2.3 Description of NFEPA wetland condition categories**

(Nel et al., 2011, p.37)

| PES equivalent                        | NFEPA condition | Description   | % of total national wetland area* |
|---------------------------------------|-----------------|---|-----------------------------------|
| <b>Natural or Good</b>                | AB              | Percentage natural land cover $\geq$ 75%  | 47                                |
| <b>Moderately modified</b>            | C               | Percentage natural land cover 25-75%  | 18                                |
| <b>Heavily to critically modified</b> | DEF             | Riverine wetland associated with a D, E, F or Z ecological category river   | 2                                 |
|                                       | Z1              | Wetland overlaps with a 1:50 000 'artificial' inland water body from the Department of Land Affairs: Chief Directorate of Surveys and Mapping (2005-2007) | 7                                 |
|                                       | Z2              | Majority of the wetland unit is classified as 'artificial' in the wetland locality GIS layer  | 4                                 |
|                                       | Z3              | Percentage natural land cover $\leq$ 25%  | 20                                |

\*this percentage excludes unmapped wetlands, including those that have been irreversibly lost

According to the available NFEPA wetlands coverage, a portion of the wetland systems within the study area and the broader landscape have been classified as a combination of NFEPA and 'low priority' wetlands (**Figure 2.3**). The wetlands within the middle to western reaches of the site have been classified as NFEPA wetlands, which have been defined as largely natural systems, which are made up of a fairly large, interconnected wetland system. Two low priority wetlands are located within the eastern and southern sections of the study area (as defined by Chief Tyhali's land).

According to the available NFEPA river coverage, a perennial tributary of the Klipplaat River, which flows in an easterly direction through the study site, has been classified as a NFEPA river system, which has been largely modified, with a PES score of *D*. Numerous hydrologically isolated FEPA rivers were identified within the broader study site, which were regarded as important since they support important fish populations and are part of the upstream management areas.

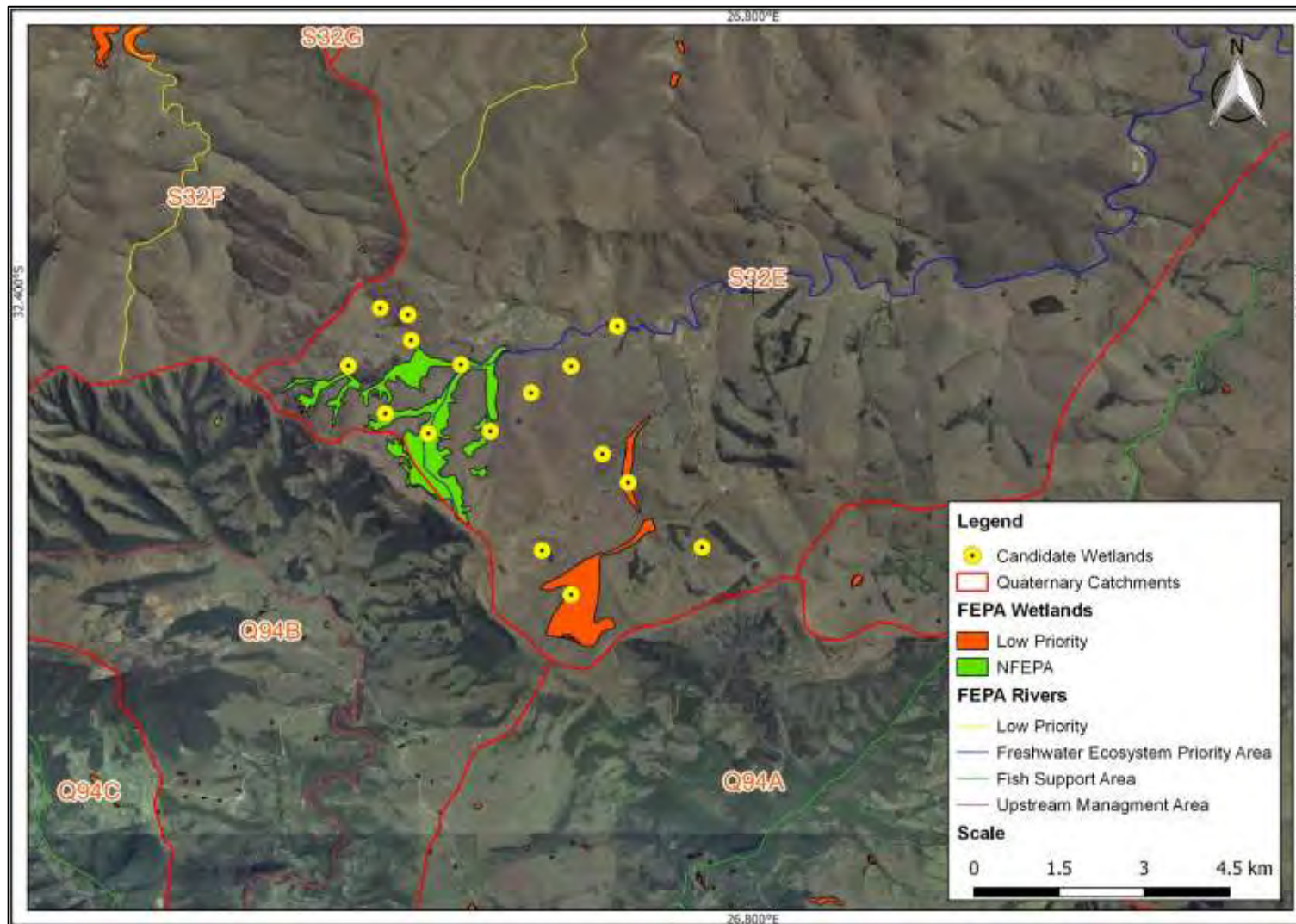


Figure 2.3 Overview of NFEPA systems within the greater study area

## 3 STUDY METHODOLOGY

The Phase 1 planning for wetland rehabilitation is fundamentally a wetland identification and 'screening' exercise to identify a manageable number of wetlands that can most effectively be assessed in further detail for rehabilitation by WfWets. This process is informed by a prioritisation process, undertaken with key stakeholders as mentioned previously.

### 3.1 Review of project history

Since the current project area within the Amathole region is a new site for the WfWets programme, there were no existing rehabilitation plans for the area. However, a review of the work implemented near Hogsback was included and it was determined whether any structures required maintenance, which included an audit of previously planned interventions that have not yet been implemented or included into the current Project Implementation Plan (PIP). These intervention designs were assessed and if necessary updated during the rest of the planning process to determine whether or not these should be included into future PIPs.

### 3.2 Desktop analysis

At the outset, a desktop analysis of the project area was undertaken to identify potential candidate wetlands for rehabilitation. This process was strongly informed by input from WfWet representatives (Piet-Louis Grundling and Unathi Makati). The desktop analysis further served to inform the overall wetland rehabilitation planning process. The objectives of the desktop study were to:

- Develop a full inventory of all wetlands investigated during the desktop analysis;
- Conduct a preliminary evaluation of the identified wetland systems based on:
  - Ecological/functional importance/ priority;
  - Level of transformation;
  - Visibility of problem areas; and
  - Location in relation to access roads.
- Identify potential candidate wetlands for rehabilitation and protection;
- Prioritise those wetland systems that may warrant rehabilitation;
- Establish problem points within the wetland habitat that may require rehabilitation; and
- Determine the possible level of rehabilitation required.

The desktop mapping process encompassed the overlaying of numerous GIS coverages to determine the probability of wetland systems, which primarily includes aerial imagery, SPOT 5 satellite imagery, contour data and river coverages. The combination of these layers assisted in determining the probability of wetland habitat within the landscape. During the desktop analysis of available coverages, a number of wetlands within the study site were identified. Wetland identification was based primarily on differences in vegetation patterns between wetland habitat and terrestrial areas, as well as landscape setting based on topography. Impacts such as the advancement of headcut erosion and drains and berms within wetlands were identified. These currently impacted systems were identified as requiring rehabilitation. Infield verification of the identified wetlands was still required to determine the magnitude of identified impacts within the wetlands.

### 3.3 Identification of candidate wetlands

The identification of suitable wetlands for rehabilitation purposes was undertaken at a desktop level utilising available satellite and aerial imagery, data supplied by WfWets, and contour data. The systems were mapped at a desktop level, with limited field verification. The desktop mapping relied largely on changes in topography and vegetation cover to define the extent of wetland habitat. The desktop level mapping/analysis was performed in Quantum GIS at a scale of 1:5000 to create a Geographical Information System (GIS) spatial coverage of the candidate wetland ecosystems within the project area.

### 3.4 Assessment of catchment impacts

The sub-catchments of the identified wetland systems were interrogated using available satellite and aerial imagery in order to determine the various land use practices within the catchments. The extent and possible intensity of the activities were broadly assessed, provisionally highlighting the extent of the impacts on the wetlands. The greater the transformations within the landscape the more likely the wetland habitat will be substantially altered and therefore, require rehabilitation.

### 3.5 Assessment of the wetlands' rehabilitation potential

The wetland systems were reviewed for rehabilitation opportunities. The aerial imagery was interrogated for headcut erosion, channel incision, drains, and/or berms and/or alien invasive vegetation within the wetlands. The extent of the impacts were considered in comparison to the size of the wetland habitat in question, to determine the potential costs of rehabilitating the system, so as to eliminate wetlands with the least potential of being successfully rehabilitated from the prioritisation process.

### 3.6 Field assessments

A site visit was conducted between the 25<sup>th</sup>-27<sup>th</sup> of September 2018 to verify the extent of wetland ecosystems within the study site and assess the current level of ecological integrity and ecosystem services provided by the wetland habitat and rehabilitation opportunities.

In addition, the Assistant Directors (ASD) for Eastern Cape identified additional work required in a wetland system that is currently being implemented, just outside the town of Hogsback. This additional work would assist in achieving the rehabilitation aims and objectives and improve the functioning of the system in the post-rehabilitation scenario. These additional measures proposed will be reviewed infield during the Phase 2 rehabilitation planning field trip to determine the potential benefits of the additional work proposed. Since new wetland sites were identified, no maintenance requirements were identified.

### 3.7 Finalisation of prioritised wetlands

The selected wetlands were prioritised based on relative importance, based on the following two categories of criteria:

1. Habitat characteristics:
  - a. Biodiversity and functional value (taking into consideration the impacts within the systems);
  - b. Potential for partnerships;

- c. Catchment characteristics;
  - d. Biophysical (hydrological, biodiversity connectivity etc.) links to other rehabilitation projects;
  - e. Uniqueness of wetlands systems;
2. Practical/convenience attributes:
    - a. Number of wetlands (HGMs) to be rehabilitated;
    - b. Number of person-days to be generated (labour intensity);
    - c. Ease of access to wetland;
    - d. Intervention size (with large-scale interventions preferably being avoided).

As multiple wetlands would be included in the Phase 1 assessment, it was necessary to prioritize the identified wetlands according to anticipated rehabilitation gains, prioritising those with higher potential gains. The wetlands were prioritised to ensure that a suitable number of wetlands are to be rehabilitated and the budget is not exceeded and to ensure that the ratio between 'hard' rehabilitation interventions and 'soft' rehabilitation interventions is proportionate to the objectives of WfWets.

### 3.8 Study assumptions and limitations

This report has been developed under certain constraints. The attention of users is drawn to the following particular areas in which caution in the use of this document should be exercised:

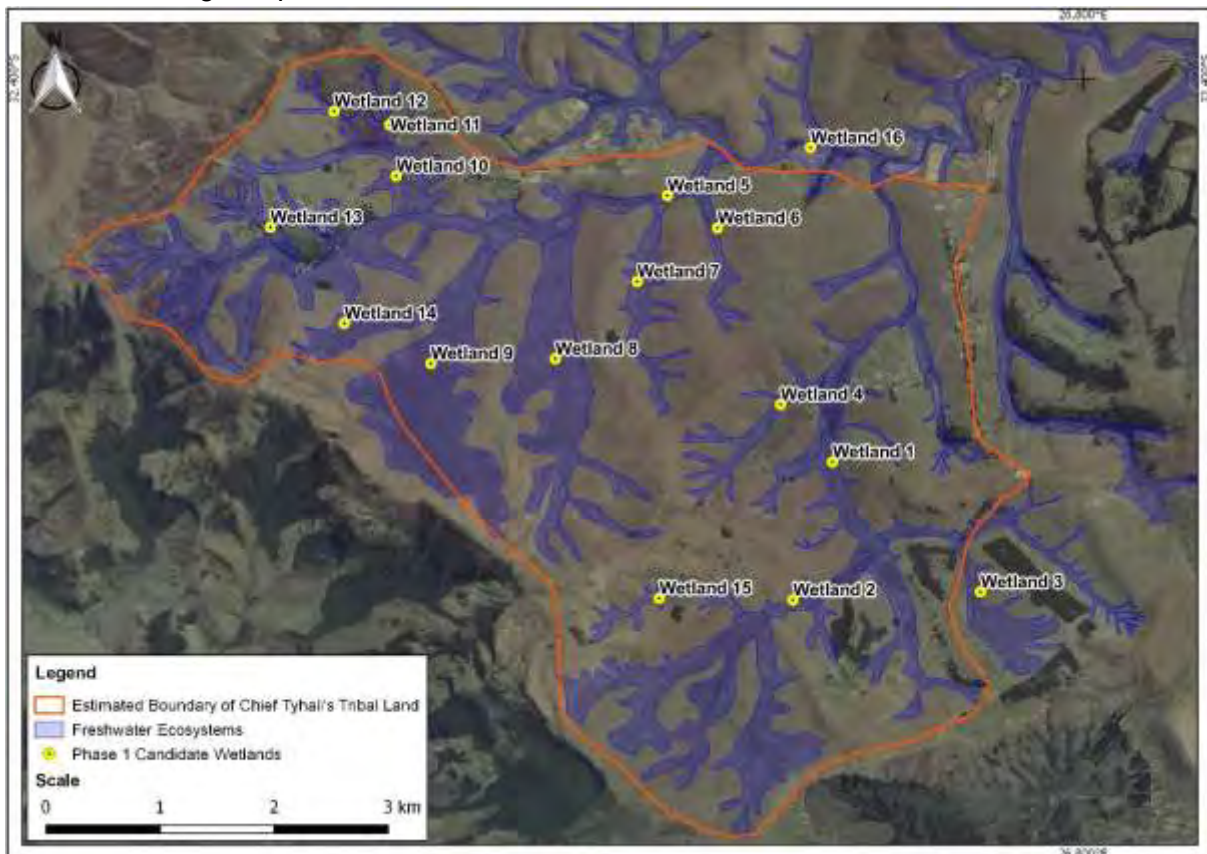
- The report only describes the initial screening of wetlands for further, more detailed rehabilitation planning. Detailed field assessments / measurements of the prioritized wetlands will be carried out in the Phase 2 of the planning process.

## 4 RESULTS AND FINDINGS

### 4.1 Desktop Analysis

Majority of the existing rehabilitation work for the WfWets projects in this area has been undertaken closer to the town of Hogsback, where majority of the wetland rehabilitation options have been exhausted. As such, opportunities for rehabilitation have been identified further away from the Hogsback town, and closer to Seymour and the Amathole Mountain range. Apart from incorporating additional rehabilitation measures into an existing rehabilitation plan near Hogsback, no maintenance of structures was identified.

During the desktop mapping process, a number of wetlands within the project area (**Figure 4.1**) were identified and investigated for possible rehabilitation opportunities. It should be noted that the project area refers to the lands belonging to Chief Tyhali, since it was on his land that the team were given permission to work.



**Figure 4.1 Overview of the candidate wetlands identified for the Phase 1 Planning of the Amathole wetland rehabilitation**

The various wetlands, their areas, location and whether they will be included in the Phase 2 planning are presented in **Table 4.1**.

**Table 4.1 Wetlands investigated during the desktop analysis process and the reason for the inclusion or exclusion from the Phase 2 infield verification process**

| Quaternary Catchment | Wetland Label and Number | WET IS Label     | Latitude (DMS)   | Longitude (DMS)  | Included for Phase 1 infield verification | Reason for inclusion/exclusion  |
|----------------------|--------------------------|------------------|------------------|------------------|---|---|
| S32E                 | Wetland 1                | S32E-01          | 32° 26' 08.55" S | 26° 46' 35.83" E | Yes                                       | Great opportunities for rehabilitation, that showed potential for an ideal balance between 'hard' and 'soft' rehabilitation interventions.  |
|                      | Wetland 2                | S32E-02          | 32° 26' 54.87" S | 26° 46' 22.53" E | Yes                                       | Great opportunities for rehabilitation, that showed potential for an ideal balance between 'hard' and 'soft' rehabilitation interventions.  |
|                      | Wetland 3                | N/A <sup>1</sup> | 32° 26' 52.18" S | 26° 47' 25.55" E | No  | Although opportunities for rehabilitation were evident at a desktop level, there were concerns whether this wetland was located within the study site and within Chief Tyhali's tribal lands.                 |
|                      | Wetland 4                | N/A              | 32° 25' 49.24" S | 26° 46' 19.83" E | No  | Upon a desktop review of the wetland, it was noted that there were limited issues within the system that required rehabilitation measures.  |
|                      | Wetland 5                | S32E-03          | 32° 24' 39.14" S | 26° 45' 30.47" E | Yes                                       | A large wetland system that can be secured and its functioning enhanced through fairly simple rehabilitation initiatives; combining both 'hard' and 'soft' intervention options to secure the rehabilitation. |
|                      | Wetland 6                | N/A              | 32° 24' 50.00" S | 26° 45' 57.22" E | No  | A desktop and infield verification of the condition of this wetland highlighted that the potential for effective rehabilitation was limited.  |
|                      | Wetland 7                | N/A              | 32° 25' 07.98" S | 26° 45' 30.24" E | No  | Desktop and infield verification of the condition of this wetland highlighted that the potential for effective rehabilitation was limited.  |

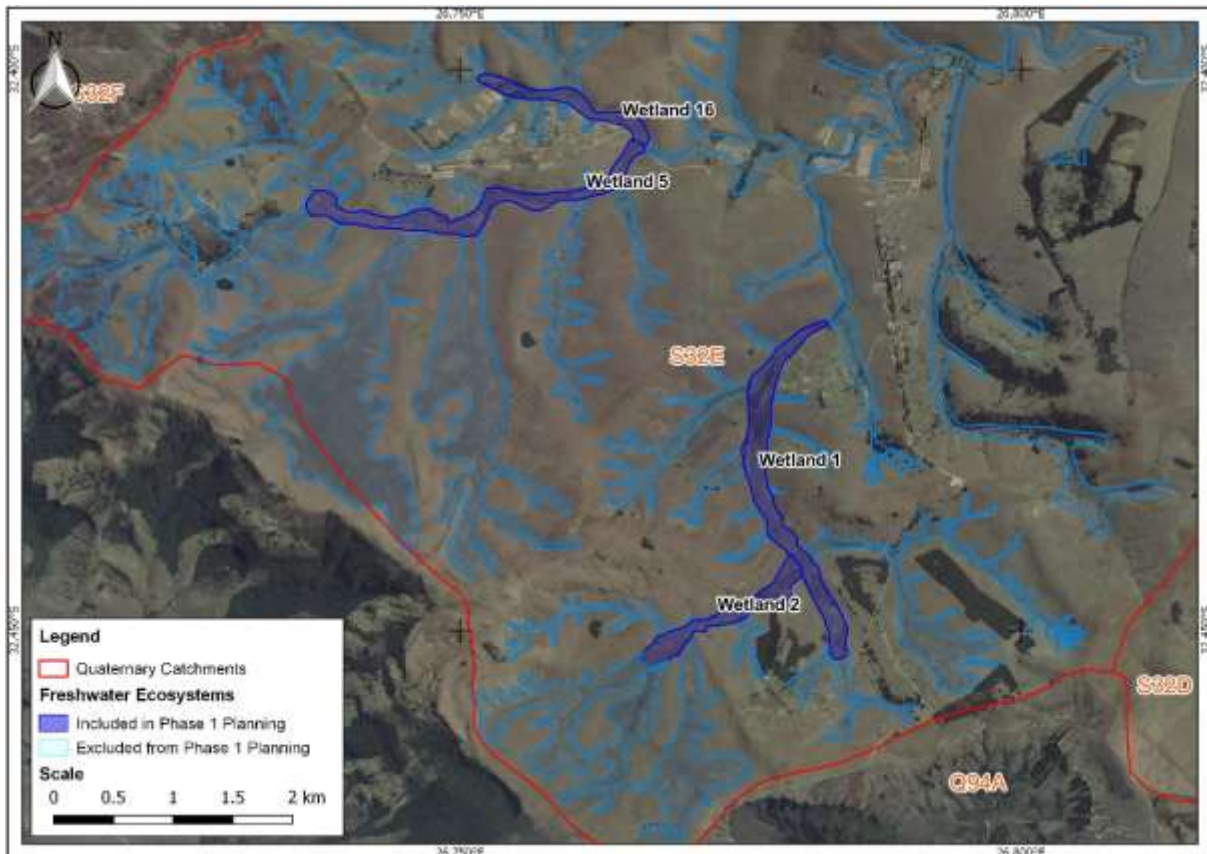
<sup>1</sup> It should be noted that those systems that were not prioritised for inclusion in the rehabilitation planning for this year's cycle were not assigned formal WET IS labels. Only those systems that have been identified for rehabilitation would receive labels since they will be incorporated into the WfWets planning cycle.

| Quaternary Catchment | Wetland Label and Number | WET IS Label | Latitude (DMS) | Longitude (DMS) | Included for Phase 1 infield verification | Reason for inclusion/exclusion   |
|----------------------|--------------------------|--------------|----------------|-----------------|---|--|
|                      | Wetland 8                | N/A          | 32° 25 33.90 S | 26° 45 02.74 E  | No  | Due to limited existing roads within the study area, and the poor quality of the roads moving north-west through the site, site access was an issue and limited the team's ability to access these wetlands and as such would pose a serious constraint to the implementation of any identified interventions. Should the road access be upgraded through other processes, these wetlands can be reconsidered for the planning of wetland rehabilitation measures as some issues were identified at a desktop level. |
|                      | Wetland 9                | N/A          | 32° 25 35.49 S | 26° 44 20.95 E  | No  |  |
|                      | Wetland 10               | N/A          | 32° 24 32.54 S | 26° 44 09.32 E  | No  |  |
|                      | Wetland 11               | N/A          | 32° 24 15.35 S | 26° 44 07.20 E  | No  |  |
|                      | Wetland 12               | N/A          | 32° 24 10.85 S | 26° 43 48.42 E  | No  |  |
|                      | Wetland 13               | N/A          | 32° 24 49.73 S | 26° 43 27.00 E  | No  |  |
|                      | Wetland14                | N/A          | 32° 25 22.00 S | 26° 43 51.86 E  | No  |  |
|                      | Wetland 15               | N/A          | 32° 26 54.30 S | 26° 45 37.65 E  | No  |  |
|                      | Wetland16                | S32E-03      | 32° 24 23.02 S | 26° 46 28.43 E  | Yes                                       | Opportunities to stabilise headcut erosion identified at the toe of this wetland system were identified, which will protect the wetland system from eroding further.   |
| Q94A                 | Q94A-01                  | Q94A-01      | 32° 32 17.02 S | 26° 55 25.64 E  | No  | The review of this site, and the proposed extension of the current rehabilitation plan, was only identified during Phase 2 of the project.   |



## 4.2 Identified wetlands

Based on the findings of the desktop analysis, infield verification of the identified wetlands took place. Based on the desktop analysis, three (3) wetlands (**Figure 4.2** and **Table 4.2**) that cover an area of approximately 258.1ha, were prioritised as candidate wetlands for the Phase 1 fieldwork.



**Figure 4.2 Wetlands identified during the desktop mapping process and infield verification processes within S32E quaternary catchment**

The wetlands identified as possible candidate wetlands within the study area (as defined above), were initially identified at a desktop level according to the rehabilitation potential within the systems. Although there were a number of wetlands identified at a desktop level as having rehabilitation potential, site access was limited due to the restricted number of roads to these wetlands. As such, in addition to rehabilitation potential, road access was also taken into account. A large focus of the rehabilitation for this area was to remove drains, berms and ridges and furrows associated with historical cultivation practises and the removal of alien invasive vegetation in an attempt to improve the system hydrology and overall wetland functioning and integrity in the post-rehabilitation landscape.

**Table 4.2 Identified wetlands based on the desktop analysis and infield verification processes within the Amathole study area**

| Wetland Name and Number | Wetland Label | Hydrogeomorphic Unit            | Area (ha) |
|-------------------------|---------------|---------------------------------|-----------|
| Wetland 1               | S32E-01       | Weakly channelled valley-bottom | 54.7      |
| Wetland 2               | S32E-02       | Weakly channelled valley-bottom | 24.4      |
| Wetland 5               | S32E-03       | Weakly channelled valley-bottom | 43.3      |
| Wetland 16              | S32E-04       | Channelled valley-bottom        | 18.5      |

Should additional systems within the study be identified as potential wetlands to be incorporated into the WFWets programme in the future, comprehensive desktop assessments of rehabilitation opportunities should be reviewed, and fieldwork should be undertaken accordingly.

#### 4.2.1 Wetland 1

Wetland 1 is a large valley-bottom wetland system, fed by valley-bottom and hillslope seepage wetlands (**Figure 4.3**). Historically, it was assumed that the system functioned as a weakly channelled valley-bottom, with very diffuse flows moving through the system and supporting wetland habitat by permanent wetness regimes. However, as the land was transformed from natural to cultivation, the functioning of the system changed fundamentally. A channel was excavated along the left bank of the wetland (looking downstream), which led to the desiccation of the mid-section of the wetland as the channel served to draw down the water table of the wetland. Alien invasive tree and shrub species have colonised a large section of the channel. In addition, a cut-off berm and drain was excavated along the right-hand bank of the wetland, preventing the seepage from the adjacent banks from entering the main valley bottom. Cut-off drains, berms and plough lines were identified running through portions of the wetland, altering the functioning of the system substantially. Despite the attempts at draining the wetland, the wetland comprised a mosaic of seasonal to permanent wetness zones within the middle to lower reaches of the system, with drier more desiccated areas towards the middle reaches of the wetland. Impacts associated with channel straightening, cut-off drains, berms and unstable re-entry points motivated for further detailed planning associated with the Phase 2 component of the study.

Livestock paths through sections of the wetland, and across the channel were identified, as well as active grazing in the wetland. Livestock pathways across the wetland and channel should be formalised to protect the wetland from continued trampling and to prevent the livestock from potentially getting stuck in the wetland and channel during high rainfall events.

It should be noted that the middle to lower portion of Wetland 1 was earmarked for rehabilitation only, since the upper reaches appeared to be fairly intact. The HGM unit was, therefore, defined at where the excavated channel and berm began and ended.



Figure 4.3 Overview of Wetland 1 and the location of the channel and drain



Figure 4.4 Straightened channel colonised by alien invasive tree species (left), and large berm running down the right-hand side of the wetland (right)

#### 4.2.2 Wetland 2

Wetland 2 is a weakly channelled valley-bottom wetland, which drains into the larger Wetland 1 system. The system is roughly 39ha in extent and is fed by a number of hillslope seepage wetland systems (**Figure 4.5**). It is anticipated that Wetland 2 was historically characterised by permanent and seasonally wet conditions, with diffuse flows moving through majority of the system. However, as a result of historical cultivation practises, the hydrology of the system has been largely altered. A combination of berms, drains, plough lines and stream channel modifications has led to the desiccation of portions of the HGM unit, making the system much drier than what the system would have been under natural conditions (**Figure 4.6**). Due to the changes in the natural hydrology of the system, disturbance tolerant vegetation such as

*Arundinella nepalensis*, *Eragrostis plana*, were the main vegetation types identified within the system. As with the case of Wetland 1, Wetland 2 extends further upstream than what the HGM unit has been defined as, since the area of focus for this study was the middle to lower reaches of the system. Signs of livestock grazing were noted within the system, and, should it be an option, better grazing management systems should be employed into these systems to ensure sustainable land use. Tributaries associated with Wetland 2 were visited during the Phase 1 fieldwork, however, issues associated with land owner permission and site access were of a concern. As such, these features were flagged infield during Phase 1, but were excluded from the Phase 2 planning.

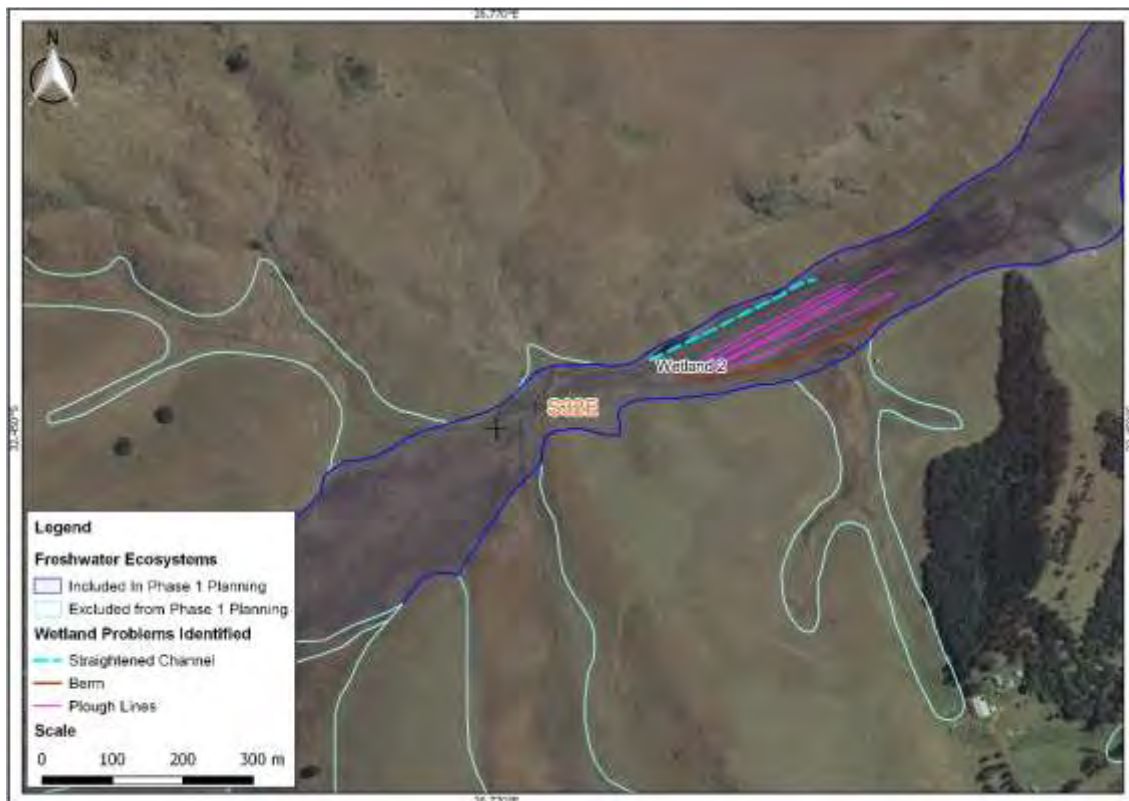


Figure 4.5 Overview of Wetland 2 indicating the location of the wetland problems



Figure 4.6 The straightened channel running down the left-hand bank of the wetland (left), and a berm limiting diffuse flows through the wetland (right)

### 4.2.3 Wetland 5

Wetland 5 is a channelled valley-bottom wetland, however it may have been less channelled historically before anthropogenic changes to the system took place (**Figure 4.7**). The movement of water is largely through a channel, which flows along the left bank of the wetland, moving across to the right-hand bank closer to the toe of the wetland before it is directed underneath an existing road. Remnants of the natural channel are clearly visible along the left-hand bank of the wetland towards the toe of the system. However, the lower-most section of the channel has since avulsed and flows through an incised channel to the right of the historical channel. This portion of the *new* channel is fairly incised, and some of the channel banks are eroding. A headcut is located just above where the channel avulsion has occurred, however the headcut has eroded to bedrock, limiting any threats of continued erosion and scour in that portion of the channel. Multiple unstable re-entry points were identified along the *new* channel, which may pose a threat to the wetland habitat upstream of these erosion features and should, therefore be secured to avoid the loss of wetland habitat. An informal sheep crossing was noted upstream of the headcut that should be stabilised to ensure that the crossing can be used safely by sheep and/or goats and the herdsman, especially during times of high flood waters through the system (**Figure 4.8**).

Upstream of the livestock crossing the system was noted to be in a stable condition and no signs of erosion or rehabilitation potential was noted during the desktop and infield assessment. As such, rehabilitation potential was focussed mainly on the lower to middle reaches of the system.



Figure 4.7 Overview of Wetland 5 and some observation points



**Figure 4.8 The headcut erosion on bedrock (left), and the livestock stream crossing that requires attention (right)**

#### 4.2.4 Wetland 16

Wetland 16 is a fairly large channelled valley-bottom system, which has been affected by historical cultivation practises which have negatively altered the functioning and integrity of the system. The HGM unit has been defined from the confluence of this wetland and Wetland 5 up to where the gradient change was noted. A number of hillslope seeps feed into the HGM unit, as well as lateral flows from the upstream valley-bottom system. The HGM unit is characterised by a fairly incised channel, which moves through the upper to middle portion of the wetland and dissipates towards the toe of the wetland. The upper reaches have sections of actively farmed portions, with drains and cultivated vegetation and alien invasive vegetation species. Since this wetland largely falls out of the permitted land access, only the toe of the wetland was considered, so as not to encroach further onto a site where no permissions had previously been arranged. The toe of the wetland had multiple headcuts and active erosion. These areas were prioritised for rehabilitation to stabilise the localised erosion before it led to further loss of wetland habitat further upstream.



Figure 4.9 Overview of Wetland 16 and some observation points



Figure 4.10 The headcut erosion identified at the toe of Wetland 16

### 4.3 Prioritized Wetlands

Due to the limitations regarding site access to numerous wetlands identified at a desktop level for Phase 1 planning, many of the systems could not be visited infield. As such, those wetland systems that were in close proximity to accessible roads (i.e. facilitated access for implementation) were prioritised for inclusion in the Phase 2 planning. The wetlands were prioritised to ensure a suitable number of wetlands were identified for rehabilitation taking into consideration the budget requirements for approximately three years. In addition, prioritisation of the wetland considered the need to balance the quantity of ‘hard’ rehabilitation interventions and ‘soft’ rehabilitation interventions.

Furthermore, the following considerations were taken into account when prioritizing the different candidate wetlands:

- Severity of impacts;
- Biodiversity contributions;
- Cost of the required rehabilitation strategy the number and type of interventions; and
- Ease of access to get material and machinery/people to site to undertake the rehabilitation.

Although all three wetlands identified during the Phase 1 desktop planning have been prioritised for rehabilitation, it is recommended that the wetlands be prioritised in the following order:

- Wetland 1;
- Wetland 5,
- Wetland 2; and then
- Wetland 16.

Wetland 1 is considered the highest priority due to the anticipated gains associated with deactivating the main channel and berm within the wetland. These rehabilitation measures are anticipated to be a combination of 'hard' and 'soft' rehabilitation interventions; providing a favourable balance between the two. In addition, the anticipated gains associated with the rehabilitation of this system is deemed to be highly beneficial and cost-effective. The removal of the alien invasive vegetation located along the channel banks is also anticipated to improve the overall vegetation integrity of the system.

Wetland 5 has been prioritised as the next system to be rehabilitated due to the anticipated gains associated with the rehabilitation of the system. Although the identified headcut, and portions of the system have eroded to bedrock posing little threat of further erosion, the incised channel downstream of the headcut is likely to continue eroding laterally if rehabilitation interventions are not implemented. Should this erosion continue, the integrity of the wetland upstream will be significantly affected, with portions of the wetland being lost as a result of this erosion. There may also be potential of diverting flows down the historical channel, thereby reactivating this portion of the wetland that has since become inactive and desiccated and will reduce the energy of the flows moving down the incised channel. It is anticipated that this rehabilitation may allow for a favourable balance between hard and soft interventions, whilst securing maximum gains from the rehabilitation.

Wetland 2, situated upstream of Wetland 1 is a smaller wetland in comparison to the two above-mentioned wetlands, and the rehabilitation identified within this wetland is more related to improving wetland functioning than securing or stabilising erosion. As such, there is less urgency to implement the rehabilitation initiatives; which is related mostly to the removal of drains, berms and plough lines associated with historical cultivation.

Wetland 16 has been prioritised for rehabilitation due to the active erosion identified at the toe of the wetland. Although it was recognised that the HGM unit is fairly degraded, the wetland habitat towards the toe of the wetland was noted as worth protecting from further degradation



and loss. However, since no formal land access permissions were granted for this wetland, permission will need to be attained prior to the commencement of any rehabilitation work. In addition, it was anticipated that more rehabilitation work could be investigated for this wetland system once land access permissions have been granted.

Based on the prioritization process, and the identification of the three wetlands to be incorporated into the rehabilitation plan, the systems have been labelled according to the WfWets labelling protocol (**Table 4.3**) for Phase 2 rehabilitation planning purposes.

**Table 4.3 Wetland prioritization**

| Wetland Name | Wetland Label | Hydrogeomorphic Unit     | Priority         |
|--------------|---------------|--------------------------|------------------|
| Wetland 1    | S32E-01       | Channelled valley-bottom | High             |
| Wetland 2    | S32E-02       | Channelled valley-bottom | Medium           |
| Wetland 5    | S32E-03       | Channelled valley-bottom | High             |
| Wetland 16   | S32E-04       | Channelled valley-bottom | Low <sup>2</sup> |

#### 4.4 Landowner Consent

The study area, as defined in **Figure 4.1**, is under custodianship by Chief Tyhali and, as such, the wetlands within the study area are under his management and control. The ASD for this WfWet area has been in contact with the Chief regarding work to be undertaken within the identified systems. A comprehensive meeting including the Chief and the interested community members was undertaken with the ASD. This meeting allowed the ASD to discuss and describe the proposed systems to be rehabilitated and the general anticipated outcomes of such rehabilitation (for example: the removal of the berms will lead to the rewetting of a large area of wetland possibly making the system inaccessible to livestock). Some of the issues that the community raised at the meeting included:

- Whether the rewetting and raising of the water table will lead to the potential drowning of livestock and herders, specifically during high flood events;
- Whether the proposed removal of alien vegetation, including wattle (*Acacia mearnsii*), pine (*Pinus pinaster*) and poplars (*Populus sp.*) may result in the loss of firewood lots for the communities and the importance of finding a balance between removals and agreed upon wood lots will be necessary;
- The question as to whether the rehabilitation of these systems would require more intensive livestock management and whether this would influence the number of livestock able to graze in these areas;
- The effects of implementing more intensive livestock management associated with the rehabilitation and whether it will force the communities to decrease their total livestock counts; and
- Whether the community will benefit from job creation associated with the rehabilitation implementation and ongoing WfWets work in the area.

Through these meetings, it was communicated that the community sell the wool from their sheep directly to HBK, a company situated in Port Elizabeth. Therefore, the wetland rehabilitation plan would need to find a balance between instilling sustainable livestock

<sup>2</sup> The *low* priority is associated with the lack of land access permissions at the time of the site visit and Phase 1 planning. As such, formal access to the site should be granted prior to the implementation of any rehabilitation.

management without hindering the earning potential of the community. In this regard, the community communicated that they would happily introduce rotational grazing into their ongoing livestock control to support sustainability in the area. With regards to the wood lots, following much discussion, the community were happy that the alien invasive plants within the water courses can be removed, whilst the wood lots outside of these areas may be kept for biofuel.

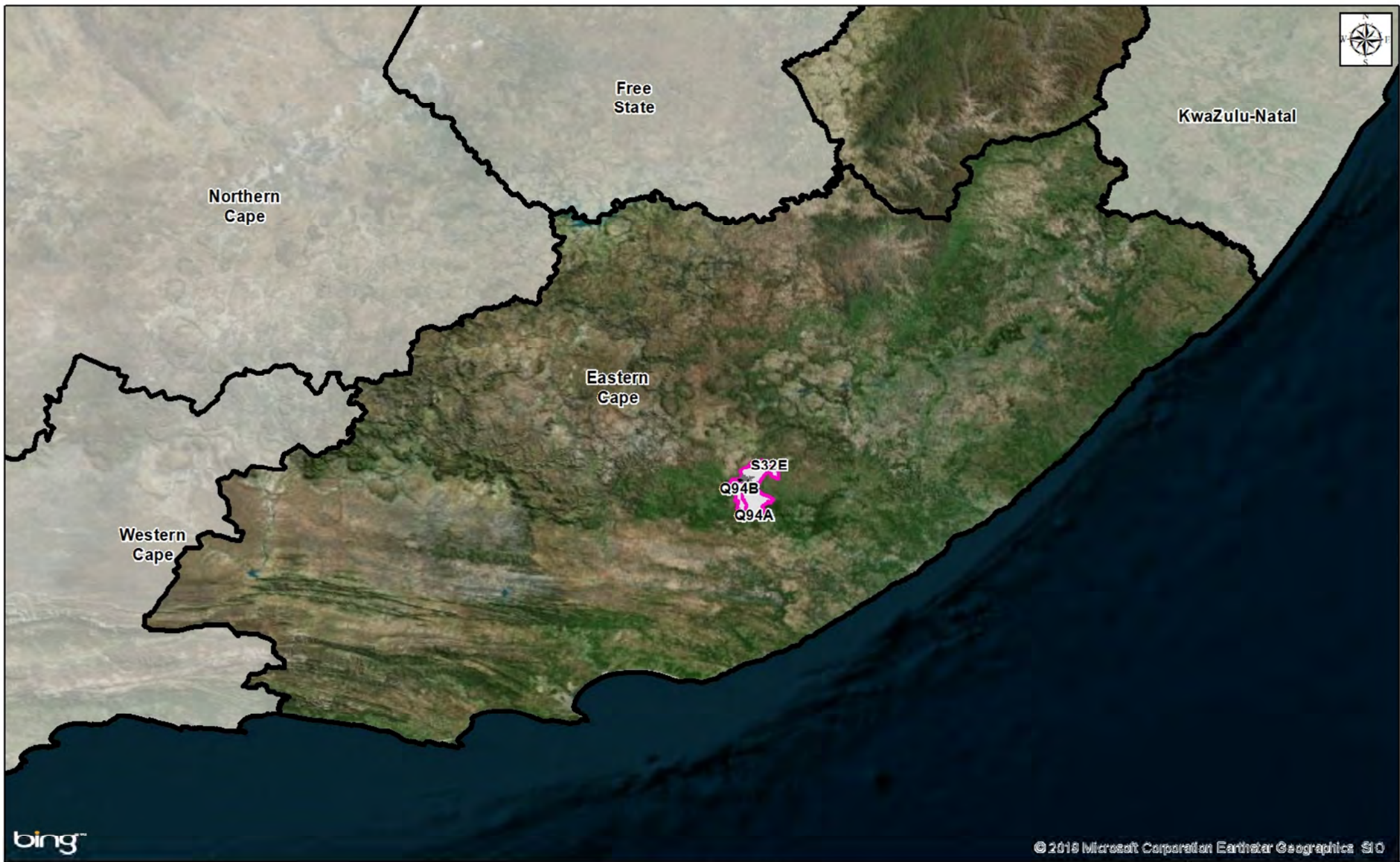
Overall, the community seemed positive about the proposed introduction of rehabilitation measures into their systems and a positive partnership between the entities can be established going forward. A transparent and open relationship will be built from the very beginning, ensuring that all stakeholders are aware of the proposed work and the consequences thereof. A good relationship with the community from the start of the project may ensure that wetland rehabilitation work for the future can be secured. To ensure that the livestock stocking rates on the grazed lands are according to best practise recommendations, guidelines on livestock stocking rates will be reviewed and integrated into the Phase 2 recommendations.

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# **Appendix C**

## **MAPS**



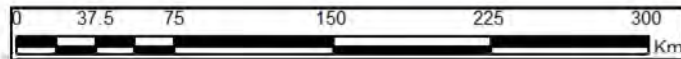
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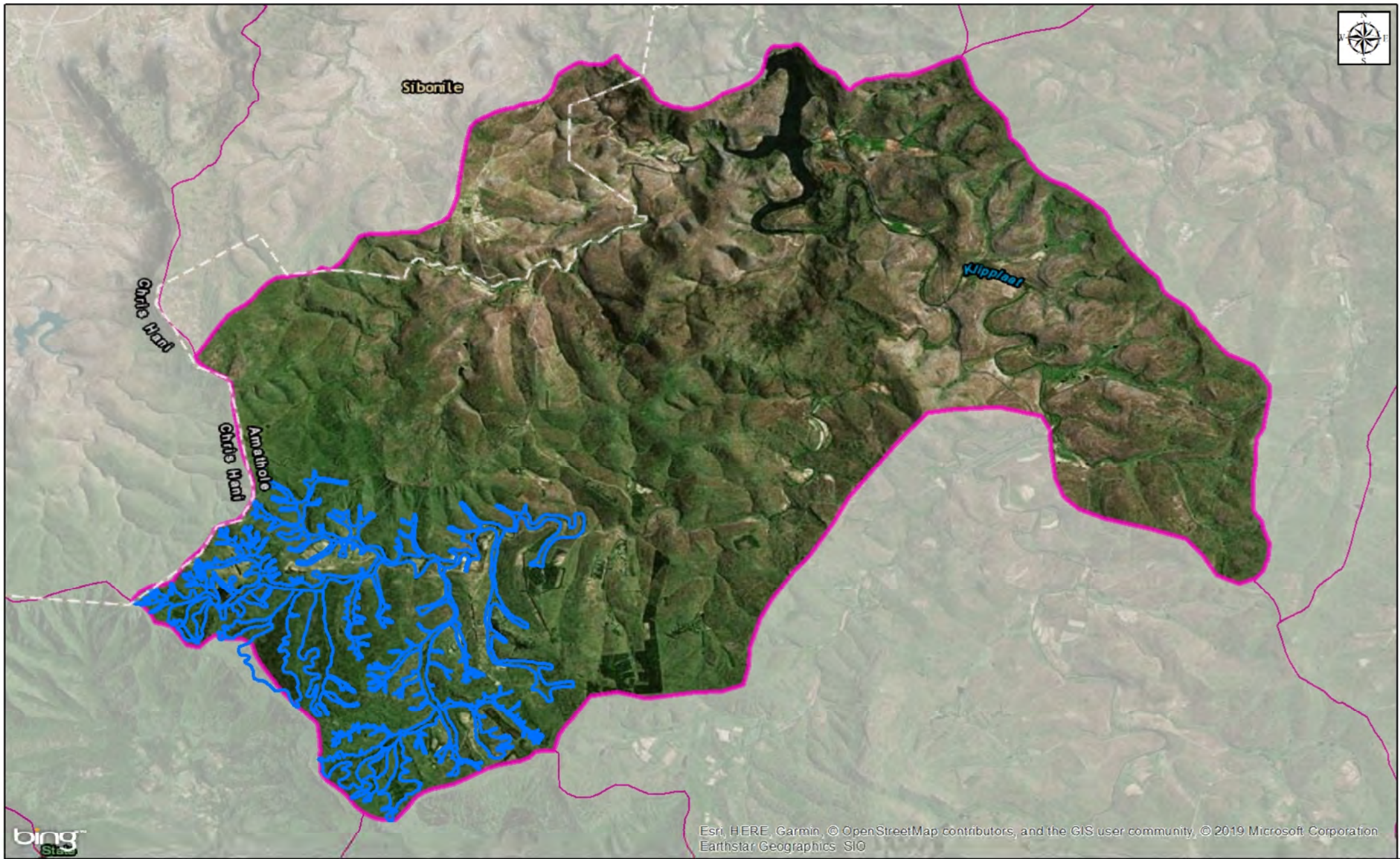
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**Legend**

- Provincial Boundaries
- Quaternary Boundaries

**Eastern Cape**







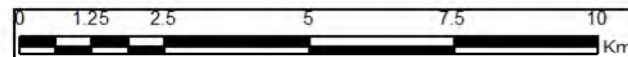
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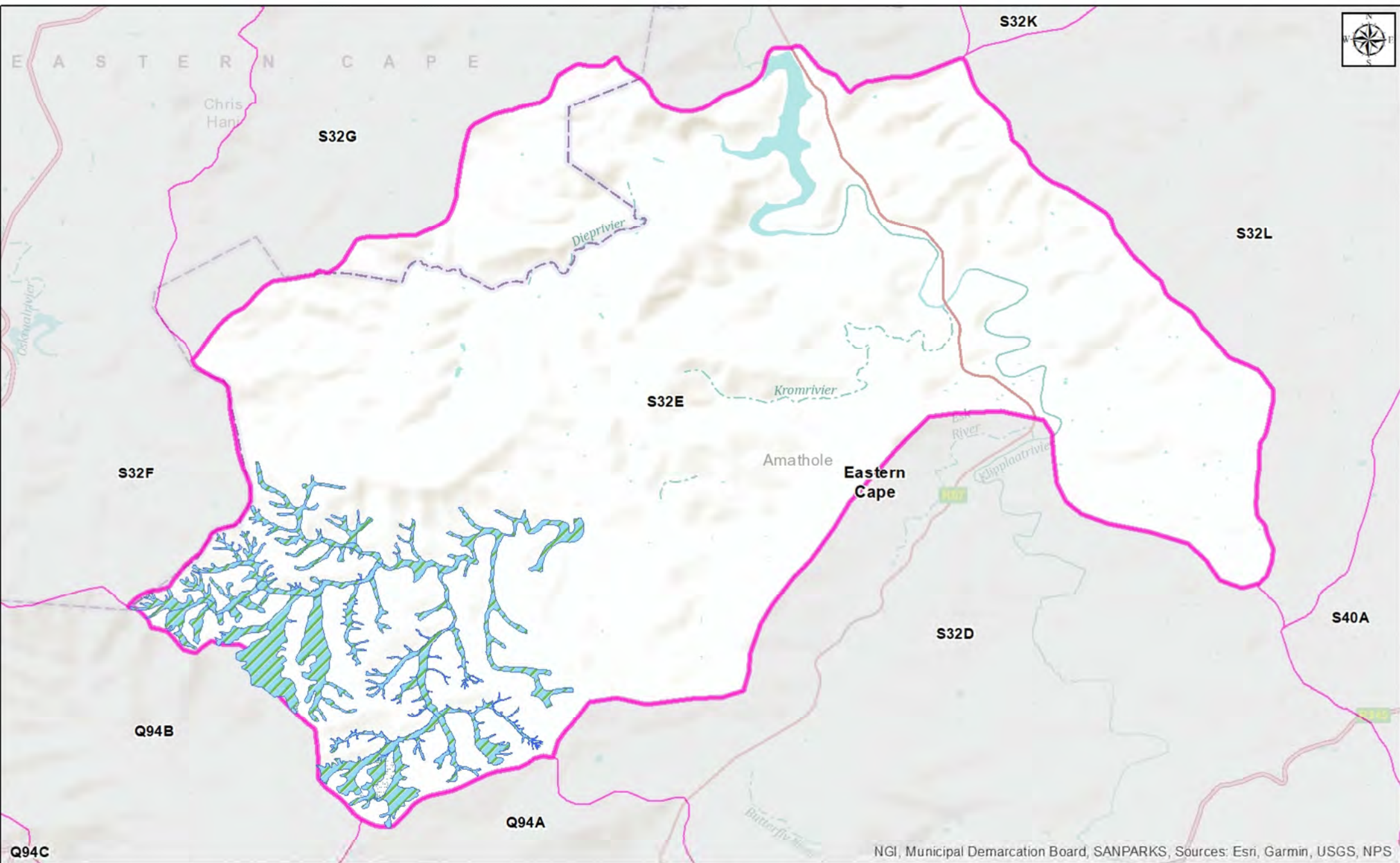
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### Legend

-  Eastern Cape Wetlands
-  Relevant Quaternary

### Eastern Cape - Wetlands



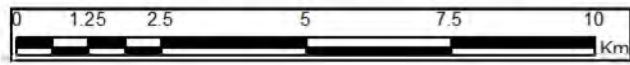


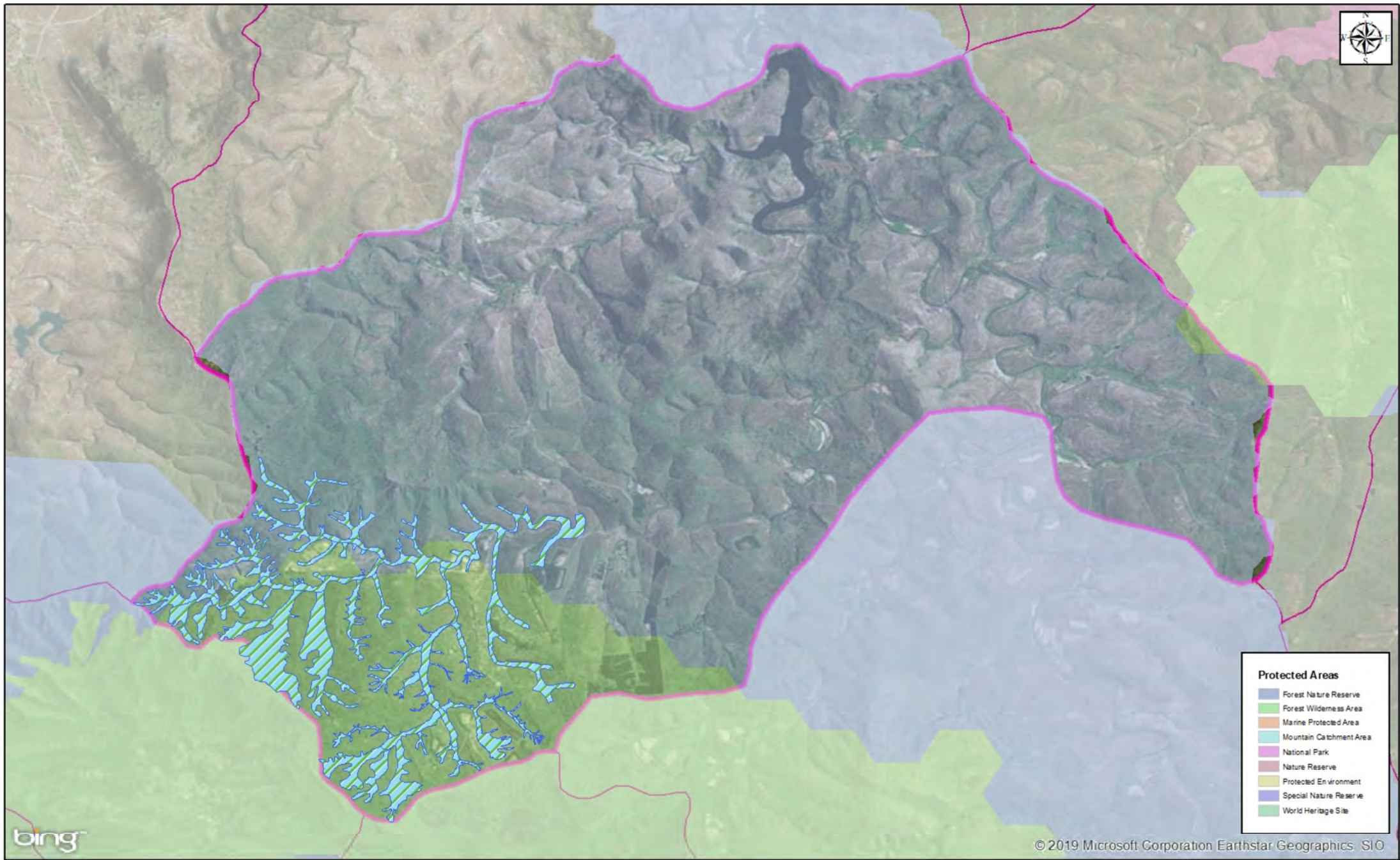
NGI, Municipal Demarcation Board, SANPARKS, Sources: Esri, Garmin, USGS, NPS

**Legend**

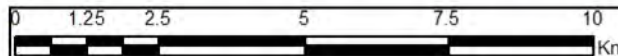
-  Wetland Boundaries
-  Relevant Quaternary

**Eastern Cape - S32E**





### Eastern Cape - Sensitivity Map



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## **Appendix D**

# **ENVIRONMENTAL MANAGEMENT PROGRAMME**

# WORKING FOR WETLANDS PROGRAMME



## CONSTRUCTION ENVIRONMENTAL MANAGEMENT PROGRAMME

**Date: September 2017**  
**Version: 5**

**Prepared by:**  
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*8000*



**Prepared for:**  
*Working for Wetlands Programme*  
*Department of Environmental Affairs:*  
*Natural Resource Management*  
*Private Bag X447*  
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## REPORT CONTROL

| Document control        |            |   |                           |                                       |            |
|-------------------------|------------|---|---------------------------|---------------------------------------|------------|
| <b>Report title</b>     |            | Working for Wetlands Programme: Construction Environmental Management Programme   |                           |                                       |            |
| <b>Prepared by</b>      |            | Aurecon South Africa (Pty) Ltd<br>PO Box 494<br>Cape Town<br>8000   |                           |                                       |            |
| <b>On behalf of</b>     |            | Working for Wetlands Programme (WfWetlands)<br>Department of Environmental Affairs: Natural Resource Management<br>Private Bag X447<br>0001 |                           |                                       |            |
| <b>Client contact</b>   |            | Ms Franci Gresse<br>Tel: 021 526 9400   | <b>WfWetlands contact</b> | Dr Farai Tererai<br>Tel: 012 399 8970 |            |
| Rev                     | Date       | Author  | Reviewer                  | Verifier                              | Approver   |
| 1                       | Sept. 2010 | SANBI   | N/A                       | N/A                                   | SANBI      |
| 2                       | Oct. 2012  | A. Beetge   | A. Beetge                 | A. Beetge                             | U. Bahadur |
| 3                       | July 2015  | Z. Palmer   | F. Gresse                 | A. Beetge                             | F. Tererai |
| 4                       | Nov. 2015  | Z. Palmer   | F. Gresse                 | A. Beetge                             | F. Tererai |
| 5                       | Sept. 2017 | M. Lowies &<br>F. Gresse  | F. Gresse                 | A. Beetge                             | F. Tererai |
| Approval                |            |   |                           |                                       |            |
| <b>Author signature</b> |            |   | <b>Approver signature</b> |                                       |            |
| <b>Name</b>             |            |   | <b>Name</b>               |                                       |            |
| <b>Title</b>            |            |   | <b>Title</b>              |                                       |            |
| <b>Date</b>             |            |   | <b>Date</b>               |                                       |            |



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## ACRONYMS

|              |   |
|--------------|---|
| <b>BAR</b>   | Basic Assessment Report                                 |
| <b>DAFF</b>  | Department of Agriculture, Forestry and Fisheries       |
| <b>DEA</b>   | Department of Environmental Affairs                     |
| <b>DWS</b>   | Department of Water and Sanitation                      |
| <b>EAP</b>   | Environmental Assessment Practitioner                   |
| <b>ECO</b>   | Environmental Control Officer                           |
| <b>EMPr</b>  | Construction Environmental Management Programme         |
| <b>EPWP</b>  | Expanded Public Works Programme                         |
| <b>GPS</b>   | Global Positioning System                               |
| <b>IE</b>    | Implementing Entity                                     |
| <b>NEMA</b>  | National Environmental Management Act (Act 107 of 1998) |
| <b>NRM</b>   | Natural Resource Management                             |
| <b>PC</b>    | Provincial Coordinator <sup>1</sup>                     |
| <b>PDP</b>   | Professional Driving Permit                             |
| <b>PIP</b>   | Project Implementation Plan                             |
| <b>PPE</b>   | Personal Protective Equipment                           |
| <b>PPR</b>   | Project Progress Report                                 |
| <b>SABS</b>  | South African Bureau of Standards                       |
| <b>SAHRA</b> | South African Heritage Resources Agency                 |
| <b>SEP</b>   | Site Environmental File                                 |
| <b>SETA</b>  | Sector Education and Training Authority                 |

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<sup>1</sup> Also referred to as Assistant Director: Wetlands Programme.



## DEFINITIONS

### **Alien species<sup>2</sup>:**

- (a) a species that is not an indigenous species; or
- (b) an indigenous species translocated or intended to be translocated to a place outside its natural distribution range in nature, but not an indigenous species that has extended its natural distribution range by natural means of migration or dispersal without human intervention.

**Approved:** Means approved in terms of the applicable legal requirements (e.g. NEMA approval/ Environmental Authorisation) and/or has been approved by the WfWetlands Programme's Deputy Director: Planning, Monitoring and Evaluation and/or an authorised representative of the WfWetlands Programme.

### **Archaeological<sup>3</sup>:**

- (a) material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
- (b) rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
- (c) wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which the South African Heritage Resource Agency (SAHRA) considers to be worthy of conservation; and

**Auditing<sup>4</sup>:** A systematic, documented, periodic and objective evaluation which provides verifiable findings, in a structured and systematic manner, on:

- (a) the level of performance against and compliance of an organisation or project with the provisions of the requisite environmental authorisation or Environmental Management Programme (EMPr) and, where applicable, the closure plan; and
- (b) the ability of the measures contained in the EMPr, and where applicable the closure plan, to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity.

**Authority:** National, regional or local authority, that has a decision-making role or interest in the project.

**Basic Assessment Report (BAR):** A report as described in Regulation 19 of GN R982 (2014, as amended) of the National Environmental Management Act (No. 107 of 1998, as amended) (NEMA).

**Best Management Practice (BMP):** Procedures and guidelines to ensure the effective and appropriate implementation of wetland rehabilitation by WfWetlands implementers.

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<sup>2</sup> National Environmental Management: Biodiversity Act (No. 10 of 2004)

<sup>3</sup> National Heritage Resources Act (No. 25 of 1999)

<sup>4</sup> Regulation 34 of GN R982 (2014, as amended) of NEMA





**Cement laden water:** Means water (fresh or wash water) which has been in contact with partially cured concrete/mortar or raw cement product and which contains suspended and dissolved cement solids.

**Commence:** The start of any physical activity, including site preparation and any other activity on site furtherance of a listed activity or specified activity, but does not include any activity required for the purposes of an investigation or feasibility study as long as such investigation or feasibility study does not constitute a listed activity or specified activity.

**Contaminated water:** Means water contaminated by the Implementing Entity's activities such as with hazardous substances, hydrocarbons, paints, solvents and runoff from plant, workshop or personnel wash areas but excludes water containing cement/ concrete or silt.

**Corrective (or remedial) action:** Reactive response required to address an environmental problem that is in conflict with the requirements of the EMPr. The need for corrective action may be determined through monitoring, audits or management review.

**Dam<sup>5</sup>:** Any barrier dam and any other form of impoundment used for the storage of water, excluding reservoirs.

**Dangerous goods:** Goods containing any of the substances as contemplated in South African National Standard No. 10234, supplement 2008 1.00: designated "*List of classification and labelling of chemicals in accordance with the Globally Harmonized Systems (GHS)*" published by Standards South Africa, and where the presence of such goods, regardless of quantity, in a blend or mixture, causes such blend or mixture to have one or more of the characteristics listed in the Hazard Statements in section 4.2.3, namely physical hazards, health hazards or environmental hazards.

**Decommissioning<sup>6</sup>:** To take out of active service permanently or dismantle partly or wholly, or closure of a facility to the extent that it cannot be readily re-commissioned.

**Dust<sup>7</sup>:** Any material composed of particles small enough to pass through a 1 mm screen and large enough to settle by virtue of their weight into the sampling container from the ambient air.

**Eco-log:** A cylindrical sleeve made from, for example wire mesh, filled with organic material and/or soil used to prevent and/or repair minor erosion.

**Ecosystem services or 'eco services':** The services such as sediment trapping or water supply, supplied by an ecosystem (in this case a wetland ecosystem).

**Endangered species:** Means any indigenous species listed as an endangered species in terms of section 56 of the National Environmental Management Biodiversity Act ((No. 10 of 2004).

**Endemic:** An "endemic" is a species that grows in a particular area (i.e. it is endemic to that region) and has a restricted distribution. It is only found in a particular place. Whether something is endemic or not depends on the geographical boundaries of the area in question and the area can be defined at different scales.

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<sup>5</sup> GN R983 (2014, as amended) of NEMA

<sup>6</sup> GN R983 (2014, as amended) of NEMA

<sup>7</sup> National Dust Regulations GN R827 (2013)



**Environment**<sup>8</sup>: Means the surroundings within which humans exist and that are made up of:

- i. the land, water and atmosphere of the earth;
- ii. micro-organisms, plant and animal life;
- iii. any part or combination of i) and ii) and the interrelationships among and between them; and
- iv. the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

**Environmental Assessment Practitioner (EAP)**: The individual responsible for the planning, management and coordination of the environmental impact assessments, strategic environmental assessments, environmental management plans and/or other appropriate environmental instruments introduced through regulations of NEMA.

**Environmental Impact Assessment (EIA)**: A study of the environmental consequences of a proposed course of action via the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of that application.

**Environmental impact**: An environmental change caused by some human act.

**Environmental impact**: Change in an environment resulting from the effect of an activity on the environment, whether positive or negative. Impacts may be the direct consequence of an individual's or organisation's activities or may be indirectly caused by them (DEAT, 1998).

**Erosion**: The loss of soil through the action of water, wind, ice or other agents, including the subsidence of soil.

**Establishment of grass**: Refers to all necessary procedures taken to produce an acceptable cover of specified live grass over an area.

**Gabion**: A structure made of wire mesh baskets filled with regularly sized stones, and used to prevent and/or repair erosion. They are flexible and permeable structures which allow water to filter through them. Vegetation and other biota can also establish in/around the habitat they create.

**Hazard**: Means a source of or exposure to danger.

**Invasive alien species control**:

- (a) to combat or eradicate an alien or invasive species; or
- (b) where such eradication is not possible, to prevent, as far as may be practicable, the recurrence, re-establishment, re-growth, multiplication, propagation, regeneration or spreading of an alien or invasive species.

**Implementing Entity**: The entity responsible for the construction of WfWetlands rehabilitation interventions by means of various contracted teams.

**Indigenous vegetation**<sup>9</sup>: Refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

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<sup>8</sup> NEMA

<sup>9</sup> GN R983 (2014, as amended) of NEMA



**Interested and Affected Parties (I&APs)<sup>10</sup>:**

- (a) all persons who, as a consequence of the public participation process conducted in respect of that application, have submitted written comments or attended meetings with the proponent, applicant or EAP;
- (b) all persons who have requested the proponent or applicant, in writing, for their names to be placed on the register; c) all organs of state which have jurisdiction in respect of the activity to which the application relates.

**Intervention:** An engineered structure such as a concrete or gabion weir, earthworks or revegetation that achieves identified objectives within a wetland e.g. raising of the water table within a drainage canal.

**Invasive species<sup>11</sup>:** Means any species whose establishment and spread outside of its natural distribution range-

- (a) threaten ecosystems, habitats or other species or have demonstrable potential to threaten ecosystems, habitats or other species; and
- (b) may result in economic or environmental harm or harm to human health.

**Listed invasive species:** Any invasive species listed in terms of sections 66(1), 67(1), 70(1)(a), 71(3) and 71A of the National Environmental: Biodiversity Act (No. 10 of 2004).<sup>12</sup>

**Maintenance period:** The period after the Establishment Period (Practical Completion), up to and until the end of the Maintenance Period (i.e. a period of 12 months).

**Maintenance<sup>13</sup>:** Means actions performed to keep a structure or system functioning or in service on the same location, capacity and footprint.

**Mine:**

- (a) used as a noun-

any excavation in the earth, including any portion under the sea or under other water or in any residue deposit, as well as any borehole, whether being worked or not, made for the purpose of searching for or winning a mineral;

any other place where a mineral resource is being extracted, including the mining area and all buildings, structures, machinery, residue stockpiles, access roads or objects situated on such area and which are used or intended to be used in connection with such searching, winning or extraction or processing of such mineral resource; and

- (b) used as a verb-

in the mining of any mineral, in or under the earth, water or any residue deposit, whether by underground or open working or otherwise and includes any operation or activity incidental thereto, in, on or under the relevant mining area.

**Mitigation:** Actions to reduce the impact of a particular activity.

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<sup>10</sup> Regulation 42 GN R983 (2014, as amended) of NEMA

<sup>11</sup> National Environmental Management: Biodiversity Act (No. 10 of 2004)

<sup>12</sup> Also refer to GN 864 (2016): Alien and Invasive Species Lists

<sup>13</sup> GN R983 (2014, as amended) of NEMA



**Mitigation<sup>14</sup>:** Means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible;

**Monitoring<sup>15</sup>:** The repetitive and continued observation, measurement and evaluation of environmental criteria to follow changes over a period of time and to assess the efficiency of control measures.

**Nursery conditions:** This refers to the necessary conditions that must be in place for maintaining strong healthy growth in all container plant materials on site. This includes for the protection of all container plants against wind, frost, direct sunlight, pests, disease and drought. It also includes for the provision of adequate and suitable water supply, fertilisers and all other measures necessary to maintain strong and healthy plant growth.

**Offensive odour:** Any smell which is considered to be malodorous or a nuisance to a reasonable person.

**Pollution<sup>16</sup>:** Means any change in the environment caused by substances;

(ii) radioactive or other waves; or

(iii) noise, odours, dust or heat,

emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or wellbeing or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.

**Post-construction:** Refers to the period of 12 months after the completion of the construction works, the onset coinciding with the maintenance period.

**Potentially hazardous substance:** Any substance or mixture of substances, product or material declared to be a hazardous substance under section 2(1) of the Hazardous Substance Act (1973).

**Pre-construction:** Refers to the period leading up to the establishment on site by the Implementing Entity.

**Project:** A defined area for which an approved rehabilitation plan exists for the WfWetlands Programme.

**Public Participation Process (PPP):** A process of involving the public in order to identify issues and concerns, and obtain feedback on options and impacts associated with a proposed project, programme or development. Public Participation Process in terms of NEMA refers to a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to specific project matters.

**Quaternary Catchment:** A fourth order catchment in a hierarchal classification system in which a primary catchment is the major unit and that is also the "principal water management unit in South Africa"<sup>17</sup>

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<sup>14</sup> GN R983 (2014, as amended) of NEMA

<sup>15</sup> DEAT, 1998

<sup>16</sup> National Environmental Management Act (No. 107 of 1998, as amended)

<sup>17</sup> DWS Groundwater Dictionary. Available online:

[http://www.dwaf.gov.za/Groundwater/Groundwater Dictionary/index.html?introduction\\_quaternary\\_catchment.htm](http://www.dwaf.gov.za/Groundwater/Groundwater%20Dictionary/index.html?introduction_quaternary_catchment.htm)



**Reasonable:** Means, unless the context indicates otherwise, reasonable in the opinion of the relevant environmental authority.

**Rehabilitation:** Refers to re-instating the driving ecological forces (including hydrological, geomorphological and biological processes) that underlie a wetland, so as to improve the wetland's health and the ecological services that it delivers; and

Restoring processes and characteristics that are sympathetic to and not conflicting with the natural dynamic of an ecological or physical system<sup>18</sup>.

**Scarifying:** Loosening the soil in areas which have become hard and compacted and which need to be loosened in order to facilitate revegetation.

**Shaping:** Finishing all slopes which do not form part of the permanent works so that they do not exceed the maximum gradient stipulated in the approved rehabilitation plan.

**Significant impact:** Means an impact that may have a notable effect on one or more aspects of the environment or may result in k with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence.

**Silt laden water:** Means water (mostly overland surface runoff) containing a substantial concentration of suspended solids with increased turbidity. Usually occurs as a result of exposed/cleared ground surfaces, concentration of runoff and/or erosion of excavated or imported materials.

**Site:** This is the area described in the approved/authorised rehabilitation plan for the implementation of the rehabilitation measures. Where the area is not demarcated, it will include all adjacent areas, which are reasonably required for the activities for the Implementing Entity, and approved for such use by the Environmental Control Officer (ECO).

**Slope:** The inclination of a surface expressed as 1 unit of rise or fall for so many horizontal units.

**Subsoil:** The soil horizons between the topsoil horizon and the underlying parent rock.

**Topsoil:** The upper soil profile irrespective of the fertility appearance, structure, agriculture potential, fertility and composition of the soil, usually containing organic material and which is colour specific. Also referred to as the "O" and "A" horizons.

**Waste:** Any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes as defined in Schedule 3 the National Environmental Management: Waste Act (No. 59 of 2008)<sup>19</sup>. Examples include construction debris, chemical waste, used oils and lubricants, batteries, metal and wood off-cuts, excess cement/ concrete, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).

**Watercourse:**

- (a) a river or spring;
- (b) a natural channel in which water flows regularly or intermitted;
- (c) a wetland, pan, lake or dam into which, or from which, water flows

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<sup>18</sup> Wetland Management Series: WET-Origins, WRC Report TT 334/08, March 2008

<sup>19</sup> National Environmental Management: Waste Act (No. 59 of 2008, as amended)



A reference to a watercourse includes, where relevant, its bed and banks

**Weir:** A dam-type structure placed across a watercourse to raise the water table of the surrounding ground and trap sediment on the upstream face without preventing water flow. Weirs are generally used to prevent erosion from progressing up exposed gullies.

**Wetland:** Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water and which in normal circumstances supports or would support vegetation typically adapted to life in saturated soils<sup>20</sup> and,

Land where an excess of water is the dominant factor determining the nature of the soil development and the types of plants living there<sup>21</sup>.

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<sup>20</sup> National Water Act (No. 36 of 1998, as amended)

<sup>21</sup> Wetland Management Series: WET-Origins, WRC Report TT 334/08, March 2008



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# 1 INTRODUCTION

## 1.1 Project Overview

Working for Wetlands is a government programme managed by the Natural Resource Management (NRM) Programme of the Department of Environmental Affairs (DEA), and is a joint initiative with the Departments of Water and Sanitation (DWS), and Agriculture and Forestry and Fisheries (DAFF). In this way the programme is an expression of the overlapping wetland-related mandates of the three parent departments, and besides giving effect to a range of policy objectives, it also honours South Africa's commitments under several international agreements, especially the Ramsar Convention on Wetlands.

The programme is mandated to protect pristine wetlands, promote their wise-use and rehabilitate those that are damaged throughout South Africa, with an emphasis on complying with the principles of the Expanded Public Works Programme (EPWP) and using only local Small, Medium and Micro Enterprises (SMMEs). The EPWP seeks to draw significant numbers of unemployed people into the productive sector of the economy, gaining skills while they work and increasing their capacity to earn an income.

## 1.2 Purpose of the EMPr

An Environmental Management Programme (EMPr) is compiled as part of the requisite submissions contained in a Basic Assessment Report (BAR) or Environmental Impact Report (EIR) in order to obtain an Environmental Authorisation (EA) to proceed with a listed activity(ies) as defined in GN R982 (2014, as amended) of the National Environmental Management Act (No. 107 of 1998), as amended. Upon approval of the BAR or EIR and resultant issuing of the EA, the EMPr becomes a legally binding document of which compliance has to be audited by an independent and appropriately qualified auditor as per Regulation 34 of GN R982 (2014, as amended).

The EMPr's main purpose is to document general and specific avoidance, mitigation and termination actions in order to address general and project specific impacts as identified by means of the EIA and/or Phase 2 planning process. Implementation of the actions specified in the EMPr can be contractually delegated to various parties involved in the project execution. However, legal compliance with the EA and EMPr remains with the EA holder and cannot be delegated or transferred. It is therefore of utmost importance that WfWetlands ensures that all parties involved are familiar with the contents and requirements of the EMPr as non-conformances can ultimately have legal and financial consequences to primarily the EA holder but also subsequently all other parties involved.

## 1.3 Auditing of compliance with the EA and EMPr

Compliance auditing has been transformed from a vague requirement under the 2006 and 2010 EIA regulations to a very specific set of actions and outcomes which are to be achieved under the 2014 EIA regulations. An audit report is now also subject to a specified structure and with specific content requirements (Appendix 7 of GN R982), as amended. According to GN R982 Appendix 7 (Section 2) the objectives of an audit report include *inter alia* the following:

- a) to report on—
  - i. the level of compliance with the conditions of the environmental authorisation and the EMPr, and where applicable, the closure plan; and
  - ii. the extent to which the avoidance, management and mitigation measures provided for in the EMPr, and where applicable, the closure plan achieve the objectives and outcomes of the EMPr, and closure plan;





- b) identify and assess any new impacts and risks as a result of undertaking the activity;
- c) evaluate the effectiveness of the EMPr, and where applicable, the closure plan;
- d) identify shortcomings in the EMPr, and where applicable, the closure plan; and
- e) identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr, and where applicable, the closure plan.

As per Regulation 34, sub-regulation 4 of GN R982, where the findings of the environmental audit report contemplated in sub- regulation (1) of GN R982 indicate:

- (a) insufficient mitigation of environmental impacts associated with the undertaking of the activity; or
- (b) insufficient levels of compliance with the environmental authorisation or EMPr and, where applicable the closure plan;

the holder must, when submitting the environmental audit report to the competent authority in terms of sub-regulation (1), submit recommendations to amend the EMPr or closure plan in order to rectify the shortcomings identified in the environmental audit report.

When submitting recommendations in terms of sub-regulation (4), such recommendations must have been subjected to a public participation process, which process has been agreed to by the competent authority and was appropriate to bring the proposed amendment of the EMPr and, where applicable the closure plan, to the attention of potential and registered interested and affected parties, including organs of state which have jurisdiction in respect of any aspect of the relevant activity and the competent authority, for approval by the competent authority.

Given the strict and onerous above-mentioned requirements in terms of compliance with the EA and EMPr as well as auditing thereof, it is therefore of utmost importance that the EMPr specifies realistic and auditable avoidance, mitigation and cessation actions which can be applied across a wide range of project in various geographical settings. The approach to the structure and content of this EMPr is discussed in more detail under Section 1.7 below.

#### **1.4 Frequency of compliance auditing**

The ECO and Implementing Entity is responsible for ensuring compliance with the EMPr. The ECO shall inspect the site prior to commencement of any construction activity, at least once per month during construction and on completion of construction to establish the level of compliance with this CEMP. At sensitive sites, bi-weekly inspections shall take place as a minimum.

Monthly site audits shall be undertaken by the ECO and a bimonthly Project Inspection Report submitted to the Working for Wetlands Deputy Director: Planning, Monitoring and Evaluation for review prior to the annual Compliance Audit taking place.

The annual Compliance Audit Report shall be submitted to the DEA collating the year's completed checklists. It is the responsibility of the ECO to report any non-compliance, which is not correctly rectified to the DEA.

#### **1.5 Content of an EMPr**

Environmental management programmes are intended to be documents which indicate how the mitigation and management measures proposed for a project can be implemented in practice. As such they should be practical, reasonable and feasible. They must also meet the requirements of the legislation (Table 1), in particular regulation 19 (4) of the 2014 EIA regulations (GN R982).



**Table 1: Requirements of an EMPr as per Appendix 4 of the 2014 EIA regulations, GN R982 (2014, as amended)**

| Section | Description  | Heading/<br>section in<br>this EMPr   |
|---------|--|---------------------------------------|
| (a)     | details of-<br>(i) the EAP who prepared the EMPr; and<br>(ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;  | Report<br>control sheet<br>Annexure E |
| (b)     | a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;   | Sections 1.1,<br>1.2 and 1.7          |
| (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;  | Chapter 6<br>Annexure C               |
| (d)     | a description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including-<br>(i) planning and design;<br>(ii) pre-construction activities;<br>(iii) construction activities;<br>(iv) rehabilitation of the environment after construction and where applicable post closure; and<br>(v) where relevant, operation activities;  | Chapters 3-5                          |
| (f)     | a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraphs (d) will be achieved, and must, where applicable, including actions to -<br>(i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;<br>(ii) comply with any prescribed environmental management standards or practices;<br>(iii) comply with any applicable provisions of the Act regarding closure, where applicable; and<br>(iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable; | Chapters 4-5                          |
| (g)     | the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);  | Chapters 4-5                          |
| (h)     | the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);   | Chapters 4-5                          |
| (i)     | an indication of the persons who will be responsible for the implementation of the impact management actions;  | Section 2.1;<br>Chapters 4-5          |
| (j)     | the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;   | Section 2.1                           |



| Section | Description   | Heading/<br>section in<br>this EMPr |
|---------|---|-------------------------------------|
| (k)     | the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);   | Chapters 4-5                        |
| (l)     | a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;   | Sections 1.3 and 1.4                |
| (m)     | an environmental awareness plan describing the manner in which-<br>(i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and<br>(ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and | Section 3.3 and Chapter 6           |
| (n)     | any specific information that may be required by the competent authority.   | NA                                  |

## 1.6 Relevant legislation, guidelines and other documents

This EMPr should be read in the context of the following documents:

- Constitution of the Republic of South Africa Act (No. 108 of 1996)
- National Environmental Management Act, (No. 107 of 1998, as amended)
- National Environmental Management: Waste Act (No. 59 of 2008)
- National Forest Act (No. 84 of 1998)
- National Water Act (No. 36 of 1998)
- National Heritage Resources Act (No. 25 of 1999)
- Municipal Systems Act (No. 32 of 2000)
- Occupational Health and Safety Act (No. 85 of 1993)

***Note that the EMPr is not intended to replace any of the above, but rather augment them. Compliance with the EMPr does not exempt the EA holder, i.e. WfWetlands, from compliance with the legal or management requirements of any other licence or permit issued in terms of the project.***

## 1.7 The EMPr in the context of the WfWetlands programme

As discussed under the previous sections, an EMPr and compliance with the EMPr (including compliance auditing) is specifically and strictly regulated under the 2014 EIA regulations, as amended. The implementation of a standard EMPr across a programme as diverse as WfWetlands does however pose various challenges as a result of the wide variety of interventions, site conditions, types of wetland systems, ecological integrity and complexity and so forth.

As a result the EMPr has been written with the abovementioned challenges in mind. It therefore focuses on the typical activities and impacts related to a WfWetlands project and generic avoidance, mitigation and termination actions. The EMPr is augmented by a site specific Rehabilitation Plan which includes more site specific mitigation measures and requirements where required. It is recommended that



compliance auditing takes into account the specific mitigation measures recommended in the accompanying Rehabilitation Plan for each individual project as well.

- Allowance will also be made throughout the document for minor deviations to allow for site specific scenarios but with the condition that each deviation be approved by the provincial Programme's Provincial Coordinator (PC) and in the case of major deviations by the DEA (also see Annexure B).



## 2 IMPLEMENTATION OF THE EMPr

The EMPr is ultimately intended to aid in the implementation of specific actions on site in order to ensure that the impacts of a project are avoided or mitigated during the various project implementation phases. A number of role-players are required to actively participate in the implementation of the EMPr with different roles and responsibilities typically assigned to each. The various roles and responsibilities are outlined below.

### 2.1 Role-players and their functions/responsibilities

#### 2.1.1 DEA

| Responsible Entity: DEA  |                  |
|--|------------------|
| <ul style="list-style-type: none"> <li>DEA (specifically the Legal Authorisations and Compliance Inspectorate) holds the ultimate authority and mandate in terms of ensuring environmental legislation is adhered to.</li> </ul>   |                  |
| Responsibilities   | Duration         |
| <ul style="list-style-type: none"> <li>Investigate reported non-compliances with EAs and EMPrs either as a result of findings by an ECO/auditor, reporting by the EA holder or public complaints.</li> <li>Enforce compliance and adherence to the EA, EMPr or any other environmental legislation through a number of administrative and legal procedures should it prove that a person or organisation is in contravention of an EA, EMPr or other environmental authorisation.</li> </ul> | Project lifespan |

#### 2.1.2 The EA holder

| Responsible Entity: WfWetlands  |                               |
|---|-------------------------------|
| <ul style="list-style-type: none"> <li>Holds sole legal liability in terms of ensuring compliance to the EA and EMPr.</li> <li>Some responsibilities resulting from the EA or EMPr can be delegated or transferred contractually.</li> </ul>  |                               |
| Responsibilities  | Duration                      |
| <b>Contractual</b> <ul style="list-style-type: none"> <li>Ensure that the EA and EMPr is included in the contract documentation for a project in order to ensure that compliance with the EA and EMPr is contractually binding.</li> <li>Ensure that current standards and specifications forming part of the standard contract documentation allow for or are aligned to the requirements of the EA and EMPr.</li> <li>Ensure that all PCs and Implementing Entities are familiar with the requirements of the EA and EMPr.</li> </ul> | Appointment; Project lifespan |



| Responsibilities              |  | Duration                              |
|-------------------------------|--|---------------------------------------|
| <b>Approvals and licences</b> | <ul style="list-style-type: none"> <li>Identify, obtain and comply with all other necessary approvals, permits, authorisations and requirements set by the relevant National and Provincial Departments and Local Authority for the construction of engineering interventions for the rehabilitation of wetlands before any site preparation activities are undertaken.</li> </ul> | Pre-construction                      |
| <b>Record keeping</b>         | <ul style="list-style-type: none"> <li>Ensure that a proper record keeping system is in place to keep track of proof that copies of the EA and EMPr were issued to the PCs and Implementing Entities.</li> </ul>   | Pre-construction;<br>Project lifespan |

### 2.1.3 The PC

| Responsible Entity: PC  |   |                                       |
|---|---|---------------------------------------|
| <ul style="list-style-type: none"> <li>The PC shall be responsible for his/her specific province to ensure compliance with the EMPr.</li> </ul> |   |                                       |
| Responsibilities  |   | Duration                              |
| <b>Approvals and licences</b>   | <ul style="list-style-type: none"> <li>Be fully aware of and understand all the requirements of the EA(s) and EMPr(s) issued for projects in his/her province.</li> <li>Ensure compliance with the EA and implementation of the EMPr.</li> <li>Ensure that each Implementing Entity receives a copy of the EA and EMPr for distribution to each contractor, with proof of receipt (e.g. a transmittal note or similar).</li> <li>Ensure that each Implementing Entity fully understands the contents and requirements of the EA and EMPr and the legal and financial consequences of non-compliance.</li> </ul> | Pre-construction;<br>Project lifespan |
| <b>Communication</b>  | <ul style="list-style-type: none"> <li>Communicate environmental issues associated with the site to the Implementing Entity, including having adequate environmental knowledge in the field of wetland rehabilitation to understand the detailed environmental issues associated with the project.</li> </ul>   | Pre-construction;<br>Project lifespan |
| <b>Site management</b>  | <ul style="list-style-type: none"> <li>Assist with developing a site environmental file and ensuring all documentation is filed correctly.</li> <li>Assist with site or project specific challenges or problems which might result in a non-conformance with the EA and EMPr.</li> <li>Provide guidance to Implementing Entities on practical solutions in achieving the outcomes and requirements of the EA and EMPr.</li> </ul>   | Pre-construction;<br>Project lifespan |



| Responsibilities              |  | Duration         |
|-------------------------------|--|------------------|
| <b>Environmental training</b> | <ul style="list-style-type: none"> <li>Confirm that Environmental Awareness training has been undertaken on all sites prior to construction commencing.</li> </ul> | Pre-construction |

#### 2.1.4 The ECO

| Responsible Entity: ECO  |   |                                    |
|--|---|------------------------------------|
| Responsibilities   |   | Duration                           |
| <ul style="list-style-type: none"> <li>The PC shall perform the duties of the ECO via monthly inspections in order to minimise adverse environmental impacts and effects.</li> <li>Any changes to any environmental management documentation must be reviewed and understood by the ECO.</li> <li>The ECO has access to the construction site at all times.</li> <li>Remain appointed until the site has been rehabilitated as specified in the EMPr.</li> </ul> |   |                                    |
| Responsibilities   |   | Duration                           |
| <b>Approvals and licences</b>  | <ul style="list-style-type: none"> <li>Ensure compliance with the EA, EMPr, permits issued and all the environmental legislation.</li> <li>Be fully knowledgeable with the contents and the conditions of the EA and all amendments.</li> <li>Be fully knowledgeable with the contents of the latest revision of the EMPr.</li> <li>Be fully knowledgeable with the contents of all relevant environmental legislation, and ensure compliance with them.</li> </ul> | Pre-construction                   |
| <b>Communication</b>   | <ul style="list-style-type: none"> <li>Ensure that the contents of the EMPr are communicated to the Implementing Entity.</li> <li>Escalate serious or repeat non-conformances to the relevant competent authority (i.e. DEA, DWS, SAHRA, etc.).</li> </ul>  | Pre-construction; Project lifespan |
| <b>Site management</b>   | <ul style="list-style-type: none"> <li>Approve the site layout plan (showing environmental sensitive/no-go areas).</li> <li>Ensure that all relevant activities being undertaken on site are within the scope of the EA and within the boundaries of the approved layout plan.</li> </ul>   | Project lifespan                   |
| <b>Environmental training</b>  | <ul style="list-style-type: none"> <li>Confirm that Environmental Awareness training has been undertaken on all sites prior to construction commencing.</li> </ul>  | Pre-construction                   |
| <b>Method statements</b>   | <ul style="list-style-type: none"> <li>Ensure that all method statements required are submitted and approved prior to site establishment.</li> </ul>  | Pre-construction                   |



| Responsibilities      |  | Duration                             |
|-----------------------|--|--------------------------------------|
| <b>Record keeping</b> | <ul style="list-style-type: none"> <li>• Keep and maintain a schedule of current site activities including the monitoring of such activities.</li> <li>• Keep copies of all reports submitted to DEA.</li> <li>• Obtain and keep record of all documentation including: environmental authorisation from DEA, EMPr, basic assessment, site layout plan, method statements, all communication detailing changes that may have environmental implications, site inspection checklist, Environmental awareness training attendance register, Environmental incident report, environmental performance certificates (once a project has been completed) photographic records (before, during and after development), records of non-compliance and corrective action taken to remediate, permits, licenses, and authorisations such as waste disposal certificates, hazardous waste landfill site licenses etc. which are required by this facility.</li> </ul>        | Project lifespan                     |
| <b>Audits</b>         | <ul style="list-style-type: none"> <li>• Compile an audit checklist which complies with the requirements of GN R982 Appendix 7 and is able to measure compliance against the EA, EMPr, other relevant permits and contract environmental specifications (where applicable).</li> <li>• Escalate serious or repeat non-conformances to the relevant competent authority (i.e. DEA, DWS, SAHRA, etc.).</li> <li>• Work with the Implementing Entity and relevant stakeholders to resolve any areas of non-compliance with appropriate corrective action.</li> <li>• Assist the Implementing Entity in finding environmentally responsible solutions to problems.</li> <li>• Giving a report back on the environmental issues at the monthly site meetings and other meetings that may be called regarding environmental matters.</li> <li>• Submit final audit report to DEA upon project closure in accordance with the requirements of the EA and EMPr.</li> </ul> | Project lifespan;<br>Project closure |

### 2.1.5 The Implementing Entity

#### Responsible Entity: Implementing Entity

- The Implementing Entity will be acting as the Project Manager and is responsible for complying with the EMPr during the construction phase of the development on a day-to-day basis.
- The Implementing Entity will be responsible for any non-compliance with the EMPr and will pay for any remedial work that may result from non-compliance resulting directly from his/her negligence. Failure to comply with the EMPr is addressed in Section 2.2.3.





| Responsibilities              |   | Duration                           |
|-------------------------------|---|------------------------------------|
| <b>Approvals and licences</b> | <ul style="list-style-type: none"> <li>Ensure that a copy of the EMPr, EA and any other applicable permit/licence are available on site.</li> </ul>   | Pre-construction; Project lifespan |
| <b>Communication</b>          | <ul style="list-style-type: none"> <li>Submit all required documentation (e.g. proof of training, method statements, layout plans, and requests for deviations) to the ECO on a timely basis.</li> <li>Communicate any issues or concerns of the surrounding community regarding the development to the ECO or other responsible party and visa-versa.</li> <li>Ensure that all materials and equipment required for daily environmental compliance is ordered through the correct channels if such is not available.</li> </ul>  | Pre-construction; Project lifespan |
| <b>Site management</b>        | <ul style="list-style-type: none"> <li>Ensure that appointed contractors, participants and sub-contractors are familiar with the EMPr and that they abide by it.</li> <li>Monitor and verify on a daily basis that the EMPr and specifications (if applicable) is adhered to at all times and taking the necessary action to ensure compliance is achieved where it is lacking.</li> <li>Ensure that site demarcation and no-go areas are maintained.</li> <li>Monitor and verify that environmental impacts as a result of construction activities are kept to a minimum.</li> <li>Ensure that all materials and equipment required for daily environmental compliance are available on site and ensure that the aforementioned is ordered through the correct channels if such is not available.</li> <li>Inspect the site and surrounding areas regularly with regard to compliance with the EMPr.</li> <li>Keep a photographic record of progress on site from an environmental perspective.</li> </ul> | Project lifespan                   |
| <b>Environmental training</b> | <ul style="list-style-type: none"> <li>Provide environmental awareness training for all new personnel coming onto site and filing proof of such training in the Environmental File on site.</li> </ul>  | Pre-construction                   |
| <b>Method Statements</b>      | <ul style="list-style-type: none"> <li>Ensure compliance with approved Method Statements.</li> </ul>  | Pre-construction; Project lifespan |



| Responsibilities      |   | Duration         |
|-----------------------|---|------------------|
| <b>Record keeping</b> | <ul style="list-style-type: none"> <li>• Submit all required documentation (e.g. proof of training, method statements, layout plans, and requests for deviations) to the ECO on a timely basis.</li> <li>• File proof of environmental awareness training in the Environmental File kept on site.</li> <li>• Keep and maintain a detailed incident (including spillage of fuels, chemicals, or any other material) and complaints register on site indicating how these issues were addressed, what rehabilitation measures were taken and what preventative measures were implemented to avoid re-occurrence of incidents/complaints.</li> <li>• Ensure that all relevant documentation illustrating or proving environmental compliance are filed on site in the Environmental File for inspection by the ECO or Competent Authority.</li> <li>• Keep a photographic record of progress on site from an environmental perspective.</li> </ul> | Project lifespan |
| <b>Audits</b>         | <ul style="list-style-type: none"> <li>• Complete start-up and site closure checklists on a weekly or monthly basis or as otherwise specified.</li> </ul>   | Project lifespan |

## 2.2 Record keeping (site related activities)

The development of an EMP for a project is an important and necessary task that is aimed at assigning responsibilities and mitigation options to a variety of activities. However, it can be an ineffective tool in the absence of auditing or monitoring activities. Auditing or monitoring activities involve the structured observation, measurement, and evaluation of environmental data over a period of time.

### 2.2.1 Site Environmental File

The Site Environmental File (SEF) is a critical part of compliance record keeping, specifically in terms of proof of activities undertaken on a regular basis on site to ensure compliance with the EA and EMP. The SEF is further a key component to demonstrate compliance to the ECO or relevant Competent Authority official during a compliance audit. The typical SEF contents should include *inter alia* the following:

#### 1. Rehabilitation Plan and EMP

#### 2. Approvals and licences

- 2.1. EA
- 2.2. Section 21(c) and (i) General Authorisation
- 2.3. Waste licence (if applicable)
- 2.4. Mining permit/licence (e.g. for proof of quarry legitimacy)

#### 3. Communication

- 3.1. Important correspondence e.g. notice to Competent Authority of commencement of construction
- 3.2. Copy of public complaints register



#### 4. Site management

- 4.1. Approved layout
- 4.2. Site instructions (or copies thereof)

#### 5. Environmental Training

- 5.1. Proof of toolbox talks, environmental awareness and induction (incl. attendance register and training material)

#### 6. Method statements

- 6.1. Approved method statements

#### 7. Records

- 7.1. Record of waste generation – quantity, type, fate (incl. general/hazardous, liquid/solid)
- 7.2. Proof of legal/safe waste disposal
- 7.3. Record of chemicals on site and Material Safety Data Sheets (MSDS)
- 7.4. Record of water usage (if applicable)
- 7.5. Log of topsoil samples (if applicable)

#### 8. Audits

- 8.1. ECO audit reports
- 8.2. Internal audits/check conducted by the Implementing Entity
- 8.3. Incident and non-conformance reports

Typical examples of checklists and other types of record keeping are included in Annexure B.

#### 2.2.2 Progress / Site Meetings

Environmental issues shall be put on the agenda as a discussion point during these meetings. The Implementer, or a designated person involved with environmental issues on the project, shall attend the progress and/or site meetings on a regular basis to provide feedback on any outstanding or contentious environmental matter.

#### 2.2.3 Failure to comply with the EA and EMPr

The WfWetlands Programme, as the holder of the Environmental Authorisation, is responsible for ensuring compliance with the conditions by any person acting on their behalf including Implementing Entities. The EA holder must notify the DEA in writing within the period specific in the EA if any condition in the Environmental Authorisation is or cannot be complied with. Upon receiving such notification the DEA (Compliance Directorate) will assess the reported non-conformance and inform the EA holder of further actions and submissions required.

In addition to the above, the ECO may order the Implementing Entity to suspend part or all of the works if, based on the ECO's reasoned opinion, the Implementing Entity has, is in the process of or will cause significant environmental damage and/or cause a non-conformance to the EA and/or EMPr. The ECO shall report this instruction to the WfWetlands' *Deputy Director: Programme Implementation* **within 24 hours** of the instruction being issued. Should the aforementioned suspension of work be as a result of negligence or actions by the Implementing Entity, no extension of time will be granted for such delays and all costs will be borne by the Implementing Entity. Apart from direct non-compliance with the EA or EMPr, the following will be regarded as indirect non-compliance:

- Failure to comply with corrective or other instructions issued by the Implementing Entities, ECO or Competent Authority within a specified time.
- Failure to produce the supporting documentation proving compliance with the EA or EMPr.
- Failure to ensure that sub-contractors appointed by the Implementing Entity comply with the EA and EMPr.



## 3 PRECONSTRUCTION/PLANNING PHASE

### 3.1 Compliance with environmental legislation

Ensure relevant approvals from regulatory authorities are obtained, in particular in terms of:

- National Environmental Management Act (No. 107 of 1998) (NEMA), as amended;
- National Water Act (No. 36 of 1998);
- National Environmental Management: Biodiversity Act, 2004 (No. 10 of 2004);
- National Forests Act (No. 84 of 1998);
- National Heritage Resources Act (No. 25 of 1999); and
- Other provincial and local environmental legislation.

### 3.2 Submission of method statements

- Method Statements must be compiled by the Implementing Entity.
- All Method Statements must be submitted and approved prior to site establishment commencing.
- The content and required actions of the Method Statements must be communicated to site staff through a compulsory environmental induction.
- Approved Method Statements will be dated and signed by all relevant parties (Implementing Entity, ECO, DEA, Engineer).
- Should a Method Statement need to be revised, a formal revision will be issued, signed and dated. The updated Method Statement will be filed in the SEF.
- The submitted Method Statements (see Annexure B) will include but not be limited to:
  - Site division, demarcation and no-go areas (incl. site camp establishment, access, construction working widths).
  - Site clearance and topsoil management.
  - Stockpiling and laydown areas.
  - Solid waste management (general and hazardous, incl. disposal).
  - Hazardous substances storage and management.
  - Contaminated water management and disposal.
  - Cement storage and handling as well as concrete batching.
  - Fuel storage and management.
  - Ablution facilities and eating areas.
  - Dust and noise/nuisance control.
  - Protection of flora, fauna and natural features.
  - Stormwater management and erosion.



- Site de-establishment and rehabilitation.
- The submission of a site layout plan (see Annexure B) by the IE to the ECO for approval is compulsory. The layout plan must indicate all areas of relevance including *inter alia*:
  - The location of the site camp as well as the site camp layout indicating the location of materials storage (general and hazardous), fuel storage, the site office, ablution facilities, vehicle/machinery parking areas.
  - Access to the site camp and intervention sites.
  - Any required stormwater management measures such as diversion berms, cut-off drains, silt fences etc.
  - Stockpiling and laydown areas.
  - Concrete/mortar mixing/batching areas.
  - No-go or sensitive areas.
  - Limit(s) of the construction footprint.

The layout plan must take into consideration the buffer distances and restrictions as specified in the EMPr. Where applicable<sup>22</sup> the IE must make use of multiple layout plans to indicate the location of the abovementioned areas.

### 3.3 Environmental induction/training

Training and induction forms an integral part of ensuring and maintaining compliance with the EA and EMPr. Every person on site needs to understand the importance of compliance with the EA and EMPr and their specific role(s) in achieving this. Environmental induction and/or training must be specific or relevant to the level of responsibility of the person receiving the training. Environmental training and/or induction shall comply with the following requirements:

- The Implementing Entity and any other staff with management responsibilities (e.g. HSE officer and the foreman) will undergo environmental compliance training prior to construction commencing. The induction/training shall include project specific requirements for compliance with the EA and EMPr and responsibilities assigned to each party.
- Once the Method Statement is approved, a copy of the Method Statement must be circulated and communicated to the responsible parties (see Section 3.2).
- General staff will receive a simplified environmental induction and/or training before the commencement of construction (i.e. site establishment). The induction/training shall address, but not be limited to, basic environmental awareness, basic health and safety awareness, prevention of water, soil, and air pollution, prevention of soil erosion and sedimentation, basic principles of materials handling and storage, fire risks, protection of fauna and flora, removal of invasive alien species (if relevant), emergencies and incident responses, spill response provisions, social responsibility, and administrative and reporting procedures.
- All project personnel shall further be trained in basic wetland awareness, including a basic understanding of the components of wetlands, how wetlands function, the benefits they provide,

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<sup>22</sup> Where the “site” covers an extensive area or where a large number of interventions are to be constructed.



why they need to be conserved and used sustainably, and the importance of rehabilitation in contributing to wetland conservation and sustainable use.

- Where work takes place in areas containing dangerous game, especially nature reserves and national parks, participants shall receive training in basic animal behaviour. A person trained in dangerous animal behaviour shall be present and suitably equipped to deal with such threats at all times. Before work commences each day, the site shall be checked for dangerous animals by the trained person. First aid training shall include current treatments for snakebites.
- Provision must be made for quarterly refresher environmental training to be undertaken during the course of the contract. The Implementing Entity shall ensure that all attendees sign an attendance register, and shall provide the Implementer with a copy of the attendance register the day after each course.
- Daily/weekly *Toolbox Talks* should include an environmental topic/issue in addition to a Health and Safety topic/issue.
- Proof (training material, attendance registers, photos) of training and attendance to be filed in SEF.
- Include environmental considerations as an item on the agenda of the monthly site meetings.



## 4 CONSTRUCTION PHASE

### 4.1 Compliance with the EA and successful implementation of EMPr, environmental specifications and other permits/licences

**Identified impacts:** The EA, EMPr and other relevant permits and licences are only of value if the conditions/requirements contained in them are adhered to. As these documents are legal documents, non-conformance in terms of adherence/implementation may constitute an offence and be subject to suspension of the authorisation/permit/licence and possible penalties or fines.

**Objective of improved management:**

- Continued and consistent compliance with the EA and EMPr as well as environmental specifications and other permits/licences

**Specifications:**

- The ECO shall be responsible for the implementation of this EMPr for the duration of the construction phase and until rehabilitation is completed.
- The ECO shall have full access to the site at all times.
- Audits<sup>23</sup> undertaken by the ECO shall comply with the requirements of GN R982 (2014, as amended).
- Although the EA/licence/permit holder can transpose contractual liabilities to the Implementing Entity in terms of compliance with the EA, EMPr, Environmental Specification and any other relevant permits/licenses, the EA/licence/permit holder will remain legally liable in terms of compliance.

**Table 2: Compliance with the EA and successful implementation of EMPr, environmental specifications and other permits/licences**

| Management Measure | Detailed Description  | Responsibility                      |
|--------------------|---|-------------------------------------|
| <b>Avoidance</b>   | <ul style="list-style-type: none"> <li>A copy of the EA, EMPr, Environmental Specifications and any other relevant permits/licenses will be kept in the SEF on site.</li> <li>The Implementing Entity will familiarise himself/herself with the contents and requirements of the EA, EMPr, Environmental Specifications and any other relevant permits/licenses.</li> </ul> | Implementing Entity, EA holder, ECO |

<sup>23</sup> The ECO is responsible for providing an independent evaluation of compliance with the EMPr and not for enforcement of the conditions of the EMPr. The responsibility of enforcement of the conditions of the EMPr lies with the EA holder.



| Management Measure                     | Detailed Description   | Responsibility                      |
|--|--|-------------------------------------|
|  | <ul style="list-style-type: none"> <li>The Implementing Entity and/or EA holder will not knowingly proceed with any action which might compromise compliance with the EA, EMPr, Environmental Specifications or any other relevant permits/licenses.</li> </ul>  |                                     |
| <b>Mitigation</b>                      | <ul style="list-style-type: none"> <li>Should a situation arise where compliance with the EA, EMPr, Environmental Specifications or any other relevant permits/licenses is likely to be compromised/deviated from due to exceptional circumstances or a change in scope of work, the Implementing Entity will notify the ECO immediately. The ECO will assess the type of deviation and its significance and will advise the Implementing Entity whether the deviation requires an amendment to the EA, EMPr, Environmental Specifications or any other relevant permits/licenses.</li> </ul>  | Implementing Entity, EA holder, ECO |
| <b>Stop work</b>                       | <ul style="list-style-type: none"> <li>Should a situation arise where there is accidental or intentional non-conformance with the EA, EMPr, Environmental Specification and any other relevant permits/licenses, the ECO may order all work to stop until such non-conformance has been assessed, reported to the relevant authority (if necessary) and appropriately mitigated</li> <li>A non-conformance will be recorded in writing by the ECO with a description (and photographic evidence where applicable) of the incident/non-conformance. A non-conformance report will contain detailed actions and action dates for each responsible party and will be signed off by the ECO and IE once completed/closed out.</li> </ul> | Implementing Entity, EA holder, ECO |
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>Daily/weekly monitoring by Implementing Entity.</li> <li>Formal monthly audits by ECO.</li> </ul>   | Implementing Entity, EA holder, ECO |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>Full and continued compliance with the EA, EMPr, Environmental Specifications and any other relevant permits/licenses.</li> <li>Identification of possible deviations in advance to avoid non-conformances.</li> <li>Independent and impartial monitoring of compliance by the ECO.</li> </ul>  | Implementing Entity, EA holder, ECO |





## 4.2 Site establishment

**Identified impacts:** Site establishment can often have a significant environmental impact in terms of vegetation clearance and/or the construction footprint and therefore needs to be carefully managed. It is also usually during site establishment that the site camp and laydown areas are identified and demarcated. If the aforementioned is not properly planned, it could have several secondary impacts such as water pollution, soil contamination, erosion and excessive dust.

### Objective of improved management:

- To avoid excessive disturbance in terms of vegetation clearance and the construction footprint.
- Ensure that activities/facilities/site structures with pollution potential are located outside buffer zones and no-go areas, preferably in already disturbed or transformed areas. Examples include the site camp, material laydown areas, concrete batching plant, ablution facilities etc.
- Ensure that all activities remain within the approved construction footprint.

### Specifications:

- Site establishment will not commence until such time that the EA appeal period has passed and will further be subject to the approval of the required method statements by the ECO.
- The wetland boundary shall be demarcated on the site plan and on site.
- Demarcation will be by means of brightly painted/white pegs/poles at least 1.5m in height and placed at regular (10m for linear or on every corner for non-linear) intervals on both sides of the approved construction footprint. **Demarcation shall be maintained for the duration of construction.**
- Danger tape and/or snow/barrier netting shall only be used for health and safety requirements along excavations or high risk areas.
- All areas outside approved and demarcated footprint are to be treated as no-go areas.

**Table 3: Specific avoidance, mitigation and cessation management measures related to impacts identified with site establishment**

| Management Measure | Detailed Description  | Responsibility      |
|--------------------|---|---------------------|
| <b>Avoidance</b>   | <ul style="list-style-type: none"> <li>• The Implementing Entity must prioritise the use of disturbed areas for site camp establishment, laydown areas and stockpile areas.</li> <li>• The site camp shall be clearly demarcated and fenced subsequent to approval of the ECO.</li> </ul> | Implementing Entity |



| Management Measure                     | Detailed Description   | Responsibility           |
|--|--|--------------------------|
|  | <ul style="list-style-type: none"> <li>The site camp, laydown and stockpile areas may not be established within any environmentally sensitive area. Refer to Annexure C for sensitivity and wetland boundary map.</li> <li>Should an extension/amendment to the construction footprint be required, the Implementing Entity must submit such a request to the ECO for approval prior to extending the construction footprint.</li> <li>All work will be executed within the approved working area.</li> <li>Temporary laydown areas will not be used for a period exceeding four (4) weeks and must be approved by the ECO prior to being used.</li> <li>Temporary laydown areas must be demarcated should it fall outside the approved construction footprint.</li> <li>The Implementing Entity is to ensure that all staff (e.g. plant operators, general workers) are informed of no-go areas as part of the induction/environmental awareness training.</li> </ul> |                          |
| <b>Mitigation</b>                      | <ul style="list-style-type: none"> <li>Should the Implementing Entity disturb an area outside the approved footprint, then the Implementing Entity will be held liable to reinstate the impacted area to its original condition.</li> <li>All temporary footprint areas must be reinstated/rehabilitated at the end of construction.</li> </ul>  | Implementing Entity      |
| <b>Stop work</b>                       | <ul style="list-style-type: none"> <li>Should the Implementing Entity fail to remain within the approved construction footprint or intentionally/negligently cause damage to a natural feature in a no-go area, the ECO reserves the right to suspend or partially suspend construction via written instruction in order to allow for the assessment, reporting and rectification of the impact.</li> <li>The aforementioned will be determined by the type and significance of the non-conformance and the risk of it reoccurring should construction proceed.</li> </ul>   | ECO, Engineer            |
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>Daily and weekly monitoring/inspections by the Implementing Entity.</li> <li>Formal monthly audits by the ECO.</li> </ul>   | ECO, Implementing Entity |



| Management Measure         | Detailed Description   | Responsibility                      |
|----------------------------|--|-------------------------------------|
| <b>Management outcomes</b> | <ul style="list-style-type: none"> <li>• Method Statements are submitted at least 14 days prior to the commencement of site establishment.</li> <li>• Site establishment only commences after approval of the Method Statements.</li> <li>• Already disturbed areas are prioritised for site camp, laydown and stockpile areas.</li> <li>• Construction footprint and vegetation clearance is controlled and kept to a minimum.</li> <li>• Activities are restricted to within the approved construction footprint.</li> <li>• Demarcation remains visible and in place for the duration of construction.</li> </ul> | Implementing Entity, EA holder, ECO |



### 4.3 Channels of communication for public complaints

**Identified impacts:** The construction activities could lead to nuisance impacts and impacts on the adjacent properties. This may result in complaints from the public and/or adjacent landowners

**Objectives of improved management:**

- To record and address (within a reasonable timeframe) any complaints by the public arising from the construction activities and the impacts thereof.

**Specifications:** None

**Table 4: Specific avoidance, mitigation and cessation management measures related to impacts identified with public complaints**

| Management Measure | Detailed Description   | Responsibility      |
|--------------------|--|---------------------|
| <b>Avoidance</b>   | <ul style="list-style-type: none"> <li>• The IE must contact the landowner and/or occupier of the land where the construction is to take place at last 10 working days prior to moving onto site.</li> <li>• The IE must confirm the procedure to be followed for access including gates which must remain locked or open.</li> <li>• The Implementing Entity must ensure that the site remains neat and that no littering occurs.</li> <li>• Ensure that the public and adjacent landowners are informed well in advance of any construction activities to take place in the vicinity of their properties.</li> <li>• Where the site is located in a nature reserve/park, the Implementing Entity must familiarise him/herself with the rules and regulations of the reserve/park and where necessary include such information in the environmental induction and training.</li> <li>• Where the site is frequently visited by tourists, the Implementing Entity must ensure that his/her site does not cause a visual or noise disturbance.</li> <li>• Also refer to the Code of Conduct attached under Annexure A.</li> </ul> | Implementing Entity |
| <b>Mitigation</b>  | <ul style="list-style-type: none"> <li>• Provide a contact number of person responsible for the site on the site signage.</li> <li>• Maintain a complaints register on site to allow public complaints to be recorded.</li> </ul>  | Implementing Entity |



| Management Measure                     | Detailed Description   | Responsibility           |
|--|--|--------------------------|
|  | <ul style="list-style-type: none"> <li>• Verbal complaints must be recorded within 24 hours of being received with a copy provided to the complainant.</li> <li>• Actions to address the complaints must be recorded in writing with sign-off by the ECO once the actions have been completed.</li> <li>• Address all complaints within a reasonable timeframe (24 hours for initial contact and 5 working days to resolve minor issues or complaints).</li> <li>• Ensure that actions are recorded in the SEF and the actions are implemented to avoid the future complaints regarding the same issue.</li> </ul> |                          |
| <b>Stop work</b>                       | <ul style="list-style-type: none"> <li>• Should a complaint relate to an action by the Implementing Entity which can cause/has caused a serious health and safety or environmental impact, the ECO may suspend or partially suspend work via instruction from the Engineer in order to assess the impact/complaint and identify any remedial actions required.</li> </ul>  | ECO                      |
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>• Reporting of serious complaints within 24 hrs to the ECO.</li> <li>• Address all complaints within a reasonable timeframe (24 hours for initial contact and 5 working days to resolve minor issues or complaints).</li> <li>• Ensure that all complaints are recorded in the complaints registered and that remedial actions are recorded, implemented and maintained.</li> <li>• Daily and weekly monitoring/inspections by the Implementing Entity.</li> <li>• Formal monthly audits by the ECO.</li> </ul>   | Implementing Entity, ECO |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>• The public is timeously informed of construction activities which might impact them.</li> <li>• Contact details of the Implementing Entity is visible on site signage at the site camp.</li> <li>• A register is available at the site camp to record any community/public complaints.</li> </ul>   | Implementing Entity, ECO |



| Management Measure | Detailed Description   | Responsibility |
|--------------------|--|----------------|
|                    | <ul style="list-style-type: none"> <li>All public complaints are recorded and closed out within a reasonable timeframe (24 hours for initial contact and 5 working days to resolve minor issues or complaints).</li> <li>Repeat complaints regarding the same matter/issue are avoided.</li> </ul> |                |



#### 4.4 Vegetation clearance

**Identified impacts:** Various activities that take place during the construction phase require the removal of vegetation, including clearing of the construction footprint for construction activities, site camp establishment, laydown and stockpile areas and access roads.

**Objective of improved management:**

- To retain natural vegetation in terrestrially sensitive areas.
- To minimise the extent of disturbance of vegetation/habitats on-site.
- Avoid the loss of species of conservation concern.

**Specifications:**

- Vegetation clearance must be restricted to the approved construction footprint.
- Removal of vegetation must occur at increments and must only be done up to two weeks ahead of actual construction commencing in an area.
- No burning of vegetation will be allowed.
- Where vegetation consists of grasses, bulbs and shrubs, it will be cleared (i.e. complete removal of the vegetation with its root system) as part of the removal of topsoil (i.e. to a maximum depth of 30cm) in order to maximise organic content and the available seedbank in the topsoil.
- Where vegetation consists predominately of reeds, the reeds will be slashed/cut to 30cm in height, measured from ground level, with the remainder of the plant and its root/rhizome system removed with the topsoil layer (i.e. at a maximum depth of 30cm).
- Vegetation/ plant material is not allowed to be disposed of as waste at a landfill site and should be stored for mulching purposes upon completion of the construction works.

**Table 5: Specific avoidance, mitigation and cessation management measures related to impacts identified with vegetation clearance**

| Management Measure | Detailed Description   | Responsibility           |
|--------------------|--|--------------------------|
| <b>Avoidance</b>   | <ul style="list-style-type: none"> <li>• Limit vegetation clearance in “sensitive areas” as identified in the BAR and as indicated on the maps under Annexure C.</li> <li>• Prioritise the use of already disturbed and degraded areas for site camps, laydown and stockpiling areas.</li> </ul> | Implementing Entity, ECO |



| Management Measure                     | Detailed Description   | Responsibility                     |
|--|--|------------------------------------|
|  | <ul style="list-style-type: none"> <li>Do not remove/clear vegetation outside the approved construction footprint.</li> <li>Ensure that site demarcation is maintained throughout the construction phase.</li> <li>Clearly mark shrubs and trees which should not be disturbed/damaged during construction.</li> <li>Remove/relocate species of conservation concern where possible and practical.</li> </ul>  |                                    |
| <b>Mitigation</b>                      | <ul style="list-style-type: none"> <li>Ensure that all temporary footprint areas are rehabilitated at the completion of construction in a specific area.</li> <li>Ensure that topsoil is removed and conserved in order to ensure successful revegetation/rehabilitation (also see Section 4.5).</li> <li>Any area disturbed outside the approved construction footprint must be reinstated at the Implementing Entity's cost to the satisfaction of the ECO.</li> <li>Ensure that sufficient funds are allocated in the BoQ for rehabilitation of temporary footprints.</li> </ul>              | Implementing Entity, ECO, Engineer |
| <b>Stop work</b>                       | <ul style="list-style-type: none"> <li>Should the Implementing Entity fail to remain within the approved construction footprint or intentionally/negligently cause damage to a natural feature/vegetation in a no-go area, the ECO reserves the right to suspend or partially suspend construction via instruction from the EA holder in order to allow for the assessment, reporting and rectification of the impact.</li> <li>The aforementioned will be determined by the type and significance of the non-conformance and the risk of it reoccurring should construction proceed.</li> </ul> | ECO, Engineer                      |
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>Daily and weekly monitoring/inspections by the Implementing Entity.</li> <li>Formal monthly audits by the ECO.</li> </ul>   | Implementing Entity, ECO           |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>Work is contained to the approved construction footprint.</li> <li>Site demarcation is maintained for the duration of construction.</li> </ul>  | Implementing Entity                |





| Management Measure | Detailed Description   | Responsibility |
|--------------------|--|----------------|
|                    | <ul style="list-style-type: none"> <li>• Vegetation clearance is limited in sensitive areas.</li> <li>• No site camps, laydown or stockpile areas in sensitive areas.</li> <li>• Plants of conservation concern are relocated where possible and feasible (with the necessary permits/licences/approvals in place).</li> <li>• Temporary footprint areas are rehabilitated once work in an area has been completed.</li> <li>• Topsoil is removed and managed properly (see Section 4.5 below) to aid in successful rehabilitation.</li> </ul> |                |



## 4.5 Topsoil management

**Identified impacts:** Topsoil is an essential component to achieve successful rehabilitation/revegetation of a disturbed area. Poor topsoil management practices such as double handling, compaction, contamination, erosion and failing to control weeds/alien invasive species on stockpiles all contribute to the degradation and loss of topsoil. This in turn compromises the success of rehabilitation or results in additional costs to improve or import topsoil.

### **Objective of improved management:**

- To ensure that topsoil is properly removed and managed during construction in order to enable successful rehabilitation at the completion of construction.

### **Specifications:**

- Topsoil must be removed to a maximum depth of 30cm.
- Where the topsoil layer is shallow or alternating in depth, it must be removed to the maximum depth possible.
- Topsoil removal must occur at increments and will only be done up to two weeks ahead of actual construction commencing in an area.
- Topsoil will be removed with the appropriate equipment i.e. pointed or flat tip shovel/spade and a wheelbarrow.
- Topsoil stockpiles must be stored on level areas to a maximum height of 1.5m. The stockpile areas will be properly planned and will be approved as part of the site demarcation process and will be indicated on the site layout plan.
- Stockpiles will not block access routes or endanger any person or animal.
- The stockpiles must be protected from erosion and contamination by subsoil or imported materials.
- Topsoil will not be driven over or compacted and stockpiles will not be reworked or moved unnecessarily.
- Topsoil stockpiles must be kept free of weeds for the duration of construction until reapplied during rehabilitation.
- Topsoil will only be reapplied after all civil work has been completed in order to avoid compaction.

### **Working in peat wetlands:**

Some of the wetlands identified for priority rehabilitation may occur in soils with a high organic composition, known as peat. These soils hold huge importance globally due to their nature to hold high levels of carbon (known as carbon sequestration). The following considerations should be made for site clearance in peatlands:



- Work shall only be done in periods with low rainfall (Winter rainfall areas - November to March and Summer rainfall areas - May to September).
- No material will be removed from the peatland for construction purposes e.g. boulders, rocks, sand.
- All access to the intervention site in the peatland will be by foot, no vehicles will be allowed in the peatland.
- Where materials need to be transported into the peatland, it will be done by means of wheelbarrows on demarcated walkways lined by wooden planks, geotextile or similar material.
- The Implementing Entity will use only one access path/point per Intervention Point and will not create multiple access paths or points.
- No foreign vegetable matter (e.g. mulch) may be brought into the wetland area (especially from alien species).
- Topsoil shall be removed specifically in the form of sods (20 to 20cm (length) x 20cm (width) x 20cm (depth)):
  - The first sod shall include the roots/rhizome layer (i.e. the rootstalks and their associated nodes/tubers)
  - The sods shall be stored in a wet area, on site, in their original orientation and order.
  - Vegetation can be cut short if it will make it easier to handle the sods.
  - Soil shall be stockpiled according to the different soil layers (i.e. in separate stockpiles) as per the soil profile. Where possible, soils shall be stockpiled as high as possible to retain moisture, but not higher than 0.5m.
  - Stockpiles will be located in a saturated area with shallow surface water immediately adjacent to the Intervention Point. Sods will be placed on the existing vegetation. Where vegetation height exceeds 30cm, the vegetation can be cut and used as mulch/cover layer.
  - The stockpile area will be indicated by means of painted pegs at each corner.
  - Stockpiles shall only be handled twice i.e. during removal and during placement for rehabilitation.
  - Stockpiles shall be covered with 10cm mulch or cloth (geotextile with <0.5cm aperture) to ensure that the moisture content is maintained by restricted evaporation and evapotranspiration.



**Table 6: Specific avoidance, mitigation and cessation management measures related to impacts identified regarding topsoil management**

| Management Measure                     | Detailed Description   | Responsibility                     |
|--|--|------------------------------------|
| <b>Avoidance</b>                       | <ul style="list-style-type: none"> <li>• Ensure topsoil is stockpiled in areas on site where opportunity for compaction and contamination due to other construction activities are limited.</li> <li>• Avoid moving/handling the topsoil more than twice (i.e. restricted to initial stripping and final reapplication).</li> <li>• Ensure weeds and alien invasive species are removed from the stockpiles prior to reaching seed formation stage.</li> <li>• Do not move topsoil between different areas on site i.e. it should be reapplied in the same area that it was removed from.</li> </ul>                       | Implementing Entity                |
| <b>Mitigation</b>                      | <ul style="list-style-type: none"> <li>• Remove more than 15cm of topsoil where possible to compensate for areas of shallow/no topsoil as well as topsoil loss due to mismanagement.</li> <li>• Apply mulch to the topsoil if the topsoil quality has been impacted significantly and will compromise the success of revegetation (based on the reasoned opinion of the ECO or wetland specialist).</li> <li>• Enforce a stricter and more frequent weeding/alien invasive removal regime where there was failure to remove weeds/alien invasive species from topsoil stockpiles prior to seed formation stage.</li> </ul> | Implementing Entity, ECO, Engineer |
| <b>Stop work</b>                       | N/A  |                                    |
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>• Use of approved site layout to confirm correct location of topsoil stockpiles.</li> <li>• Continuous monitoring during initial topsoil removal/stripping.</li> <li>• Weekly to bi-weekly monitoring of stockpiles for signs of erosion and weeds.</li> <li>• Monthly audits for general topsoil management practices.</li> </ul>  | Implementing Entity, ECO           |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>• Topsoil is removed to a minimum depth of 15cm.</li> <li>• Topsoil is not contaminated by other materials.</li> </ul>  | Implementing Entity                |



| Management Measure | Detailed Description  | Responsibility |
|--------------------|---|----------------|
|                    | <ul style="list-style-type: none"> <li>• There is no compaction of topsoil.</li> <li>• Topsoil is not eroded or washed away.</li> <li>• Handling of topsoil is restricted to initial removal and final reapplication.</li> <li>• The topsoil applied during rehabilitation matches the quality and thickness of topsoil removed during site clearance.</li> <li>• Weeds and alien invasive species on topsoil stockpiles are removed on a regular basis prior to the plants reaching seed formation stage.</li> </ul> |                |



## 4.6 Materials management (non-hazardous)

Identified impacts:

- Material delivered to areas not approved by the ECO and Engineer e.g. outside the approved construction footprint, on steeply sloped areas, etc.
- Imported materials introduce new alien invasive species to site.
- Materials spilling from vehicles causing a safety or pollution risk.
- Materials are eroded and washed into wetland systems as a result of being stockpiled in areas with concentrated stormwater runoff or on sloped areas.
- Materials are mixed with the underlying natural ground surface causing contamination of soil, excessive quantities of material remaining on site after construction, localised plant die-off, increase in sedimentation etc.
- Wetland systems are impacted and/or polluted due to an insufficient buffer width between site camps, laydown and stockpile areas and water resource.
- Materials susceptible to wind erosion results in a dust nuisance and contamination of surrounding areas.
- Materials are stored on site for extended periods leading to the need for increased storage area due to materials not being used.

### Objectives of improved management:

- Ensure material delivery and storage takes place in such a manner that it does not cause pollution or degradation of the surrounding environment.
- Plan material use and delivery in order to ensure that material storage on site does not take place for extended periods of time (i.e. > 4 weeks).
- Minimise the use of intact/undisturbed areas for material stockpiling/storage.
- Minimise exposure of materials to wind and water erosion.
- Ensure that materials are stored on site for the shortest possible period to limit the extent of areas required for storage and stockpiling.

**Specifications:** None



Table 7: Specific avoidance, mitigation and cessation management measures related to impacts identified with materials management (non-hazardous)

| Management Measure      | Detailed Description   | Responsibility             |
|-------------------------|--|----------------------------|
| <p><b>Avoidance</b></p> | <ul style="list-style-type: none"> <li>• It will be the Implementing Entity's responsibility to ensure that delivery drivers/suppliers are aware of the relevant EMPr requirements.</li> <li>• The Implementing Entity shall ensure that materials are sourced from legal and approved sources. If unsure the Implementing Entity will obtain permission from the ECO prior to using a certain material resource.</li> <li>• Imported materials shall be free of weeds, litter and contaminants.</li> <li>• Materials shall be appropriately secured to ensure safe passage between destinations. Loads including, but not limited to, sand, stone chip, fine vegetation, refuse, paper and cement, shall have appropriate cover to prevent them spilling from the vehicle during transit. The Implementing Entity shall be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials.</li> <li>• The Implementing Entity will identify appropriate storage and laydown areas prior to delivery to site. The areas will be approved by the ECO either as part of the required Method Statement or on an <i>ad hoc</i> basis.</li> <li>• Open, disturbed areas will be prioritised for stockpiling and laydown areas.</li> <li>• Bulk stockpile areas will be outside the wetland boundary and any other areas prone to seasonal flooding unless otherwise approved by the ECO.</li> <li>• The Implementing Entity will schedule the delivery of materials in such a manner that it does not require excessive periods (&gt;4 weeks) of on-site storage unless otherwise approved by the ECO e.g. where delivery/source distances are excessive.</li> <li>• Minor stockpiles (not covering an area exceeding 4m<sup>2</sup> unless otherwise approved by the ECO) will be allowed next to an Intervention Point for specific use at the Intervention Point.</li> <li>• Minor stockpiles next to intervention sites will be utilised within 2 weeks of the material being stockpiled i.e. it will not be left adjacent to a planned or completed Intervention Point for an excessive period of time.</li> </ul> | <p>Implementing Entity</p> |



| Management Measure | Detailed Description   | Responsibility      |
|--------------------|--|---------------------|
|                    | <ul style="list-style-type: none"> <li>Laydown and storage areas where such occurs on vegetation, topsoil or in a wetland shall be on hessian, PVC sheeting or a similar material in order to separate the imported material from the vegetation/topsoil and to ensure easy and proper removal of excess material.</li> <li>Stockpile heights will be limited to 1.5m where the material is fine (i.e. susceptible to wind erosion) or in areas known to regularly (weekly to fortnightly basis) experience wind speeds exceeding 20km/h. Alternatively, material which can be windblown will be covered with shade cloth, PVC sheeting, hessian or similar suitable material.</li> <li>Stockpile areas will be flat and not subject to concentrated stormwater runoff or surface water flow.</li> <li>Materials such as precast pipes and culverts, gabions baskets, MacMat-R, hessian etc. can be placed directly on vegetated areas to avoid the disturbance and clearance of vegetation and topsoil. This will be at the discretion of the ECO based on the merits of avoiding vegetation and topsoil removal.</li> </ul>  |                     |
| <b>Mitigation</b>  | <ul style="list-style-type: none"> <li>Should material be washed or blown into the surrounding environment, the Implementing Entity will be responsible for the removal/recovery of such material. Whether removal/recovery is required will be determined by the ECO based on the type of material, volume of material and whether the material can be recovered/removed without causing substantial additional degradation of the surrounding environment.</li> <li>Materials not used at a specific Intervention Point will be removed once the activity requiring the material has been completed e.g. stones for gabions.</li> <li>Where sand/fill material is legally sourced from a dam, existing borrow pit or similar with clear presence of invasive alien species, the Implementing Entity will allow for a weeding programme at the on-site stockpile area and Intervention Point. The weeding programme will span a winter and summer period consecutively to ensure that introduced invasive alien and weed species are removed prior to seed formation stage.</li> <li>All remaining/waste material will be removed off-site before or by the end of construction.</li> </ul> | Implementing Entity |
| <b>Stop work</b>   | N/A  |                     |





| Management Measure                     | Detailed Description   | Responsibility           |
|--|--|--------------------------|
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>• Daily and weekly monitoring/inspections by the Implementing Entity.</li> <li>• Formal monthly audits by the ECO.</li> </ul>   | Implementing Entity, ECO |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>• Imported materials are stored/stockpiled on already disturbed areas within the approved construction footprint.</li> <li>• Material delivery and storage takes place as in such a manner that it does not cause pollution or degradation of the surrounding environment.</li> <li>• Materials are not eroded and/or deposited in the surrounding environment.</li> <li>• Materials are used within four weeks of delivery.</li> <li>• No new or additional alien invasive species are introduced via imported material. Where such are imported, the Implementing Entity implemented a weeding programme spanning at least one winter and one summer i.e. a year.</li> <li>• All imported material is removed from site at the completion of construction.</li> </ul> |                          |



## 4.7 Hazardous chemicals and potential hazardous substances

### Identified impacts:

- Includes, but are not limited to: drums of fuel, grease, oil, brake fluid, hydraulic fluid, paint, batteries and herbicides (for alien plant clearing), etc.
- Spills resulting in pollution of nearby aquatic systems and water resources.
- Spills resulting in soil contamination and degradation.
- Fauna and/or (indigenous) flora fatalities/die-off.
- Illegal/improper disposal of materials contaminated with hazardous product/spill.

### Objectives of improved management:

- Ensure the controlled and documented management of hazardous chemicals and substances.
- Avoid and minimise spillages through proper storage and dispensing practices.
- Ensure that the appropriate mitigation measures are in place in the event of a spill.
- Ensure that hazardous materials are stored in designated/approved areas away from sensitive receptors/environments.

### Specifications:

- The Implementing Entity must supply the ECO with a list of all hazardous materials that would be present on site during the construction period.

Table 8: Specific avoidance, mitigation and cessation management measures related to impacts identified with hazardous materials management

| Management Measure | Detailed Description  | Responsibility      |
|--------------------|---|---------------------|
| Avoidance          | <ul style="list-style-type: none"> <li>• All hazardous materials and products must be stored in containers marked as per SANS 10234 requirements i.e. in its original container.</li> <li>• All containers will have lids and stored in a covered and bunded area or in a flammables/hazardous store with a metal drip tray able to contain 110% of the volume of the largest container.</li> </ul> | Implementing Entity |



| Management Measure                     | Detailed Description  | Responsibility           |
|--|---|--------------------------|
|  | <ul style="list-style-type: none"> <li>• A register of hazardous materials and products will be kept at the site officer or flammables/hazardous store together with up to date Material Safety Data Sheet (MSDS).</li> <li>• Containers with a volume of more than 20ℓ will have proper dispensing equipment.</li> <li>• Dispensing of hazardous materials into smaller containers or equipment will only occur at the site camp on a lined or impermeable surface-</li> <li>• Hazardous materials and products will only be stored at the site camp.</li> </ul>   |                          |
| <b>Mitigation</b>                      | <ul style="list-style-type: none"> <li>• The Implementing Entity must ensure that there is an emergency procedure in place to deal with accidents and incidents (e.g. spills) arising from hazardous substances.</li> <li>• The Implementing Entity must ensure that all personnel on site are properly trained concerning the proper use, handling and disposal of hazardous substances.</li> <li>• The Implementing Entity must report major incidents to the ECO immediately. Any spill incidents must be cleaned up immediately and in according with the emergency procedure</li> </ul>                  | Implementing Entity      |
| <b>Stop work</b>                       | <ul style="list-style-type: none"> <li>• Should the Implementing Entity through negligent or wilful action/behaviour cause a significant/major spill or dispose of hazardous materials illegally, the ECO reserves the right to suspend or partially suspend construction via instruction from the EA Holder in order to allow for the assessment, reporting and rectification of the impact.</li> <li>• Depending on the severity of the non-conformance, the ECO will also inform the relevant competent authority to confirm the Implementing Entity's liability to be prosecuted and/or fined.</li> </ul> | ECO, EA Holder           |
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>• Visual inspection.</li> <li>• Immediate response to spillage.</li> <li>• Completion of an incident form for major spillages (&gt;5ℓ).</li> <li>• Reporting of major spills within 24 hrs to the ECO.</li> </ul>  | Implementing Entity, ECO |



| Management Measure         | Detailed Description  | Responsibility           |
|----------------------------|---|--------------------------|
|                            | <ul style="list-style-type: none"> <li>• Daily and weekly monitoring/inspections by the Implementing Entity.</li> <li>• Formal monthly audits by the ECO.</li> </ul>  |                          |
| <b>Management outcomes</b> | <ul style="list-style-type: none"> <li>• Hazardous materials are properly managed including recording keeping, storage, dispensing and disposal.</li> <li>• Spillages are avoided and minimised through proper storage and dispensing practices.</li> <li>• All personnel on site are properly trained concerning the proper use, handling and disposal of hazardous substances.</li> <li>• The Implementing Entity has a designated and trained individual on-site to respond to spills on site.</li> <li>• Spillages are removed/cleaned/treated immediately after occurring.</li> <li>• Ensure that the appropriate mitigation measures are in place and implemented in the event of a spill.</li> <li>• Hazardous materials are stored in designated/approved areas away from sensitive receptors/environments.</li> <li>• Spills are reported to the ECO within 24hrs of occurring.</li> <li>• Spilled hazardous product and materials used for clean-up are stored and disposed of as hazardous waste or collected by a registered service provider.</li> </ul> | Implementing Entity, ECO |



## 4.8 Contamination of soils and water

**Identified impacts:** Soil and water can be contaminated or polluted by construction activities via several pathways. In terms of soil contamination, pollution can result in the soil being unsuitable for certain land uses and it can also indirectly contribute to sustained pollution of both surface and groundwater resources. The pollution of water resources can lead to numerous direct and indirect impacts including the following:

- Water becoming unsuitable for certain uses such as human consumption and certain agricultural activities due to a decline in water quality.
- A loss of aquatic biodiversity through a change in species composition and diversity and/or species die-off in reaction to a decline in water quality.
- An increase in alien invasive fauna and flora species as a result of higher tolerance capacity in terms of water quality changes/deterioration.
- Increased costs of treating contaminated water for human consumption.

**Objective of improved management:**

- To conduct/manage construction activities in such a manner that the contamination of soil and water resources is avoided and/or minimised.

**Specifications:** None

**Table 9: Specific avoidance, mitigation and cessation management measures related to impacts identified regarding contamination of soil and water**

| Management Measure | Detailed Description   | Responsibility      |
|--------------------|--|---------------------|
| <b>Avoidance</b>   | <ul style="list-style-type: none"> <li>• Ensure that all equipment, machinery and vehicles are in good working order.</li> <li>• No maintenance will take place on site and broken equipment, machinery and vehicles must be removed off-site within 24 hours of the breakdown.</li> <li>• Use drip trays for all stationary or parked equipment, machinery and vehicles showing signs of leakage.</li> <li>• Ensure that substances that pose a risk of water/soil contamination are appropriately stored and disposed of (also refer to Section 4.7).</li> <li>• Site camps are not allowed in a wetland.</li> <li>• Hazardous materials storage areas are not allowed within 100m of watercourses.</li> </ul> | Implementing Entity |



| Management Measure | Detailed Description  | Responsibility      |
|--------------------|---|---------------------|
|                    | <ul style="list-style-type: none"> <li>• Concrete mixers may only operate on a stable, level site.</li> <li>• Concrete shall be mixed on trays or other suitable lining material to prevent contamination of the soil and/or waterbodies.</li> <li>• Ensure that minor mixing of concrete and mortar is done on impermeable surfaces or in wheel barrows.</li> <li>• Store chemicals in clearly marked, sealable containers in bunded areas as approved by the ECO. Inspect the containers at regular intervals for any leaks.</li> <li>• Use proper dispensing equipment on containers for hazardous products and store the dispensing equipment in weatherproof containers when not in use.</li> <li>• Ensure that equipment and plant is in proper working condition and do not leak fuel or oil, especially during work in or near watercourses.</li> <li>• Ensure designated staff are trained in the prevention and mitigation of spills.</li> <li>• The construction camp and any major stockpiling or storage areas should be outside any watercourse unless otherwise approved by the ECO.</li> <li>• Stormwater runoff must be diverted around the site camp and stockpile areas (material susceptible to erosion) by means of cut-off berms or trenches to avoid contamination of clean overland runoff.</li> <li>• Stockpiles (topsoil, subsoil and imported materials such as sand and fill material) must be on flat surfaces in areas which are not susceptible to concentrated stormwater runoff or flow.</li> <li>• Ablution facilities must be located outside the boundary of any watercourse unless otherwise approved by the ECO. Workers should not be allowed to urinate or defecate near or in bushes or rivers/streams.</li> </ul> |                     |
| <b>Mitigation</b>  | <ul style="list-style-type: none"> <li>• All spills to be contained and adequately cleaned-up or treated <i>in situ</i>.</li> <li>• Conduct activities with high pollution potential in the low rainfall months.</li> </ul>   | Implementing Entity |



| Management Measure                     | Detailed Description   | Responsibility           |
|--|--|--------------------------|
|  | <ul style="list-style-type: none"> <li>Use designated washing areas for all equipment used for concrete work with the necessary mechanisms in place to retain contaminated runoff and allow for the necessary treatment/filtering of polluted water.</li> </ul>  |                          |
| <b>Stop work</b>                       | <ul style="list-style-type: none"> <li>Should a major spill occur (as per Section 4.7), the ECO reserves the right to suspend or partially suspend construction via instruction from the EA Holder in order to allow for the assessment, reporting and rectification of the impact.</li> <li>Depending on the severity of the non-conformance and degree of negligence on the Implementing Entity's part, the ECO will also inform the relevant competent authority to confirm the Implementing Entity's liability to be prosecuted and/or fined.</li> </ul>   | ECO, EA Holder           |
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>Daily visual inspection of equipment, vehicles and machinery for signs of leaks.</li> <li>Immediate response to spillage of product or material with pollution potential.</li> <li>Completion of an incident form for major spillages (&gt;5l).</li> <li>Reporting of major spills within 24 hrs to the ECO.</li> <li>Daily and weekly monitoring/inspections by the Implementing Entity.</li> <li>Formal monthly audits by the ECO.</li> </ul>   | Implementing Entity, ECO |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>All activities and materials with a notable pollution potential or located away from any watercourse unless otherwise approved by the ECO.</li> <li>All the necessary pollution prevention measures are in place.</li> <li>Plant is in good and working condition with leaks repaired immediately or the plant removed from site where more extensive repairs are required.</li> <li>All hazardous products/materials are handled/managed correctly as per Section 4.7.</li> <li>All hazardous liquid product spills are cleaned/treated/removed immediately as per procedure under Section 4.7.</li> </ul> | Implementing Entity      |



#### 4.9 Concrete mixing and cement handling

**Identified impacts:** Concrete batching/mixing operations can have several impacts, most notably soil and water pollution (increase in pH, TSS, TDS and minor levels of Aluminium, Iron and Magnesium oxides) as a result of cement laden runoff not being properly contained or purposeful discharge of cement laden runoff. Poor cement handling, storage and disposal practices can also contribute to the aforementioned impacts. Hardened concrete is however stable and inert as a waste.

**Objective of improved management:**

- Ensure proper cement handling, storage and disposal, avoiding discharge or disposal into the environment.
- Ensure that cement laden water/runoff from concrete/mortar mixing and application activities is collected and retained on site to allow for reuse in construction activities, avoiding discharge into the environment.

**Specifications:**

- A concrete batching plant/portable mixer will not be allowed to operate until a temporary washwater and runoff containment system has been constructed/established.

**Table 10: Specific avoidance, mitigation and cessation management measures related to impacts identified in terms of concrete batching and cement handling**

| Management Measure | Detailed Description   | Responsibility           |
|--------------------|--|--------------------------|
| Avoidance          | <ul style="list-style-type: none"> <li>• Where concrete is mixed in bulk (i.e. portable concrete mixer), the following will apply:               <ul style="list-style-type: none"> <li>○ The mixer will be placed on a level, surfaced/lined area.</li> <li>○ Bulk mixing will not occur in the wetland unless the distance from the wetland boundary to the Intervention Point necessitates <i>in situ</i> mixing. This must be approved in all instance by the PC/ECO prior to the commencement of bulk mixing concrete.</li> </ul> </li> <li>• Cement storage will be in a closed container.</li> <li>• Waste or contaminated cement powder will be stored in a marked container with a lid until disposal or reuse.</li> <li>• Cement bags must be emptied properly and stored in a weatherproof container until disposal.</li> </ul> | Implementing Entity, ECO |





| Management Measure                     | Detailed Description   | Responsibility                     |
|--|--|------------------------------------|
|  | <ul style="list-style-type: none"> <li>Minor concrete and mortar mixing will be done on an impermeable surface such as a wooden board, wheelbarrow, metal tray etc.</li> </ul>   |                                    |
| <b>Mitigation</b>                      | <ul style="list-style-type: none"> <li>Equipment and containers used for minor concrete/mortar work and mixing will be washed in a designated container and the contents disposed of in the settling system at the concrete batching plant. Washwater can alternatively be reused in concrete/mortar mixing or application, but may not be disposed of onto the ground surface or into a water resource.</li> <li>Concrete (not cement) spills will be allowed to harden and removed within 2 days for reuse or disposal as a Type 4 waste to a Class D landfill.</li> </ul> | Implementing Entity                |
| <b>Stop work</b>                       | <ul style="list-style-type: none"> <li>Mismanagement of waste concrete and/or cement laden runoff can result in the suspension of bulk concrete mixing activities via instruction from the ECO until non-conformances have been rectified to the ECO's satisfaction.</li> </ul>  | Implementing Entity, ECO, Engineer |
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>Daily visual inspection of areas where concrete/mortar work is taking place (Foreman).</li> <li>Weekly inspection of settling system at batching plant (Foreman).</li> <li>Reporting of major spills within 24 hrs to the ECO.</li> <li>Formal monthly audits by the ECO.</li> </ul>  | Implementing Entity, ECO           |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>Cement laden runoff is contained to site in an appropriately sized settling system.</li> <li>Cement product is properly handled and stored and does not result in pollution of soil or water resources.</li> <li>No equipment or plant used for concrete/mortar mixing or application is washed in a watercourse.</li> <li>The settling system at the batching plant/portable mixer is maintained and does not overflow.</li> <li>Waste concrete is removed within 2 days and reused or disposed of as inert waste.</li> </ul>        | Implementing Entity                |



#### 4.10 Stormwater management, erosion and sedimentation

**Identified impacts:** The clearance of vegetation and earthworks associated with construction usually results in an increase in stormwater runoff volume and velocity. This in turn results in an increase in erosion and sedimentation, impacting both terrestrial and aquatic systems. Temporary structures, stockpiles and access roads can also further contribute to a concentration of runoff and resultant increase in erosion and sedimentation on site.

**Objective of improved management:**

- To avoid and mitigate the increase in stormwater volumes and velocity, thereby reducing erosion and sedimentation on site.

**Specifications:** None

**Table 11: Specific avoidance, mitigation and cessation management measures related to impacts identified in terms of stormwater management, erosion and sedimentation**

| Management Measure | Detailed Description  | Responsibility      |
|--------------------|---|---------------------|
| <b>Avoidance</b>   | <ul style="list-style-type: none"> <li>• Vegetation and topsoil clearance will occur at increments and will only be done up to two weeks ahead of actual construction (i.e. excavation) commencing in an area.</li> <li>• Material (excavated and imported) stockpiles will not be located in areas of concentrated runoff/flow.</li> </ul>   | Implementing Entity |
| <b>Mitigation</b>  | <ul style="list-style-type: none"> <li>• Stormwater generated on the cleared construction footprint will be allowed to discharge into the surrounding vegetation at regular intervals and will not be allowed to collect and concentrate in large volumes or discharge at high velocities.</li> <li>• Disturbed areas must be rehabilitated as soon as possible after construction has been completed in order to stabilise exposed surfaces which are susceptible to erosion.</li> <li>• Implement temporary stormwater management and erosion prevention measures in areas with high erosion potential (in consultation with the ECO).</li> </ul> | Implementing Entity |
| <b>Stop work</b>   | N/A   |                     |



| Management Measure                     | Detailed Description   | Responsibility           |
|--|--|--------------------------|
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>• <i>Ad hoc</i> visual inspections of site by the Implementing Entity after rainfall exceeding 15mm per day.</li> <li>• Formal monthly audits by the ECO.</li> </ul>  | Implementing Entity, ECO |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>• Exposed ground surfaces are limited and rehabilitated immediately after completion of construction activities in an area.</li> <li>• Stormwater runoff is dissipated and allowed to discharge at regular intervals.</li> <li>• Erodible stockpiles are located outside areas of stormwater concentration.</li> <li>• The construction site does not contribute notably to erosion on-site and in the immediate vicinity of the site.</li> <li>• Erosion is detected/identified and addressed/mitigated within 14 days of occurring.</li> <li>• Temporary stormwater management and erosion prevention measures are implemented in areas with high erosion potential of signs of extensive erosion occurring.</li> </ul> | Implementing Entity, ECO |



#### 4.11 Dust nuisance

**Identified impacts:** Construction activities will typically lead to dust generation and general exhaust emissions from vehicles and construction plant. Given the limited extent of vegetation clearance and low number of vehicles and construction plant used on a typical WfWetlands site, dust generation is expected to generally be minimal and restricted to mostly a nuisance impact.

**Objective of improved management:**

- To limit the generation of dust and where needed mitigate dust nuisance.

**Specifications:**

- Watering for dust suppression purposes is only recommended in instances where dust will create a significant health and/or safety hazard.

**Table 12: Specific avoidance, mitigation and cessation management measures related to impacts identified regarding dust nuisance**

| Management Measure | Detailed Description   | Responsibility      |
|--------------------|--|---------------------|
| <b>Avoidance</b>   | <ul style="list-style-type: none"> <li>• As far as possible stockpile materials which are prone to become airborne away from areas where dust will be a nuisance or a hazard.</li> <li>• Limit the height of stockpiles which could cause a dust nuisance to 1m.</li> <li>• Where the abovementioned cannot be achieved, cover stockpiles consisting mostly of fine material with shade cloth, hessian or a similar acceptable cover.</li> <li>• Limit earthworks in during windy conditions (i.e. winds above 40 km/h).</li> <li>• Limit vehicle travelling speeds on unsurfaced roads to 40 km/h.</li> </ul> | Implementing Entity |
| <b>Mitigation</b>  | <ul style="list-style-type: none"> <li>• Where dust poses a notable health and/or safety hazard, implement a watering schedule to address the particular area of concern.</li> <li>• Ensure that a watering schedule is maintained over weekends and holidays where a dust nuisance could pose a health and/or safety hazard to the public using the road.</li> <li>• Record and address any public/community complaints regarding dust generation in the Complaints Register.</li> </ul>  | Implementing Entity |



| Management Measure                     | Detailed Description  | Responsibility           |
|--|---|--------------------------|
| <b>Stop work</b>                       | <ul style="list-style-type: none"> <li>• Work causing excessive dust will be halted at wind speeds exceeding 40km/h.</li> <li>• Where dust generation leads to/results in a complaint by the public or landowner, the ECO reserves the right to suspend or partially suspend work on site until the source of dust is identified and mitigation measures implemented.</li> </ul>  | Implementing Entity, ECO |
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>• Daily visual monitoring.</li> <li>• Recording of public complaints regarding dust generation in Complaints Register.</li> </ul>  | Implementing Entity      |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>• The dustfall rate as specified under regulation 3 of GN R827 (National Environmental Management: Air Quality Act (No. 39 of 2004) - National Dust Control Regulations, 2013) is not exceeded.</li> <li>• Stockpiles which could cause a dust nuisance are limited to 1m in height or covered with a suitable material.</li> <li>• No public complaints are received regarding dust nuisance and/or health and safety hazard.</li> <li>• Where required, a watering schedule is implemented where required i.e. where dust causes a health and/or safety hazard.</li> <li>• Alternative dust binding products are used where long-term watering (&gt; 4 weeks) over an extensive area (&gt;1ha) is required.</li> <li>• Vehicle travelling speed is limited to 40km/h on unsurfaced roads.</li> </ul> | Implementing Entity, ECO |



## 4.12 Noise nuisance

**Identified impacts:** Typical construction activities can lead to excessive noise which could cause a disturbance or nuisance to neighbouring land uses/receptors. Typical construction related noise which would usually be regarded as permissible in urban areas might also be regarded as a disturbance in areas such as nature reserves or on farms.

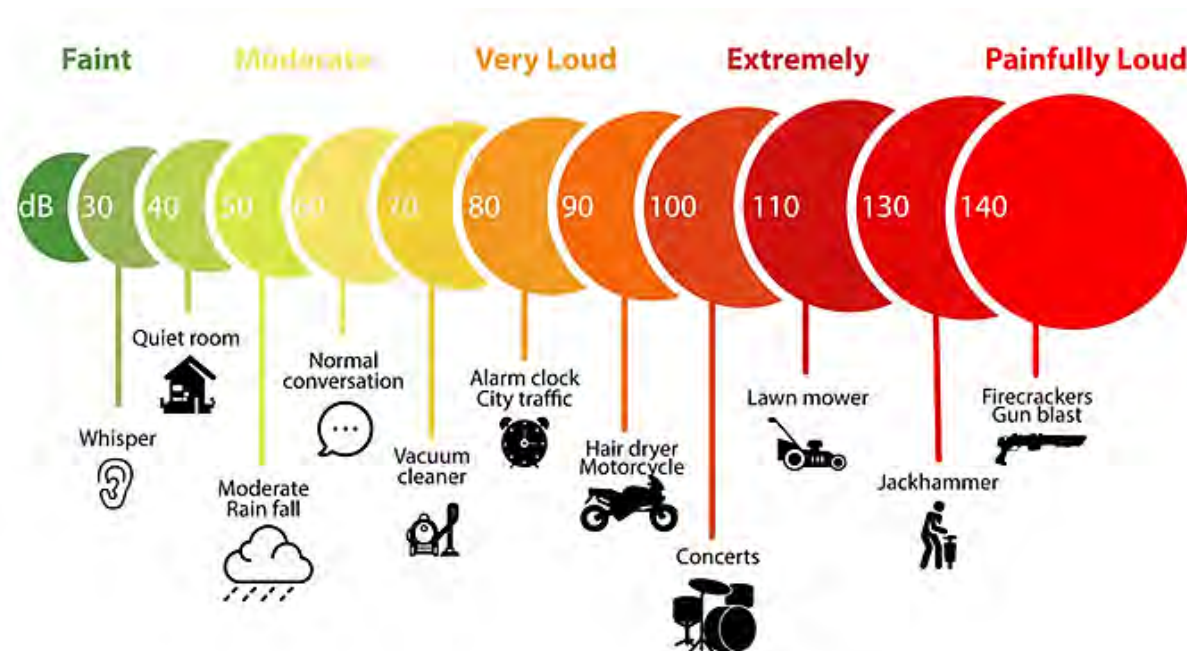


Figure 1: Example of typical everyday noises and related dB values<sup>24</sup>

### Objective of improved management:

- Manage the level and duration of excessive noise generated as a result of construction activities and avoid resultant public complaints. Also ensure that sensitive receptors are notified in advance where excessive noise cannot be avoided for a certain period of time or activity.

### Specifications: None

<sup>24</sup> <http://ototronixdiagnostics.com/images/decibelthermometer-horizontal.jpg>

**Table 13: Specific avoidance, mitigation and cessation management measures related to impacts identified regarding noise nuisance**

| Management Measure                     | Detailed Description  | Responsibility           |
|--|---|--------------------------|
| <b>Avoidance</b>                       | <ul style="list-style-type: none"> <li>• Fit silencers to equipment as required.</li> <li>• Ensure equipment and vehicles are properly maintained and in working order.</li> <li>• The Implementing Entity shall limit noise levels (e.g. install and maintain silencers on machinery). The provisions of SANS 1200A Sub-clause 4.1 regarding “built-up areas” shall apply to all areas within audible distance of residents whether in urban, peri-urban or rural areas.</li> <li>• Appropriate directional and intensity settings are to be maintained on all hooters and sirens.</li> </ul>  | Implementing Entity      |
| <b>Mitigation</b>                      | <ul style="list-style-type: none"> <li>• Limit working hours with noisy equipment to weekdays between 07H00 and 18H00.</li> <li>• Inform sensitive receptors in advance of construction activities.</li> <li>• Construction activities generating output levels of 50dB (A) or more, in peri-urban areas, shall be confined to the hour's 08h00 to 17h00 Mondays to Saturdays.</li> <li>• Record and address any public/community complaints regarding noise generation in the Complaints Register.</li> <li>• Request formal approval of extension of working hours by the ECO prior to implementing extended hours or working over weekends.</li> </ul> | Implementing Entity, ECO |
| <b>Stop work</b>                       | N/A   |                          |
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>• Daily monitoring (by means of a dB meter application on a cell phone) should any loud activities take place.</li> <li>• Recording of public complaints regarding noise generation in Complaints Register.</li> </ul>   | Implementing Entity      |



| Management Measure         | Detailed Description   | Responsibility           |
|----------------------------|--|--------------------------|
| <b>Management outcomes</b> | <ul style="list-style-type: none"> <li>• Compliance with the Environment Conservation Act (No. 73 of 1989): Regulations in terms of Section 25 - Noise Control (GN R154, 1992)<sup>25</sup>.</li> <li>• No public complaints are received regarding noise generation and/or health and safety hazard.</li> </ul> | Implementing Entity, ECO |

<sup>25</sup> Please note: These regulations have been repealed in Gauteng by Gen N 5479 / PG 75 / 19990820; in the Free State by Gen N 24 / PG 35 / 19980424 and in the Western Cape by RN 627 / PG 5309 / 19981120. Proposed Noise Control Regulations have been published for Eastern Cape under Gen N 181 / PG 824 / 20011210. Please also note that various municipalities have their own By-Laws regarding noise control.





#### 4.13 Ablution

**Identified impacts:** A lack of proper and well placed ablution facilities can result in poor working conditions, health risks as well as environmental pollution.

**Objective of improved management:**

- To provide sanitary working conditions and avoid health risks and environmental pollution as a result of a lack of ablution facilities.

**Specifications:** None

**Table 14: Specific avoidance, mitigation and cessation management measures related to impacts identified in terms of ablution**

| Management Measure | Detailed Description  | Responsibility      |
|--------------------|---|---------------------|
| <b>Avoidance</b>   | <ul style="list-style-type: none"> <li>• Prior to construction commencing the Implementing Entity must provide sanitation for Contractors at a ratio of one (1) toilet for every 15 workers.</li> <li>• Toilets should preferably be located outside the wetland boundary and must be approved by the ECO.</li> <li>• Toilets shall be placed on level surfaces and secured to the ground outside areas susceptible to potential flooding.</li> <li>• The Implementing Entity shall supply toilet paper at all toilets at all times. The Implementing Entity shall ensure that the workers make use of the toilets provided.</li> <li>• The Implementing Entity shall be responsible for the cleaning, maintenance and servicing of the toilets.</li> <li>• The Implementing Entity shall ensure that the toilets are protected from vandals. No litter or general waste shall be placed in the toilets.</li> <li>• Upon completion of the contract, the pit latrines shall be filled in and all structures shall be removed from site.</li> <li>• Washing areas with soap and sufficient clean water shall be provided for hand washing after use of ablutions.</li> </ul> | Implementing Entity |
| <b>Mitigation</b>  | N/A   |                     |
| <b>Stop work</b>   | N/A   |                     |



| Management Measure                     | Detailed Description  | Responsibility           |
|--|---|--------------------------|
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>• Daily inspection (by the Implementing Entity) to allow for timely removal/servicing of the ablation facilities.</li> <li>• Monthly compliance audits (including checking of disposal slips where relevant) by the ECO.</li> </ul>                              | Implementing Entity, ECO |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>• A sufficient number of ablation facilities is provided at locations approved by the ECO.</li> <li>• Toilets are placed on level areas and secured to the ground.</li> <li>• Toilets are provided at a ratio of one (1) toilet for every 15 workers.</li> </ul> | Implementing Entity      |



#### 4.14 Waste management

**Identified impacts:** The construction phase will produce typical construction waste such as general waste, waste containers, cement bags, off-cuts etc. The volumes of waste to be generated on a typical WfWetlands site are expected to be low.

**Objective of improved management:**

- To prevent general littering and to ensure that waste is correctly stored on-site and disposed of off-site. Licenced waste disposal facilities (landfill, transfer, recycling) can be found using the search function at the following link <http://sawic.environment.gov.za/?menu=88>.

**Specifications:** None

**Table 15: Specific avoidance, mitigation and cessation management measures related to impacts identified in terms of waste management**

| Management Measure | Detailed Description   | Responsibility      |
|--------------------|--|---------------------|
| <b>Avoidance</b>   | <ul style="list-style-type: none"> <li>• Waste will not be buried or burned on site.</li> <li>• The quantity of materials and product brought to site will not be in notable excess of what is required for construction.</li> <li>• Waste from other construction sites where the Implementing Entity is working will not be brought onto site or stored on site.</li> <li>• Waste storage facilities will outside the wetland boundary or other sensitive areas.</li> <li>• Waste storage facilities and containers will be weather and scavenger proof with sufficient capacity to avoid waste accumulating outside of the facility or containers.</li> <li>• The Implementing Entity shall ensure that general and inert waste does not become contaminated by hazardous waste thereby generating larger volumes of hazardous waste requiring disposal at a Class A landfill.</li> </ul> | Implementing Entity |
| <b>Mitigation</b>  | <ul style="list-style-type: none"> <li>• The Implementing Entity shall, in conjunction with the ECO, designate restricted areas for eating. The feeding, or leaving of food, for stray or other animals in the area is strictly prohibited.</li> </ul>   | Implementing Entity |



| Management Measure | Detailed Description  | Responsibility |
|--------------------|---|----------------|
|                    | <ul style="list-style-type: none"> <li>• Waste generated on site will be collected and transported to the waste storage area at the site camp on a daily basis.</li> <li>• Each foreman will do a daily inspection/walkthrough of his area and ensure that it is litter free.</li> <li>• Waste storage areas will be restricted to the site camp.</li> <li>• Hazardous and general waste will be separated and designated and marked bins/containers provided for each.</li> <li>• In the case of skippy bins being used, the bins will be covered with secured shade cloth or other cover approved by the ECO. Skippy bins are only allowed for storage of inert waste such as wood off-cuts, hardened concrete etc.</li> <li>• Waste transport will be by means of an appropriate vehicle with containers and/or bags secured and covered to prevent waste being blown from the vehicle during transport.</li> <li>• Used oil will be collected and taken to or collected by a registered oil recycling company.</li> <li>• Other hazardous waste as per Schedule 3 of NEM:WA and Annexure 1 of GN R634 (2013) will be disposed of at a Class A landfill or collected by an approved service provider. Proof of safe transfer/disposal will be filed in the SEF.</li> <li>• Waste disposal restrictions as per GN R636 (2013) shall apply. Of specific relevance is: <ul style="list-style-type: none"> <li>○ Lead acid batteries, corrosive or oxidizing products.</li> <li>○ Waste which is flammable with a flash point lower than 61°C.</li> <li>○ Waste compressed gases.</li> <li>○ Re-usable, recoverable or recyclable used lubricating mineral oils, as well as oil filters, but excluding other oil containing wastes.</li> <li>○ Re-usable, recoverable or recyclable used or spent solvents.</li> </ul> </li> </ul> |                |



| Management Measure                     | Detailed Description   | Responsibility           |
|--|--|--------------------------|
|  | <ul style="list-style-type: none"> <li>○ Lamps.</li> <li>○ Tyres (whole or quartered).</li> <li>○ Liquid waste or waste with a moisture content of &gt;40%.</li> </ul>   |                          |
| <b>Stop work</b>                       | N/A  |                          |
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>• Daily inspection of working area for any litter/waste.</li> <li>• Weekly checking of waste storage area to ensure timeous removal of waste off-site prior to storage areas becoming overfull.</li> <li>• Proof of safe disposal filed in Environmental File and audited monthly by ECO.</li> </ul>  | Implementing Entity, ECO |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>• No waste disposed of or burned on site.</li> <li>• No visible littering.</li> <li>• Waste transport does not result in waste being blown from the vehicle along the route.</li> <li>• Appropriate and separate storage of different types of waste in approved locations.</li> <li>• Proper record keeping of hazardous waste generated and safe and legal disposal thereof.</li> </ul> | Implementing Entity      |



#### 4.15 Removal of alien invasive species

**Identified impacts:** The WfWetlands programme often involves the removal of alien invasive species as part of an intervention(s) to improve wetland functioning. The method for removal is usually specified in the aforementioned situation. A construction site, due to its inherent disruptive nature, does however also lead to conditions ideal for the establishment of weeds/pioneer species and alien invasive species (hereafter collectively referred to as “weeds”) which could compromise the habitat integrity and ecological functioning of the wetland system as well as downstream systems. It is therefore important to implement strict control measures to ensure that alien invasive species are not introduced into a system or/and are not allowed to dominate an area post-construction.

**Objective of improved management:**

- No new alien invasive/pioneer species are introduced into the wetland system and catchment.
- Emerging weeds are removed prior to seed formation stage.

**Specifications:**

- Where project activities include the eradication of invasive alien plants, Working for Water guidelines and policies shall be adhered to.
- Weeds will be removed prior to reaching seed formation stage.
- Prior to construction, the Implementing Entity shall ensure that invasive alien vegetation is cleared from the entire site in accordance to the applicable Working for Water guidelines and policies. Follow up clearing may be necessary if the species re-establish following the initial clearing.
- Species that are declared invasive species (according to NEMBA’s Alien and Invasive Species Regulations, 2014 (GN R598)) must be recorded and polygons of the affected area must be submitted to the Working for Water national alien invasive plant database.
- The Alien and Invasive Species Lists 2016 (GN 864) will apply when identifying species which require removal/eradication.
- No trees within the environmentally sensitive areas may be removed, whether alien species or not, unless permitted by the ECO.
- Other alien species (non-listed) occurring on site may not be used in the landscaping and should be removed from site where possible.
- Where an individual or group of an invasive alien specimens/plants has potential cultural or heritage value e.g. a blue gum tree, tree at a grave site, the landowner and/or community will be consulted prior to the removal of the specimen(s). The aforementioned might also be protected under the NHRA, in which case removal might not be allowed.



**Table 16: Specific avoidance, mitigation and cessation management measures related to the removal of Alien Invasive/pioneer species**

| Management Measure                     | Detailed Description   | Responsibility      |
|--|--|---------------------|
| <b>Avoidance</b>                       | <ul style="list-style-type: none"> <li>Imported material shall be free of weeds.</li> <li>Stockpiles (topsoil and subsoil) will be checked for emerging weeds on a fortnightly basis.</li> <li>Topsoil sourced from areas with notable weeds infestation will not be used in other areas for rehabilitation or fill purposes.</li> </ul> | Implementing Entity |
| <b>Mitigation</b>                      | <ul style="list-style-type: none"> <li>Where sand/fill material is legally sourced from a dam, existing borrow pit or similar with clear presence of invasive alien species, the Implementing Entity will allow for a weeding programme at the on-site stockpile area and Intervention Point.</li> </ul>                                 | Implementing Entity |
| <b>Stop work</b>                       | N/A  |                     |
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>Fortnightly inspections of disturbed/cleared areas and stockpiles for signs of emerging weeds.</li> <li>Monthly audit/visual inspection by ECO.</li> </ul>  | ECO                 |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>Construction activities are restricted to the approved construction footprint.</li> <li>The Implementing Entity's activities does not lead to the negligent or wilful damage to a natural feature.</li> </ul>   | Implementing Entity |



#### 4.16 Impact on fauna

**Identified impacts:** Typical construction activities could lead to fatalities of small fauna e.g. birds, reptiles, rodents through direct impact and the destruction of habitat. The proposed project will however be limited to the road reserve which is already completely transformed and subject to daily traffic. The upgrade/replacement of culverts and bridges might result in the destruction of a number bird nests attached to the structures.

**Objective of improved management:**

- Protect fauna in the study area, preserve the ecological functioning along the development footprint as much as is possible.

**Specifications:** None

Table 17: Specific avoidance, mitigation and cessation management measures related to impacts on fauna

| Management Measure      | Detailed Description   | Responsibility             |
|-------------------------|--|----------------------------|
| <p><b>Avoidance</b></p> | <ul style="list-style-type: none"> <li>• Do a site walkthrough prior to construction commencing to remove any slow moving animals and to identify nesting sites, burrows etc.</li> <li>• Demarcate nesting sites which should be avoided as no-go areas by means of painted pegs.</li> <li>• Avoid disturbance of burrows, nests etc. where possible.</li> <li>• Create awareness of conservation of fauna during environmental induction and toolbox talks.</li> <li>• Fauna may not be captured, poisoned, trapped or killed.</li> <li>• Do not feed wildlife.</li> <li>• Where working in a nature reserve with potentially dangerous animals present, ensure that the team is accompanied by a suitably qualified game ranger at all times.</li> <li>• A speed limit of 20 km/h in nature reserves will apply unless otherwise indicated by the reserve road signage.</li> <li>• Inspect excavations for trapped animals prior to work commencing each day.</li> <li>• Do not use pesticides on site.</li> </ul> | <p>Implementing Entity</p> |





| Management Measure                     | Detailed Description  | Responsibility           |
|--|---|--------------------------|
|  | <ul style="list-style-type: none"> <li>Do not burn vegetation.</li> <li>Store waste in weather and scavenger proof bins to avoid ingestion of waste by wildlife.</li> </ul>   |                          |
| <b>Mitigation</b>                      | <ul style="list-style-type: none"> <li>Limit the construction footprint.</li> <li>Reinstate temporary footprints after construction has been completed.</li> <li>Report any animal fatalities of significance to the ECO and relevant reserve management (where applicable) and identify measures to avoid reoccurrence.</li> </ul>   | Implementing Entity, ECO |
| <b>Stop work</b>                       | N/A   |                          |
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>Daily inspections of trenches and excavations prior to construction commencing.</li> <li>Weekly inspections of demarcated no-go areas.</li> <li>Recording of incidents and near misses (e.g. vehicle-antelope collision) in the site diary and at site meetings.</li> <li>Disciplinary action against any construction staff guilty of purposefully capturing, poisoning, trapping or killing wildlife.</li> </ul> | Implementing Entity      |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>No unnecessary fauna fatalities.</li> <li>Limited habitat disturbance and reinstatement of temporary construction footprints.</li> </ul>   | Implementing Entity      |



#### 4.17 Protection of natural features

**Identified impacts:** Construction activities could result in damage to natural features such as rock outcrops and exposed rock faces/cliffs. The project is not located in an area associated with rock paintings, caves, waterfalls, trees of historical or cultural significance etc. and the risk of damage to natural features is generally considered low.

**Objective of improved management:**

- No damage to natural features due to negligent or purposeful action during construction.

**Specifications:**

- Demarcation will be by means of brightly painted/white pegs/poles at least 1.5m in height and placed at regular (10m for linear or on every corner for non-linear) intervals on both sides of the approved construction footprint.
- Danger tape and/or snow/barrier netting shall only be used for health and safety requirements along excavations or high risk areas.
- All temporary barriers and signage must be removed and the site restored on completion of the project.

**Table 18: Specific avoidance, mitigation and cessation management measures related to impacts on natural features**

| Management Measure | Detailed Description   | Responsibility      |
|--------------------|--|---------------------|
| Avoidance          | <ul style="list-style-type: none"> <li>• Construction activities shall be restricted to the approved construction footprint.</li> <li>• Sensitive or no-go areas in close proximity (&lt;100m) to the construction site will be demarcated with painted pegs and marked as no-go areas.</li> <li>• The Implementing Entity shall not deface, paint, damage or mark any natural features (e.g. trees or rock formations) situated in or around the site for survey or other purposes unless agreed beforehand with the ECO and Engineer.</li> </ul> | Implementing Entity |
| Mitigation         | <ul style="list-style-type: none"> <li>• Any features affected by the Implementing Entity as a result of negligence or wilful conduct shall be restored/rehabilitated to the satisfaction of the ECO and/or relevant competent authority.</li> </ul>   | Implementing Entity |
| Stop work          | N/A  |                     |



| Management Measure                     | Detailed Description   | Responsibility      |
|--|--|---------------------|
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>Monthly audit/visual inspection by ECO.</li> </ul>  | ECO                 |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>Construction activities are restricted to the approved construction footprint.</li> <li>The Implementing Entity's activities does not lead to the negligent or wilful damage to a natural feature.</li> </ul> | Implementing Entity |



#### 4.18 Protection of heritage resources (including palaeontological objects)

**Identified impacts:** The nature and location of typical WFWetlands interventions seldom have the potential to cause the destruction or lead to the discovery of palaeontological objects such as fossils. An exception is peat wetlands which can contain fossils at usually substantial depth. Heritage resources are identified during the EIA phase and indicated as no-go areas. There is however still the opportunity for the discovery or damage to new objects during the construction phase.

**Objective of improved management:**

- To avoid damage to known heritage objects and to ensure a protocol is in place in the case of discovery of an unknown heritage or palaeontological object.

**Specifications:** None

Table 19: Specific avoidance, mitigation and cessation management measures related to impacts on heritage resources (including palaeontological objects)

| Management Measure | Detailed Description  | Responsibility                       |
|--------------------|---|--------------------------------------|
| <b>Avoidance</b>   | <ul style="list-style-type: none"> <li>• The Implementing Entity shall avoid all “no-go” areas as identified during the EIA.</li> <li>• General staff awareness training in terms of the protection and conservation of heritage resources during the environmental induction and toolbox talks.</li> </ul>   | Implementing Entity                  |
| <b>Mitigation</b>  | <ul style="list-style-type: none"> <li>• Should any cultural, archaeological or palaeontological artefacts/objects or evidence be discovered at any stage during construction, the Implementing Entity will cease work in the vicinity of the artefact/object and inform the ECO who will in turn inform the relevant specialists and authorities.</li> <li>• Site staff is not allowed to collect or keep on artefact or object of cultural, archaeological or palaeontological significance.</li> </ul> | Implementing Entity, ECO, Specialist |
| <b>Stop work</b>   | <ul style="list-style-type: none"> <li>• Should any cultural, archaeological or palaeontological artefacts/objects or evidence be discovered, partial suspension of construction activities in the immediate vicinity of the object might need to be required until the object can be evaluated and/or removed.</li> </ul>  | Implementing Entity, ECO, Specialist |



| Management Measure                     | Detailed Description  | Responsibility      |
|--|---|---------------------|
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>• Continuous during construction.</li> <li>• Monthly audit by ECO in terms of no-go areas being maintained.</li> </ul>   | Implementing Entity |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>• No-go areas (i.e. all areas outside the approved construction footprint) are treated as no-go areas with no disturbance of heritage/cultural objects on private land adjacent to the construction site.</li> <li>• Proper procedure followed should any object or artefact be discovered during construction.</li> </ul> | Implementing Entity |



## 4.19 Visual impact

**Identified impacts:** The nature of a typical WfWetlands project is seldom such that it causes significant visual disturbance, with the visual impact of the operational outcome usually being positive. Construction activities can however lead to temporary and permanent landscape scarring and impacts, which can be excessive if not controlled and mitigated properly.

**Objective of improved management:** Ensure that visual impacts caused by landscape scarring are minimised through proper planning and mitigated through successful rehabilitation.

**Specifications:** None

Table 20: Specific avoidance, mitigation and cessation management measures related to visual impacts

| Management Measure                     | Detailed Description  | Responsibility                |
|--|---|-------------------------------|
| <b>Avoidance</b>                       | <ul style="list-style-type: none"> <li>• Avoid excessive vegetation clearance.</li> <li>• Ensure construction remains within the approved construction footprint.</li> <li>• Do not paint or deface any natural feature.</li> </ul>   | EAP, ECO, Implementing Entity |
| <b>Mitigation</b>                      | <ul style="list-style-type: none"> <li>• Ensure that materials used for construction limits visual impacts e.g. use natural colours where possible.</li> <li>• Ensure that the site remains neat and tidy with no littering etc.</li> <li>• Use shade cloth or construction cordon in areas specifically sensitive to visual disturbances e.g. areas frequented by tourists or the public.</li> <li>• Record and address community complaints as per procedure specified under Section 4.3.</li> <li>• Ensure rehabilitation is successful as specified under Section 5.</li> </ul> | Implementing Entity           |
| <b>Stop work</b>                       | N/A   |                               |
| <b>Monitoring method and frequency</b> | As specified for rehabilitation under Section 5.  | ECO                           |



| Management Measure         | Detailed Description   | Responsibility           |
|----------------------------|--|--------------------------|
| <b>Management outcomes</b> | <ul style="list-style-type: none"> <li>• Visual impacts are minimised and managed.</li> <li>• The extent of disturbance is minimised and limited to the approved construction footprint.</li> <li>• The extent of intervention infrastructure remaining bare i.e. no vegetated is limited as best as possible.</li> <li>• Rehabilitation meets the requirements and targets as per Section 5.</li> </ul> | Implementing Entity, ECO |



## 5 REHABILITATION PHASE

**Identified impacts:** Poor rehabilitation can often lead to secondary impacts such as erosion, an increase in alien invasive species, decreased biodiversity, decreased habitat connectivity, poor ecological integrity and functioning and so forth. Given the core focus of the WfWetlands programme, successful rehabilitation is also a key factor, but should entail more than the functioning of an intervention with focus on ensuring that the permanent footprint of the construction site and actual structure is minimal.

### **Objective of improved management:**

- To ensure that construction footprints are rehabilitated and that site rehabilitation is undertaken in such a manner that the permanent footprint of the construction site of the Intervention Point is minimal.

### **Specifications:**

- All working areas shall be rehabilitated once work has been completed and before the team leaves the site. This includes closure and rehabilitation of temporary access routes.
- All foreign material not utilised in the rehabilitation activities shall be removed from the site.
- Re-vegetation of all exposed soils, and measures to address any potential erosion risk shall be done before the team leaves the site.
- Where project activities include the eradication of invasive alien plants, Working for Water guidelines and policies shall be adhered to.
- All rehabilitated areas shall be considered “no-go” areas upon completion and the Implementing Entity shall ensure that none of his staff or equipment enters these areas.
- Specific Site Rehabilitation measures have been included in the project specific Rehabilitation Plans and shall be referred to for site closure. Due notice of the conditions of Environmental Authorisation and requirements of the General Authorisation for water uses (Annexure B) must be complied with.
- Specifically, on the completion of the construction activities:
  - All disturbed areas must be re-vegetated with local indigenous vegetation suitable to the area.
  - An active campaign for controlling new exotic and alien vegetation must be implemented within the disturbed areas.
  - Structures must be inspected after a major rain event (i.e. more than 50mm rainfall) or annually for the accumulation of debris, blockages, instabilities and erosion with concomitant remedial and maintenance actions.





Table 21: Specific avoidance, mitigation measures related to rehabilitation of the project footprint

| Management Measure | Detailed Description  | Responsibility                     |
|--------------------|---|------------------------------------|
| <b>Avoidance</b>   | <ul style="list-style-type: none"> <li>• Manage site demarcation and vegetation clearance as per Sections 4.2, 4.4 and 4.5 respectively.</li> <li>• Ensure that sufficient topsoil is available through proper removal, stockpiling and maintenance procedures as specified under Section 4.5.</li> </ul>   | Implementing Entity                |
| <b>Mitigation</b>  | <p><b>General:</b></p> <ul style="list-style-type: none"> <li>• All waste will be collected and removed (also look beyond immediate working area for any waste which might have been blown into the surrounding area).</li> <li>• All spoil and excess material must be removed material.</li> <li>• All spills and waste concrete must be removed.</li> <li>• All temporary markings and site demarcation must be removed.</li> <li>• All temporary construction signage must be removed.</li> <li>• Where temporary access roads cut across contours, diversion berms will be constructed at 30m intervals to avoid erosion and concentration of runoff prior to vegetation establishing. Mulching shall be applied to the decommissioned temporary access road.</li> </ul> <p><b>Shaping and revegetation:</b></p> <ul style="list-style-type: none"> <li>• Material will be backfilled in the order on which it was removed.</li> <li>• Compacted soil shall be scarified prior to topsoil and seed application.</li> <li>• Topsoil shall be applied at a minimum depth of 75mm.</li> <li>• Where the Implementing Entity failed to manage topsoil properly, the Implementing Entity shall be held responsible to source topsoil of similar quality from a commercial source OR to remediate compromised topsoil by means of compost, fertiliser and seeding as agreed by the ECO.</li> </ul> | Implementing Entity, ECO, Engineer |



| Management Measure | Detailed Description  | Responsibility |
|--------------------|---|----------------|
|                    | <ul style="list-style-type: none"> <li>• Topsoil shall match the type and quality of topsoil removed from that area.</li> <li>• Special care shall be taken where rehabilitation occurs across several wetland zones and or crossing between wetland and dryland habitats to match the soil removed to the area where it is reapplied.</li> <li>• Seeding/re-seeding should, where possible, be timed to take advantage of the rainy season.</li> <li>• All reinstated slopes will be at a gradient of 1:3 to 1:4.</li> <li>• Slopes of 1:2 and 1:1 shall be stabilised by means of suitable geotextiles, hard structures or any other means as approved by the ECO.</li> <li>• Slopes of 1:2 and 1:1 will be revegetated by means of sods and/or plugs of an approved indigenous grass specie. No Kikuyu shall be used for revegetation purposes.</li> <li>• Local indigenous plants shall be used in the landscaping of the site. Plants that are proclaimed as problem plants or noxious weeds (see Section 4.15) are to be excluded from the landscaping plan and must be removed immediately, should they occur on site.</li> <li>• Plants introduced into the project sites must be guided by ecological rather than horticultural principles. For example ecological communities of indigenous plants provide more biodiversity and habitat opportunities and would blend with natural vegetation.</li> <li>• Where sods are sources from the surrounding environment, the sods must be 30x30cm, sourced in a checkered pattern in a flat area (i.e. not on slopes). The sods must be sourced 1m in radius apart and will be planted within 24 hours of removal unless otherwise approved by the ECO.</li> <li>• Should the reshaping of watercourse banks be required it will match the natural preconstruction geomorphology and slope structure. Extensive reshaping of watercourse banks (and beds if applicable) will be done under close supervision of the ECO or relevant specialist.</li> </ul> |                |



| Management Measure                     | Detailed Description   | Responsibility                     |
|--|--|------------------------------------|
|  | <ul style="list-style-type: none"> <li>Areas where sods, plugs or seeds have been used as part of slope stabilisation measures will be watered at least every third day for a minimum period of 6 weeks unless the area is in a permanently wet zone of a wetland i.e. no watering required.</li> </ul> <p><b>Rehabilitation of peatlands:</b></p> <ul style="list-style-type: none"> <li>Upon rehabilitation, the removed sods and soil stockpiles shall be placed back into the system in the original order/layers (i.e. deeper layers shall be placed first with the rhizosphere layer at ground level), and orientation (according to the natural slope). Should the moisture content of the sods be less than 90% moisture, the Implementing Entity shall be required to peg them with wooden stakes.</li> <li>The site shall be mulched (alternatively cloth/geotextile may be used) and livestock shall be fenced out for at least two seasons. Alternatively brush packs can be used to keep livestock and/or game away from the site.</li> <li>If compaction took place, the Implementing Entity shall loosen the soil with a fork on flat surfaces, and create small contour berms on paths with slopes.</li> </ul> |                                    |
| <b>Stop work</b>                       | N/A  |                                    |
| <b>Monitoring method and frequency</b> | <ul style="list-style-type: none"> <li>The Implementing Entity shall notify the ECO once rehabilitation in an area has been completed. The ECO shall be responsible for the technical, not contractual, sign-off of the rehabilitated sections. Only once the rehabilitation has been approved by the ECO, may the contractual sign-off be effected.</li> <li>The ECO shall conduct monthly inspections of rehabilitated areas for the first three months and then continue with inspections on a quarterly basis until the end of the contract period.</li> <li>The ECO should audit the site at the end of the Implementing Entity's retention period to establish whether rehabilitation has been successfully carried out. If not, the retention money could be used to implement additional rehabilitation measures.</li> </ul>   | Implementing Entity, ECO, Engineer |
| <b>Management outcomes</b>             | <ul style="list-style-type: none"> <li>Vegetation clearance is limited to the approved construction footprint.</li> <li>All sloped areas are stable with no sign of slope failure or erosion.</li> </ul>   | Implementing Entity, ECO, Engineer |



## **6 EMERGENCY REPORTING AND PROCEDURES**

The Implementing Entity must ensure that all emergency procedures are in place prior to commencing work. The nearest emergency service provider shall be identified and the up-to-date contact details of this emergency centre, as well as the police and ambulance services shall be displayed on a notice board and shall be made available to staff on-site. Emergency equipment including fire-fighting equipment shall be positioned at accessible locations near to areas where such emergencies may arise.

### **6.1 Emergency Awareness**

The Implementing Entity shall ensure that site staff are aware of the procedure to be followed for dealing with emergencies, which shall include notifying the Implementer and relevant authorities of the event. All site staff shall be briefed regarding the requirements for dealing with potential emergencies including fires, accidental leaks and spillage of pollutants (also see Section 4.7 and 4.8), as well as Health and Safety incidents. Education of site staff shall focus on both preventative and remedial actions in the case of an emergency.

### **6.2 Incident Recording**

The Implementing Entity shall complete an Incident Report (refer to template under Annexure B) in the case of any environmental emergencies, accidents or incidents (including near misses). The ECO shall monitor that the necessary procedures and responses are followed to close out any entries in the Environmental Incident Report. The aforementioned report will be filed in the SEF.

### **6.3 Fire**

The Implementing Entity must take all reasonable measures to ensure that fires are not started as a result of construction activities on site, and shall also ensure that their operations comply with the Occupational Health and Safety Act (Act No. 85 of 1993). Where possible, all work done in the dry season shall be organised in liaison with the landowners so that it fits into their firebreak/ fire protection programme. No large open fires are permitted on site. Smoking on site shall only be permitted in designated areas and in the presence of a fire extinguisher.

Basic functional fire-fighting equipment (one back pack and at least five beaters) shall be made available at each work site at all times. In forestry areas there must also be two rake hoes per team. The Implementing Entity shall appoint a member of his staff to be responsible for the installation and inspection of this equipment. Where work will take place in a peatland or wetland with a high organic soil content, a Method Statement shall be prepared for the ECO's approval, detailing all the actions that will take place should a fire occur, as well as the relevant emergency contacts.

Where fuels and machines are used on site, the prescribed fire extinguishers in working condition must be made available by the Implementing Entity.

Sparks generated during welding, cutting of metal or gas cutting can result in fires. Every possible precaution shall therefore be taken when working with this equipment near potential sources of combustion. Such precautions include having an approved fire extinguisher immediately available at the site of any such activities.

The Implementing Entity is to ensure that he/ she has the contact details of the nearest fire station in case of an emergency.



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## Annexure A: Basic Code of Conduct / Implementation

- Private property access is only permitted on previous agreement with the affected landowner, or will be considered trespassing. Trespassing on adjacent properties shall be subject to disciplinary and legal action.
- Ensure that closed gates are kept closed. When in doubt, the landowner should be consulted.
- Teams working outside of the active site, or requiring access to private properties are to carry identification on their persons that includes their name, position, company of employ, and reference to the Working for Wetlands Project. Similarly, such information shall be displayed on vehicle dashboards/exterior.
- All work shall be based on an approved rehabilitation plan.
- Any deviations from the planned specification need to be approved by the PC and the relevant Engineer.
- A construction supervisor shall be appointed. The appointment letter shall be made available on site.
- Work sites shall be properly planned and marked out, preferably in collaboration with the Implementing Entity. Areas shall be demarcated for vehicle access and parking, off-loading, mixing etc. (refer to Section 4.2).
- No unauthorised person may enter the work site.
- The location and position of all rehabilitation interventions shall be precisely demarcated by the Engineer and the Implementer, according to the rehabilitation plan.
- Dimensions of rehabilitation interventions shall also be marked out where appropriate (e.g. depth of an excavation).
- Implementation of all interventions will be done with a focus on cost-effectiveness and efficiency, while maintaining quality and appropriateness.



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## Annexure B: Site Environmental File & Templates

| Section   | Template available |
|---|--------------------|
| <b>1. Rehabilitation Plan and EMP</b>   |                    |
| <b>2. Implementing Entity Agreements</b>  |                    |
| 2.1. Undertaking in terms of Environmental Authorisation, Environmental Management Programme, Rehabilitation Plan and submitted Method Statements | <b>Yes</b>         |
| <b>3. Approvals and Licenses</b>  |                    |
| 3.1. Environmental Authorisation  |                    |
| 3.2. Section 21(c) and (i) General Authorisation  |                    |
| 3.3. Waste license (if applicable)  |                    |
| <b>4. Communication</b>   |                    |
| 4.1. Important correspondence e.g. notice to Competent Authority of commencement of construction  |                    |
| 4.2. Copy of public complaints register   | <b>Yes</b>         |
| <b>5. Site Management</b>   |                    |
| 5.1. Approved layout  |                    |
| 5.2. Site instructions (or copies thereof)  |                    |
| <b>6. Environmental Training</b>  |                    |
| 6.1. Proof of toolbox talks, environmental awareness and induction (incl. attendance register and training material)                              |                    |
| <b>7. Method Statements</b>   |                    |
| 7.1. Combined method statements   | <b>Yes</b>         |
| 7.2. Additional method statements   | <b>Yes</b>         |
| <b>8. Records</b>   |                    |
| 8.1. Record of waste generation – quantity, type, fate (incl. general/hazardous, liquid/solid)  |                    |
| 8.2. Proof of legal/safe waste disposal   |                    |
| 8.3. Record of chemicals on site and Material Safety Data Sheets (MSDS)   |                    |
| 8.4. Record of water usage (if applicable)  |                    |
| 8.5. Request for deviations   | <b>Yes</b>         |
| <b>9. Audits</b>  |                    |
| 9.1. Baseline Audit   | <b>Yes</b>         |
| 9.2. ECO audit reports  |                    |
| 9.3. Internal audits/check conducted by the Implementing Entity   | <b>Yes</b>         |
| 9.4. Incident and non-conformance reports   | <b>Yes</b>         |
| 9.5. Site closure   | <b>Yes</b>         |





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| Section  | Template available |
|--|--------------------|
| 1. Rehabilitation Plan and EMP   |                    |
| <b>2. Implementing Entity Agreements</b>   |                    |
| <b>2.1. Undertaking in terms of Environmental Authorisation, Environmental Management Programme, Rehabilitation Plan and submitted Method Statements</b> | Yes                |
| 3. Approvals and Licenses  |                    |
| 3.1. Environmental Authorisation   |                    |
| 3.2. Section 21(c) and (i) General Authorisation   |                    |
| 3.3. Waste license (if applicable)   |                    |
| 4. Communication   |                    |
| 4.1. Important correspondence e.g. notice to Competent Authority of commencement of construction   |                    |
| 4.2. Copy of public complaints register  | Yes                |
| 5. Site Management   |                    |
| 5.1. Approved layout   |                    |
| 5.2. Site instructions (or copies thereof)   |                    |
| 6. Environmental Training  |                    |
| 6.1. Proof of toolbox talks, environmental awareness and induction (incl. attendance register and training material)                                     |                    |
| 7. Method Statements   |                    |
| 7.1. Combined method statements  | Yes                |
| 7.2. Additional method statements  | Yes                |
| 8. Records   |                    |
| 8.1. Record of waste generation – quantity, type, fate (incl. general/hazardous, liquid/solid)   |                    |
| 8.2. Proof of legal/safe waste disposal  |                    |
| 8.3. Record of chemicals on site and Material Safety Data Sheets (MSDS)  |                    |
| 8.4. Record of water usage (if applicable)   |                    |
| 8.5. Request for deviations  | Yes                |
| 9. Audits  |                    |
| 9.1. Baseline Audit  | Yes                |
| 9.2. ECO audit reports   |                    |
| 9.3. Internal audits/check conducted by the Implementing Entity  | Yes                |
| 9.4. Incident and non-conformance reports  | Yes                |
| 9.5. Site closure  | Yes                |



## 2 Implementing Entity Agreements

### 2.1 Undertaking in terms of Environmental Authorisation, Environmental Management Programme, Rehabilitation Plan and submitted Method Statements

**PROJECT NAME:** .....

**IMPLEMENTING ENTITY:** .....

**DATE:** .....

I, \_\_\_\_\_ (name), ID number \_\_\_\_\_ hereby confirm the following:

1. I have received a copy of the Environmental Authorisation (EA), Environmental Management Programme (EMPr) and Rehabilitation Plan for this project.
2. I have familiarised myself with the contents of aforementioned documents and understand what is required from me as the Implementing Entity.
3. I understand that I will be audited against the EA, EMPr, Rehabilitation Plan and approved Method Statements.
4. I understand that the EA is legally binding and that a contravention of an EA condition can lead to the suspension of the EA and thus construction.
5. I understand that I am responsible for the actions of my employees and will ensure that all staff on site are aware of the requirements and restrictions as per the EA, EMPr, Rehabilitation Plan and Method Statements.

\_\_\_\_\_

Signed

\_\_\_\_\_

Designation

\_\_\_\_\_

Dated



| Section   | Template available |
|---|--------------------|
| 1. Rehabilitation Plan and EMP  |                    |
| 2. Implementing Entity Agreements   |                    |
| 2.1. Undertaking in terms of Environmental Authorisation, Environmental Management Programme, Rehabilitation Plan and submitted Method Statements | Yes                |
| 3. Approvals and Licenses   |                    |
| 3.1. Environmental Authorisation  |                    |
| 3.2. Section 21(c) and (i) General Authorisation  |                    |
| 3.3. Waste license (if applicable)  |                    |
| <b>4. Communication</b>   |                    |
| 4.1. Important correspondence e.g. notice to Competent Authority of commencement of construction  |                    |
| <b>4.2. Copy of public complaints register</b>  | <b>Yes</b>         |
| 5. Site Management  |                    |
| 5.1. Approved layout  |                    |
| 5.2. Site instructions (or copies thereof)  |                    |
| 6. Environmental Training   |                    |
| 6.1. Proof of toolbox talks, environmental awareness and induction (incl. attendance register and training material)                              |                    |
| 7. Method Statements  |                    |
| 7.1. Combined method statements   | Yes                |
| 7.2. Additional method statements   | Yes                |
| 8. Records  |                    |
| 8.1. Record of waste generation – quantity, type, fate (incl. general/hazardous, liquid/solid)  |                    |
| 8.2. Proof of legal/safe waste disposal   |                    |
| 8.3. Record of chemicals on site and Material Safety Data Sheets (MSDS)   |                    |
| 8.4. Record of water usage (if applicable)  |                    |
| 8.5. Request for deviations   | Yes                |
| 9. Audits   |                    |
| 9.1. Baseline Audit   | Yes                |
| 9.2. ECO audit reports  |                    |
| 9.3. Internal audits/check conducted by the Implementing Entity   | Yes                |
| 9.4. Incident and non-conformance reports   | Yes                |
| 9.5. Site closure   | Yes                |



## 4 Communication

### 4.2 Copy of public complaints register

#### COMPLAINTS REGISTER

|                      |       |
|----------------------|-------|
| PROJECT NAME:        | ..... |
| IMPLEMENTING ENTITY: | ..... |
| DATE:                | ..... |
| REVISION:            | ..... |



| Id. | Date | Time | Complainant Name | Address | Contact Details | Path for complaint (Phone, Discussion, email) | Description of complaint | Detail of investigation | Result of investigation | Corrective action | Response to complaint |
|-----|------|------|------------------|---------|-----------------|---|--------------------------|-------------------------|-------------------------|-------------------|-----------------------|
| 1   |      |      |                  |         |                 |   |                          |                         |                         |                   |                       |
| 2   |      |      |                  |         |                 |   |                          |                         |                         |                   |                       |
| 3   |      |      |                  |         |                 |   |                          |                         |                         |                   |                       |
| 4   |      |      |                  |         |                 |   |                          |                         |                         |                   |                       |
| 5   |      |      |                  |         |                 |   |                          |                         |                         |                   |                       |
| 6   |      |      |                  |         |                 |   |                          |                         |                         |                   |                       |
| 7   |      |      |                  |         |                 |   |                          |                         |                         |                   |                       |
| 8   |      |      |                  |         |                 |   |                          |                         |                         |                   |                       |



| Section   | Template available |
|---|--------------------|
| 1. Rehabilitation Plan and EMP  |                    |
| 2. Implementing Entity Agreements   |                    |
| 2.1. Undertaking in terms of Environmental Authorisation, Environmental Management Programme, Rehabilitation Plan and submitted Method Statements | Yes                |
| 3. Approvals and Licenses   |                    |
| 3.1. Environmental Authorisation  |                    |
| 3.2. Section 21(c) and (i) General Authorisation  |                    |
| 3.3. Waste license (if applicable)  |                    |
| 4. Communication  |                    |
| 4.1. Important correspondence e.g. notice to Competent Authority of commencement of construction  |                    |
| 4.2. Copy of public complaints register   | Yes                |
| 5. Site Management  |                    |
| 5.1. Approved layout  |                    |
| 5.2. Site instructions (or copies thereof)  |                    |
| 6. Environmental Training   |                    |
| 6.1. Proof of toolbox talks, environmental awareness and induction (incl. attendance register and training material)                              |                    |
| <b>7. Method Statements</b>   |                    |
| <b>7.1. Combined method statements</b>  | <b>Yes</b>         |
| 7.2. Additional method statements   | Yes                |
| 8. Records  |                    |
| 8.1. Record of waste generation – quantity, type, fate (incl. general/hazardous, liquid/solid)  |                    |
| 8.2. Proof of legal/safe waste disposal   |                    |
| 8.3. Record of chemicals on site and Material Safety Data Sheets (MSDS)   |                    |
| 8.4. Record of water usage (if applicable)  |                    |
| 8.5. Request for deviations   | Yes                |
| 9. Audits   |                    |
| 9.1. Baseline Audit   | Yes                |
| 9.2. ECO audit reports  |                    |
| 9.3. Internal audits/check conducted by the Implementing Entity   | Yes                |
| 9.4. Incident and non-conformance reports   | Yes                |
| 9.5. Site closure   | Yes                |



## 7 Method Statements

The Implementing Entity is to complete this section, taking cognisance of the relevant EA, EMP, environmental specifications and SANS.

### 7.1 Combined method statements

|                             |       |
|-----------------------------|-------|
| <b>PROJECT NAME:</b>        | ..... |
| <b>IMPLEMENTING ENTITY:</b> | ..... |
| <b>DATE:</b>                | ..... |
| <b>REVISION:</b>            | ..... |

#### ACRONYMS

|             |   |
|-------------|---|
| <b>ECO</b>  | Environmental Control Officer                           |
| <b>EMPr</b> | Environmental Management Programme                      |
| <b>NEMA</b> | National Environmental Management Act (Act 107 of 1998) |
| <b>SHE</b>  | Safety Health Environment                               |

#### DEFINITIONS

##### Alien species<sup>1</sup>:

- (a) a species that is not an indigenous species; or
- (b) an indigenous species translocated or intended to be translocated to a place outside its natural distribution range in nature, but not an indigenous species that has extended its natural distribution range by natural means of migration or dispersal without human intervention.

**Approved:** Means approved in terms of the applicable legal requirements (e.g. NEMA approval/ Environmental Authorisation) and/or has been approved by the WfWetlands Programme's Deputy Director: Planning, Monitoring and Evaluation and/or an authorised representative of the WfWetlands Programme.

##### Archaeological<sup>2</sup>:

- (a) material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
- (b) rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
- (c) wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the

<sup>1</sup> National Environmental Management: Biodiversity Act (No. 10 of 2004)

<sup>2</sup> National Heritage Resources Act (No. 25 of 1999)





Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which the South African Heritage Resource Agency (SAHRA) considers to be worthy of conservation; and

**Auditing<sup>3</sup>:** A systematic, documented, periodic and objective evaluation which provides verifiable findings, in a structured and systematic manner, on:

(a) the level of performance against and compliance of an organisation or project with the provisions of the requisite environmental authorisation or Environmental Management Programme (EMPr) and, where applicable, the closure plan; and

(b) the ability of the measures contained in the EMPr, and where applicable the closure plan, to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity.

**Authority:** National, regional or local authority, that has a decision-making role or interest in the project.

**Best Management Practice (BMP):** Procedures and guidelines to ensure the effective and appropriate implementation of wetland rehabilitation by WfWetlands implementers.

**Cement laden water:** Means water (fresh or wash water) which has been in contact with partially cured concrete/mortar or raw cement product and which contains suspended and dissolved cement solids.

**Commence:** The start of any physical activity, including site preparation and any other activity on site furtherance of a listed activity or specified activity, but does not include any activity required for the purposes of an investigation or feasibility study as long as such investigation or feasibility study does not constitute a listed activity or specified activity.

**Contaminated water:** Means water contaminated by the Implementing Entity's activities such as with hazardous substances, hydrocarbons, paints, solvents and runoff from plant, workshop or personnel wash areas but excludes water containing cement/ concrete or silt.

**Corrective (or remedial) action:** Reactive response required to address an environmental problem that is in conflict with the requirements of the EMPr. The need for corrective action may be determined through monitoring, audits or management review.

**Dam<sup>4</sup>:** Any barrier dam and any other form of impoundment used for the storage of water, excluding reservoirs.

**Dangerous goods:** Goods containing any of the substances as contemplated in South African National Standard No. 10234, supplement 2008 1.00: designated "*List of classification and labelling of chemicals in accordance with the Globally Harmonized Systems (GHS)*" published by Standards South Africa, and where the presence of such goods, regardless of quantity, in a blend or mixture, causes such blend or mixture to have one or more of the characteristics listed in the Hazard Statements in section 4.2.3, namely physical hazards, health hazards or environmental hazards.

**Decommissioning<sup>5</sup>:** To take out of active service permanently or dismantle partly or wholly, or closure of a facility to the extent that it cannot be readily re-commissioned.

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<sup>3</sup> Regulation 34 of GN R982 (2014, as amended) of NEMA

<sup>4</sup> GN R983 (2014, as amended) of NEMA

<sup>5</sup> GN R983 (2014, as amended) of NEMA



**Dust<sup>6</sup>:** Any material composed of particles small enough to pass through a 1 mm screen and large enough to settle by virtue of their weight into the sampling container from the ambient air.

**Eco-log:** A cylindrical sleeve made from, for example wire mesh, filled with organic material and/or soil used to prevent and/or repair minor erosion.

**Endangered species:** Means any indigenous species listed as an endangered species in terms of section 56 of the National Environmental Management Biodiversity Act ((No. 10 of 2004).

**Endemic:** An "endemic" is a species that grows in a particular area (i.e. it is endemic to that region) and has a restricted distribution. It is only found in a particular place. Whether something is endemic or not depends on the geographical boundaries of the area in question and the area can be defined at different scales.

**Environment<sup>7</sup>:** Means the surroundings within which humans exist and that are made up of:

- i. the land, water and atmosphere of the earth;
- ii. micro-organisms, plant and animal life;
- iii. any part or combination of i) and ii) and the interrelationships among and between them; and
- iv. the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

**Environmental impact:** An environmental change caused by some human act.

**Environmental impact:** Change in an environment resulting from the effect of an activity on the environment, whether positive or negative. Impacts may be the direct consequence of an individual's or organisation's activities or may be indirectly caused by them (DEAT, 1998).

**Erosion:** The loss of soil through the action of water, wind, ice or other agents, including the subsidence of soil.

**Gabion:** A structure made of wire mesh baskets filled with regularly sized stones, and used to prevent and/or repair erosion. They are flexible and permeable structures which allow water to filter through them. Vegetation and other biota can also establish in/around the habitat they create.

**Hazard:** Means a source of or exposure to danger.

**Invasive alien species control:**

- (a) to combat or eradicate an alien or invasive species; or
- (b) where such eradication is not possible, to prevent, as far as may be practicable, the recurrence, re-establishment, re-growth, multiplication, propagation, regeneration or spreading of an alien or invasive species.

**Implementing Entity:** The entity responsible for the construction of WfWetlands rehabilitation interventions by means of various contracted teams.

**Indigenous vegetation<sup>8</sup>:** Refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

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<sup>6</sup> National Dust Regulations GN R827 (2013)

<sup>7</sup> NEMA

<sup>8</sup> GN R983 (2014, as amended) of NEMA



**Interested and Affected Parties (I&APs)<sup>9</sup>:**

(a) all persons who, as a consequence of the public participation process conducted in respect of that application, have submitted written comments or attended meetings with the proponent, applicant or EAP;

(b) all persons who have requested the proponent or applicant, in writing, for their names to be placed on the register; c) all organs of state which have jurisdiction in respect of the activity to which the application relates.

**Intervention:** An engineered structure such as a concrete or gabion weir, earthworks or revegetation that achieves identified objectives within a wetland e.g. raising of the water table within a drainage canal.

**Invasive species<sup>10</sup>:** Means any species whose establishment and spread outside of its natural distribution range-

(a) threaten ecosystems, habitats or other species or have demonstrable potential to threaten ecosystems, habitats or other species; and

(b) may result in economic or environmental harm or harm to human health.

**Listed invasive species:** Any invasive species listed in terms of sections 66(1), 67(1), 70(1)(a), 71(3) and 71A of the National Environmental: Biodiversity Act (No. 10 of 2004).<sup>11</sup>

**Maintenance period:** The period after the Establishment Period (Practical Completion), up to and until the end of the Maintenance Period (i.e. a period of 12 months).

**Maintenance<sup>12</sup>:** Means actions performed to keep a structure or system functioning or in service on the same location, capacity and footprint.

**Mine:**

(a) used as a noun-

any excavation in the earth, including any portion under the sea or under other water or in any residue deposit, as well as any borehole, whether being worked or not, made for the purpose of searching for or winning a mineral;

any other place where a mineral resource is being extracted, including the mining area and all buildings, structures, machinery, residue stockpiles, access roads or objects situated on such area and which are used or intended to be used in connection with such searching, winning or extraction or processing of such mineral resource; and

(b) used as a verb-

in the mining of any mineral, in or under the earth, water or any residue deposit, whether by underground or open working or otherwise and includes any operation or activity incidental thereto, in, on or under the relevant mining area.

**Mitigation:** Actions to reduce the impact of a particular activity.

**Mitigation<sup>13</sup>:** Means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible;

<sup>9</sup> Regulation 42 GN R983 (2014, as amended) of NEMA

<sup>10</sup> National Environmental Management: Biodiversity Act (No. 10 of 2004)

<sup>11</sup> Also refer to GN 864 (2016): Alien and Invasive Species Lists

<sup>12</sup> GN R983 (2014, as amended) of NEMA

<sup>13</sup> GN R983 (2014, as amended) of NEMA



**Monitoring<sup>14</sup>:** The repetitive and continued observation, measurement and evaluation of environmental criteria to follow changes over a period of time and to assess the efficiency of control measures.

**Nursery conditions:** This refers to the necessary conditions that must be in place for maintaining strong healthy growth in all container plant materials on site. This includes for the protection of all container plants against wind, frost, direct sunlight, pests, disease and drought. It also includes for the provision of adequate and suitable water supply, fertilisers and all other measures necessary to maintain strong and healthy plant growth.

**Offensive odour:** Any smell which is considered to be malodorous or a nuisance to a reasonable person.

**Pollution<sup>15</sup>:** Means any change in the environment caused by substances;

(ii) radioactive or other waves; or

(iii) noise, odours, dust or heat,

emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or wellbeing or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.

**Post-construction:** Refers to the period of 12 months after the completion of the construction works, the onset coinciding with the maintenance period..

**Potentially hazardous substance:** Any substance or mixture of substances, product or material declared to be a hazardous substance under section 2(1) of the Hazardous Substance Act (1973).

**Pre-construction:** Refers to the period leading up to the establishment on site by the Implementing Entity.

**Project:** A defined area for which an approved rehabilitation plan exists for the WfWetlands Programme.

**Quaternary Catchment:** A fourth order catchment in a hierarchal classification system in which a primary catchment is the major unit and that is also the "principal water management unit in South Africa"<sup>16</sup>

**Reasonable:** Means, unless the context indicates otherwise, reasonable in the opinion of the relevant environmental authority.

**Rehabilitation:** Refers to re-instating the driving ecological forces (including hydrological, geomorphological and biological processes) that underlie a wetland, so as to improve the wetland's health and the ecological services that it delivers; and

Restoring processes and characteristics that are sympathetic to and not conflicting with the natural dynamic of an ecological or physical system<sup>17</sup>.

**Significant impact:** Means an impact that may have a notable effect on one or more aspects of the environment or may result in k with accepted environmental quality standards, thresholds or targets

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<sup>14</sup> DEAT, 1998

<sup>15</sup> National Environmental Management Act (No. 107 of 1998, as amended)

<sup>16</sup> DWS Groundwater Dictionary. Available online:

[http://www.dwaf.gov.za/Groundwater/Groundwater\\_Dictionary/index.html?introduction\\_quaternary\\_catchment.htm](http://www.dwaf.gov.za/Groundwater/Groundwater_Dictionary/index.html?introduction_quaternary_catchment.htm)

<sup>17</sup> Wetland Management Series: WET-Origins, WRC Report TT 334/08, March 2008



and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence.

**Silt laden water:** Means water (mostly overland surface runoff) containing a substantial concentration of suspended solids with increased turbidity. Usually occurs as a result of exposed/cleared ground surfaces, concentration of runoff and/or erosion of excavated or imported materials.

**Site:** This is the area described in the approved/authorised rehabilitation plan for the implementation of the rehabilitation measures. Where the area is not demarcated, it will include all adjacent areas, which are reasonably required for the activities for the Implementing Entity, and approved for such use by the Environmental Control Officer (ECO).

**Slope:** The inclination of a surface expressed as 1 unit of rise or fall for so many horizontal units.

**Subsoil:** The soil horizons between the topsoil horizon and the underlying parent rock.

**Topsoil:** The upper soil profile irrespective of the fertility appearance, structure, agriculture potential, fertility and composition of the soil, usually containing organic material and which is colour specific. Also referred to as the "O" and "A" horizons.

**Waste:** Any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes as defined in Schedule 3 the National Environmental Management: Waste Act (No. 59 of 2008)<sup>18</sup>. Examples include construction debris, chemical waste, used oils and lubricants, batteries, metal and wood off-cuts, excess cement/ concrete, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).

**Watercourse:**

- (a) a river or spring;
- (b) a natural channel in which water flows regularly or intermitted;
- (c) a wetland, pan, lake or dam into which, or from which, water flows

A reference to a watercourse includes, where relevant, its bed and banks

**Weir:** A dam-type structure placed across a watercourse to raise the water table of the surrounding ground and trap sediment on the upstream face without preventing water flow. Weirs are generally used to prevent erosion from progressing up exposed gullies.

**Wetland:** Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water and which in normal circumstances supports or would support vegetation typically adapted to life in saturated soils<sup>19</sup> and,

Land where an excess of water is the dominant factor determining the nature of the soil development and the types of plants living there<sup>20</sup>.

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<sup>18</sup> National Environmental Management: Waste Act (No. 59 of 2008, as amended)

<sup>19</sup> National Water Act (No. 36 of 1998, as amended)

<sup>20</sup> Wetland Management Series: WET-Origins, WRC Report TT 334/08, March 2008



**SECTION 1: SITE ESTABLISHMENT**

|   |
|---|
| Briefly describe where the site camp will be located. Also provide a layout on the next page.   |
| <b>Coordinates:</b>   |
| How will you demarcate the site camp (note no danger tape allowed)  |
|   |
| What will the size of the site camp be?   |
|   |
| Are there any sensitive areas, trees, shrubs or landscape features (e.g. a heritage site) that must be avoided to prevent disturbances and/or damage? How will disturbances or damage be prevented? |
|   |

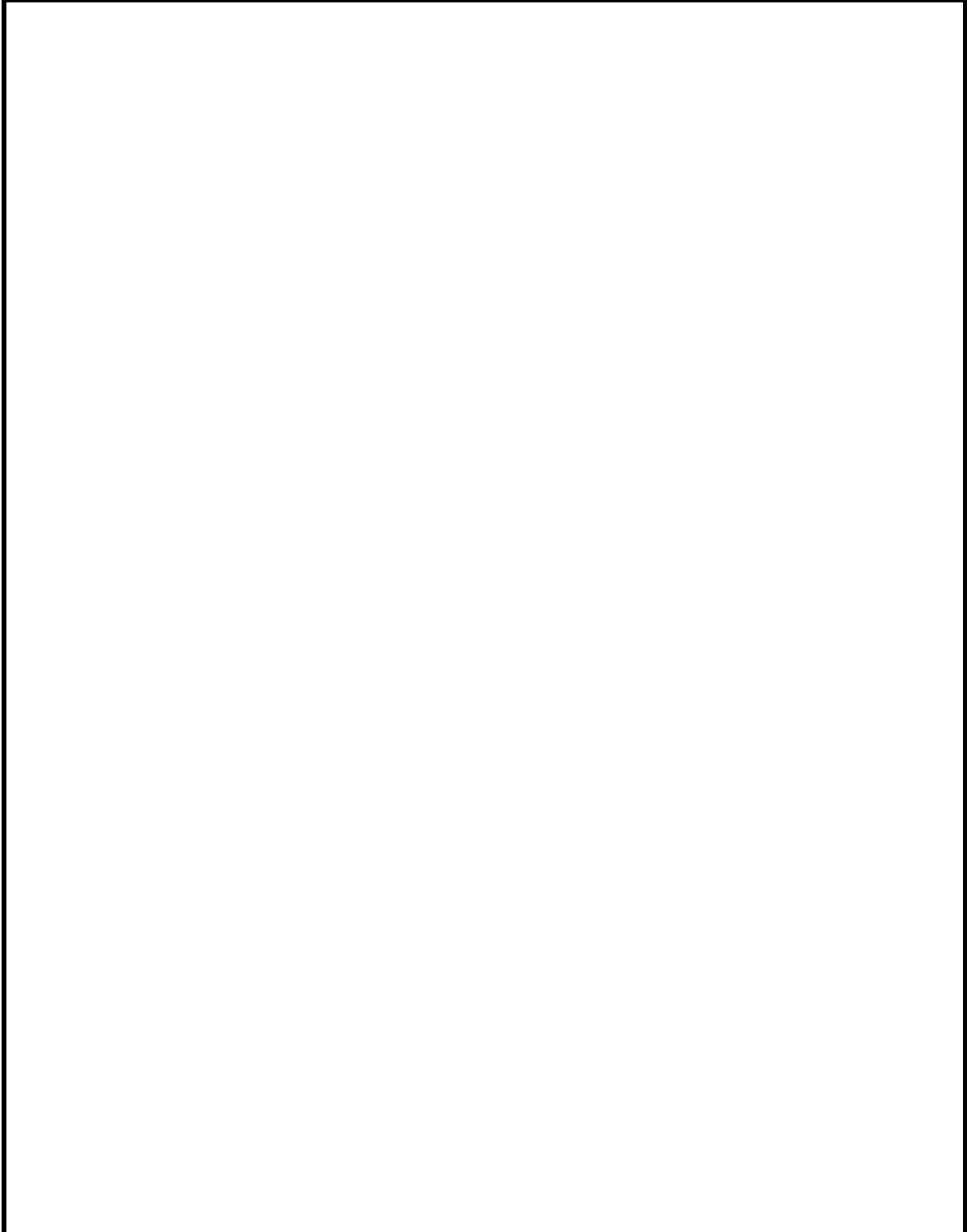
|   |   |   |
|---|---|---|
| Is the site camp on a flat area (i.e. slope not exceeding 1:3)?   | Y | N |
| Is the site camp located away from areas of stormwater concentration and areas prone to flooding?   | Y | N |
| Are there any recently disturbed areas close to the site which can be used as a site camp?  | Y | N |
| Is there sufficient space available at the identified site to accommodate all site camp components i.e. ablution facilities, eating areas, laydown areas, stockpile areas, vehicle parking area, concrete wash water settling area? | Y | N |
| Can the site camp remain at one location? I.e. it does not need to be moved on a regular basis (i.e. every two to four weeks) due to intervention sites being far apart?  | Y | N |

**If, “No”, attach the approved for request for deviation form to the back of this document.**



**Indicate the following (ignore if not relevant):** Ablution facilities, waste storage area (general and hazardous), eating area, laydown area, stockpile area, concrete/mortar mixing/batching area, concrete wash water settling system, site office, access, vehicle parking area, any stormwater diversion measures required, the wetland boundary and sensitive features that must be avoided.

**Site camp layout (please use multiple layout plans if required).**



## SECTION 2: SITE DEMARCATION

Indicate the working area required for each intervention site.

| Intervention No | Type of intervention | Area required (incl. temporary laydown and stockpile areas, topsoil stockpiling, equipment etc.) |
|-----------------|----------------------|--|
|                 |                      |  |
|                 |                      |  |
|                 |                      |  |
|                 |                      |  |

How will you demarcate the working area required for each intervention?

|  |
|--|
|  |
|--|

## SECTION 3: ACCESS ROUTES/HAUL ROADS

Length of new access road required for each intervention site.

| Intervention No | Existing access (Y/N)? | Length of access road required |
|-----------------|------------------------|--------------------------------|
|                 |                        |                                |
|                 |                        |                                |
|                 |                        |                                |
|                 |                        |                                |

Describe how access roads will be made and demarcated (i.e. avoiding unnecessary access roads and the creation of multiple access roads).

|  |
|--|
|  |
|--|

*\*Include a simple layout indicating the proposed access routes as an addendum to this document.*

## SECTION 4: MATERIALS HANDLING, USE AND STORAGE

|   |   |   |
|---|---|---|
| Briefly list the materials ( <b>including volumes</b> ) to be used during construction (e.g. bidim, gabion baskets, stones, gravel, shuttering oil, cement, sand, MacMat-R, geotextile):  |   |   |
|   |   |   |
| Where will the materials be off-loaded?   |   |   |
|   |   |   |
| Where are you sourcing the material from?   |   |   |
|   |   |   |
| If it is not a commercial source, have you written obtained permission from the ECO and any other relevant party e.g. the landowner, provincial roads, Department of Mineral Resources? Please attached a copy of the written permission/consent to the end of this <b>METHOD STATEMENT</b> . | Y | N |





|  |   |   |
|--|---|---|
| Are the areas you've identified for stockpiling of bulk material outside of the wetland? If "No", consult with the ECO.  | Y | N |
| Are the areas you've identified for stockpiling level (i.e. not steeper than 1:30)? If no, explain the measures which will be implemented to prevent materials washing away during rainfall.   | Y | N |
|  |   |   |
| Have you planned how to get the materials from the stockpile/laydown area to the intervention working area? Please provide details on the proposed methodology below. Differentiate between the various materials where required.                    | Y | N |
|  |   |   |
| Do you have sufficient covered storage space for products such as cement, and shuttering oil? Please provide details of the storage areas to be used and the type of cover e.g. roofed, shade cloth, storage container.                              | Y | N |
|  |   |   |
| Do you need to stockpile bulk materials e.g. rock, sand next to an intervention? If "Yes", please provide details on the duration of stockpiling, the volume and the measures to be taken to avoid erosion of material and contamination of topsoil. | Y | N |
|  |   |   |
| Have you worked out a delivery schedule to avoid materials being stored on site for longer than 4 weeks?   | Y | N |
| Is there any material which will be prone to become windblown e.g. sand? If yes, describe how you will contain the material.   | Y | N |
|  |   |   |

## SECTION 5: SOLID WASTE MANAGEMENT AND DISPOSAL

|  |   |   |
|--|---|---|
| What types of waste is expected to be generated during the construction period?  |   |   |
|  |   |   |
| List any wastes that are potentially hazardous <sup>21</sup> (e.g. empty sealant containers, materials from spill kit used to clean spillages, batteries, contents from portable toilets, herbicide containers): |   |   |
|  |   |   |
| How will waste be stored on site (i.e. where and in what)?   |   |   |
| <b>General:</b>  |   |   |
| <b>Hazardous:</b>  |   |   |
| How often, how and where will waste be disposed of?  |   |   |
| <b>General:</b>  |   |   |
| <b>Hazardous:</b>  |   |   |
| Is a substantial quantity of vegetation clearance required?  | Y | N |

<sup>21</sup> Refer to National Environmental Management: Waste Amendment Act 26 of 2014 and SANSH 234



If "yes" indicate how vegetation material not removed as part of topsoil stripping will be dealt with e.g. chipping, brush packing, donate to local community.

\* Please remember to clearly indicate waste storage areas on the layout plan.

## SECTION 6: HAZARDOUS CHEMICALS AND POTENTIAL HAZARDOUS SUBSTANCES

List potentially hazardous substances to be used on the project. (*Hazardous being defined in terms of Hazardous Substances Act (No.187 of 1993) and associated regulations as well as SANS 10234. Examples include, but are not limited to: drums of fuel, grease, oil, brake fluid, hydraulic fluid, paint, batteries and herbicides (for alien plant clearing).*)

How and where will these substances be stored?

How will these substances be applied or dispensed?

How will spills be prevented?

In the event of a spill, how will it be mitigated?

**Procedure:**

**Materials:**

**Person responsible and contact details:**

\*Attach the relevant Material Safety Data Sheet (MSDS) of hazardous materials to be stored on site as an addendum to this document.

## SECTION 7: FUEL

What is the volume of fuel planned to be stored on site?

How and where will fuel be stored?

How will fuel be dispensed?

What precautions will be taken to prevent accidental spills or fires?



In the event of a spill, how will it be mitigated (i.e. cleaned up)?

**Procedures:**

**Materials:**

**Person responsible and contact details:**

How will hydrocarbon contaminated materials be managed and disposed of? Note hydrocarbon contaminated soil is only allowed to go to a Class A landfill (previously H:H landfill site).

### SECTION 8: WATER USE

What source will be used to obtain water for construction purposes?

What source will be used to obtain water for drinking and sanitation purposes?

### SECTION 9: CONCRETE BATCHING AND CEMENT HANDLING

List activities where concrete or mortar will be used:

If ready mix is not used, where and how will concrete be mixed and how will it be transported to the intervention location?

How will cement laden runoff be managed? Specify for the concrete mixing area as well as washing of equipment.

Where and how will cement be stored?

How and where will cement bags be stored until taken off site?

How will excess concrete and concrete remains be disposed of?

### SECTION 10: ABLUTION FACILITIES

How many people will be on site?



How many toilets will be required at a ratio of 1 toilet for every 15 people?

What type of toilet will be used (e.g. chemical or pit latrine) and where will it be located?

If chemical toilets are used, specify how and when they'll be serviced.

### SECTION 11: EATING AREAS

Where will the eating area be located?

How will you prevent littering around the eating area?

*\* Also clearly indicate the designated eating area(s) on the layout plan.*

### SECTION 12: VEHICLES AND EQUIPMENT

Describe the number and type of vehicles to be used on site.

Where will vehicles be parked or equipment stored overnight, during weekends and during holidays?

Describe the procedure to be implemented for dealing with vehicles or equipment leaking oil or fuel:

Describe emergency equipment maintenance procedures:

|                            |
|----------------------------|
| <b>Procedure:</b>          |
| <b>Materials:</b>          |
| <b>Person responsible:</b> |

### SECTION 13: NOISE

Are there any houses nearby? Do you need inform the landowners of any noisy activities that will take place? How will this be done?

Describe the measures to be implemented to prevent excessive noise disturbance during construction:



## SECTION 14: DUST

What is the distance to the closest occupied building and what type of building is it (e.g. house, school, clinic, etc.)

List activities and material that might lead to the generation of dust:

If closer than 100m from a sensitive receptor e.g. occupied building, road, orchard, describe the activities to be implemented to limit and mitigate the generation of dust:

## SECTION 15: IMPLEMENTING ENTITY'S SAFETY HEALTH ENVIROMENT (SHE) OFFICER

Who will be responsible to ensure that Health and Safety and Environmental Requirements are implemented on site? Describe responsibilities of the relevant person:

|                          |
|--------------------------|
| <b>Name:</b>             |
| <b>Responsibilities:</b> |
| <b>Reporting to:</b>     |

## SECTION 16: ENVIRONMENTAL AWARENESS TRAINING

Describe how environmental awareness and training for senior staff will be addressed:

Describe how environmental awareness and training for general labour will be addressed:

*\* Please include a copy of the training material and attendance register in the environmental folder.*

## SECTION 17: FIRE CONTROL

List activities on site with a fire risk e.g. smoking areas, generators.

How will fires be prevented?

Describe the procedure to be followed in case of a fire on site:

|                   |
|-------------------|
| <b>Process:</b>   |
| <b>Materials:</b> |



Responsible person:

### SECTION 18: COMMUNITY RELATIONS

Who is/are the landowner(s) of the property/properties where work will be conducted?

Has the landowner been contacted and notified of construction commencing and are there any specific concerns or requests which need to be taken into account?

Describe how good community relationships will be ensured (e.g. complaints register, contact details of Implementing Entity on site):

### SECTION 19: PROTECTION OF FAUNA AND FLORA

Are you working in a conservancy, nature reserve or biosphere? If, yes, what are the precautions to be taken to avoid the accidental or intentional killing and/or trapping of animals?

Are you aware of any nesting or breeding sites close to any of the interventions?

Describe the procedure to be followed pre-construction to check for slow moving animals in the vicinity of the construction area.

Describe the procedure to be followed to check excavations of 0.5m and deeper for trapped animals.

If you are working in an area with potentially dangerous animals, describe the measures to be taken to ensure the safety of staff.

Are there any trees or shrubs that may not be disturbed or damaged? Have these been clearly marked to prevent disturbances and potential damage?

### SECTION 20: STORMWATER MANAGEMENT

Is the site located in floodplain or valley? If "Yes", have you verified the typical rainfall patterns in the area and when increased flow/flooding can be expected?



Are you aware of any major dams or impoundments upstream of the site? If yes, do you have the contact details of the entity/responsible person in control of releases from the dam or impoundment and have you notified them of work being undertaken downstream?

Are you doing work in the “seasonal” or “permanent zone” of the wetland i.e. an area that is seasonally or permanently wet? If “Yes”, describe the dewatering procedures to be followed (i.e. will pumping be required, where will the pumped water be discharged, how will you reduce sediment loads in pumped water, how will you prevent scouring at the pipe outlet?)

Do you need to divert flow to enable construction/work being undertaken? If “Yes”, provide details on the type and duration of the diversion.

## **SECTION 21: EROSION AND SEDIMENTATION CONTROL**

How will you prevent the erosion of access roads?

Will there be significant exposed areas (areas exceeding 10m<sup>2</sup>) during the rainfall season? If “Yes”, how will you protect bare soil surfaces exposed for a month or longer (e.g. stormwater diversion, temporary revegetation, geotextile)?

Do you need to work on steep (1:4) slopes? If “Yes”, describe the measures to be implemented to avoid the erosion of exposed ground surfaces, excavated material and construction material.

Are there any known stormwater structures discharging towards the site e.g. culverts, stormwater outlets. If “Yes”, is the diversion of the stormwater required to protect the site from erosion and how will it be done?

## **SECTION 22: PROTECTION OF ARCHAEOLOGICAL AND PALAEOLOGICAL SITES**

Are you aware of any known heritage artefacts (e.g. old buildings, Stone Age sites, shell middens, caves, historic grave sites, monuments) close to the site? If “Yes”, describe how you will protect the site.

Describe the procedure to be followed in the event that an object of heritage, archaeological or paleontological is discovered:



| Section   | Template available |
|---|--------------------|
| 1. Rehabilitation Plan and EMP  |                    |
| 2. Implementing Entity Agreements   |                    |
| 2.1. Undertaking in terms of Environmental Authorisation, Environmental Management Programme, Rehabilitation Plan and submitted Method Statements | Yes                |
| 3. Approvals and Licenses   |                    |
| 3.1. Environmental Authorisation  |                    |
| 3.2. Section 21(c) and (i) General Authorisation  |                    |
| 3.3. Waste license (if applicable)  |                    |
| 4. Communication  |                    |
| 4.1. Important correspondence e.g. notice to Competent Authority of commencement of construction  |                    |
| 4.2. Copy of public complaints register   | Yes                |
| 5. Site Management  |                    |
| 5.1. Approved layout  |                    |
| 5.2. Site instructions (or copies thereof)  |                    |
| 6. Environmental Training   |                    |
| 6.1. Proof of toolbox talks, environmental awareness and induction (incl. attendance register and training material)                              |                    |
| <b>7. Method Statements</b>   |                    |
| 7.1. Combined method statements   | Yes                |
| <b>7.2. Additional method statements</b>  | <b>Yes</b>         |
| 8. Records  |                    |
| 8.1. Record of waste generation – quantity, type, fate (incl. general/hazardous, liquid/solid)  |                    |
| 8.2. Proof of legal/safe waste disposal   |                    |
| 8.3. Record of chemicals on site and Material Safety Data Sheets (MSDS)   |                    |
| 8.4. Record of water usage (if applicable)  |                    |
| 8.5. Request for deviations   | Yes                |
| 9. Audits   |                    |
| 9.1. Baseline Audit   | Yes                |
| 9.2. ECO audit reports  |                    |
| 9.3. Internal audits/check conducted by the Implementing Entity   | Yes                |
| 9.4. Incident and non-conformance reports   | Yes                |
| 9.5. Site closure   | Yes                |





## 7 Method Statements

### 7.2 Additional method statements

#### INFORMATION ON METHOD STATEMENTS

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

The Method Statement can only be implemented once approved by the PC in consultation with the ECO.

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

The PC and/or ECO will use the Method Statement to audit compliance by the Implementing Entity with the requirements of the approved Method Statement.

Changes to the way the works are to be carried out must be reflected by amendments to the original approved Method Statement; amendments require the signature of the PC, denoting that the changed methodology or works are necessary for the successful completion of the works, and where applicable the PC will consult with the ECO regarding to environmental concerns. The Implementing Entity will also be required to sign the amended Method Statement thereby committing him/herself to the amended Method Statement.

This Method Statement MUST contain sufficient information and detail to enable the PC (and ECO where applicable) to apply his/her mind to the potential impacts of the works on the environment. The Implementing Entity will also need to thoroughly understand what is required of him/her in order to undertake the works.

THE TIME TAKEN TO PROVIDE A THOROUGH, DETAILED METHOD STATEMENT IS TIME WELL SPENT. INSUFFICIENT DETAIL WILL RESULT IN DELAYS TO THE WORKS WHILE THE METHOD STATEMENT IS REWRITTEN TO THE ASD'S SATISFACTION



## METHOD STATEMENT

**PROJECT NAME:** .....

**IMPLEMENTING ENTITY:** .....

**DATE:** .....

**PROPOSED ACTIVITY** *(give title of method statement):*

*E.g. construction of diversion structure, temporary damming of stream, deviation from standard rehabilitation procedures*

|  |  |
|--|--|
| <b>Scope</b>   |  |
| <b>Potential Impacts</b>   | E.g. litter, spills, damage to flora, contamination of water |
| <b>Start Date:</b>   |  |
| <b>End Date:</b>   |  |
| <b>Description (i.e. how will the Method Statement be implemented?):</b> |  |
| <b>Location:</b>   |  |
| <b>Person(s) responsible for implementing (Name and designation):</b>    |  |



**DECLARATIONS**

**1) Environmental Consultant/Environmental Control Officer**

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

\_\_\_\_\_  
Signed    Print name    Dated

**2) Implementing Entity**

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

\_\_\_\_\_  
Signed    Print name    Dated

**3) Engineer/Engineer's Representative**

The works described in this Method Statement are approved.

\_\_\_\_\_  
Signed    Print name    Dated

**4) Approving authority: PC**

\_\_\_\_\_  
Signed    Print name    Designation

Dated: \_\_\_\_\_



| Section   | Template available |
|---|--------------------|
| 1. Rehabilitation Plan and EMP  |                    |
| 2. Implementing Entity Agreements   |                    |
| 2.1. Undertaking in terms of Environmental Authorisation, Environmental Management Programme, Rehabilitation Plan and submitted Method Statements | Yes                |
| 3. Approvals and Licenses   |                    |
| 3.1. Environmental Authorisation  |                    |
| 3.2. Section 21(c) and (i) General Authorisation  |                    |
| 3.3. Waste license (if applicable)  |                    |
| 4. Communication  |                    |
| 4.1. Important correspondence e.g. notice to Competent Authority of commencement of construction  |                    |
| 4.2. Copy of public complaints register   | Yes                |
| 5. Site Management  |                    |
| 5.1. Approved layout  |                    |
| 5.2. Site instructions (or copies thereof)  |                    |
| 6. Environmental Training   |                    |
| 6.1. Proof of toolbox talks, environmental awareness and induction (incl. attendance register and training material)                              |                    |
| 7. Method Statements  |                    |
| 7.1. Combined method statements   | Yes                |
| 7.2. Additional method statements   | Yes                |
| <b>8. Records</b>   |                    |
| 8.1. Record of waste generation – quantity, type, fate (incl. general/hazardous, liquid/solid)  |                    |
| 8.2. Proof of legal/safe waste disposal   |                    |
| 8.3. Record of chemicals on site and Material Safety Data Sheets (MSDS)   |                    |
| 8.4. Record of water usage (if applicable)  |                    |
| <b>8.5. Request for deviations</b>  | <b>Yes</b>         |
| 9. Audits   |                    |
| 9.1. Baseline Audit   | Yes                |
| 9.2. ECO audit reports  |                    |
| 9.3. Internal audits/check conducted by the Implementing Entity   | Yes                |
| 9.4. Incident and non-conformance reports   | Yes                |
| 9.5. Site closure   | Yes                |



## 8 Records

### 8.5 Request for deviations from standard EMPr or Rehabilitation Plan requirement

|                             |       |
|-----------------------------|-------|
| <b>PROJECT NAME:</b>        | ..... |
| <b>IMPLEMENTING ENTITY:</b> | ..... |
| <b>DATE:</b>                | ..... |

#### DEVIATION 1 (*Implementing Entity to complete*)

|  |  |
|--|--|
| <b>Description of deviation</b>                    | <i>E.g. mixing of concrete in wetland</i>  |
| <b>Reason for deviation</b>                        | <i>E.g. major wetland system resulting in excessive transport distances</i>  |
| <b>Start Date:</b>                                 |  |
| <b>End Date:</b>                                   |  |
| <b>Relevant section in EMPr</b>                    |  |
| <b>Potential impacts associated with deviation</b> | <i>E.g. concrete spills in wetland, additional vegetation clearance, water pollution</i>                           |
| <b>Mitigation measures identified</b>              | <i>E.g. mixing boards, dedicated wash bins, no cement storage in wetland next to mixing area, regular clean-up</i> |

#### DEVIATION 2 (*Implementing Entity to complete*)

|  |  |
|--|--|
| <b>Description of deviation</b>                    |  |
| <b>Reason for deviation</b>                        |  |
| <b>Start Date:</b>                                 |  |
| <b>End Date:</b>                                   |  |
| <b>Relevant section in EMPr</b>                    |  |
| <b>Potential impacts associated with deviation</b> |  |
| <b>Mitigation measures identified</b>              |  |



**PC CHECKLIST**

|   |     |    |        |  |
|---|-----|----|--------|--|
| <b>Does the deviation carry a high risk e.g. pollution, structure failure</b> | Yes | No | Unsure | If “yes” or “unsure” consult with Engineer               |
| <b>Does the proposed deviation trigger a new listed activity</b>              | Yes | No | Unsure | If “yes” or “unsure” consult with EAP                    |
| <b>Does the deviation involve a change in design of the IP</b>                | Yes | No | Unsure | If “yes” or “unsure” consult with Engineer and Wetlander |
| <b>Is the deviation outside the approved wetland system?</b>                  | Yes | No | Unsure | If “yes” or “unsure” consult with EAP                    |





| Section   | Template available |
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| 2.1. Undertaking in terms of Environmental Authorisation, Environmental Management Programme, Rehabilitation Plan and submitted Method Statements | Yes                |
| 3. Approvals and Licenses   |                    |
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| 4.1. Important correspondence e.g. notice to Competent Authority of commencement of construction  |                    |
| 4.2. Copy of public complaints register   | Yes                |
| 5. Site Management  |                    |
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| 6.1. Proof of toolbox talks, environmental awareness and induction (incl. attendance register and training material)                              |                    |
| 7. Method Statements  |                    |
| 7.1. Combined method statements   | Yes                |
| 7.2. Additional method statements   | Yes                |
| 8. Records  |                    |
| 8.1. Record of waste generation – quantity, type, fate (incl. general/hazardous, liquid/solid)  |                    |
| 8.2. Proof of legal/safe waste disposal   |                    |
| 8.3. Record of chemicals on site and Material Safety Data Sheets (MSDS)   |                    |
| 8.4. Record of water usage (if applicable)  |                    |
| 8.5. Request for deviations   | Yes                |
| <b>9. Audits</b>  |                    |
| <b>9.1. Baseline Audit</b>  | <b>Yes</b>         |
| 9.2. ECO audit reports  |                    |
| 9.3. Internal audits/check conducted by the Implementing Entity   | Yes                |
| 9.4. Incident and non-conformance reports   | Yes                |
| 9.5. Site closure   | Yes                |





## 9 Audits

### 9.1 Baseline audit/ inspection prior to commencement of construction

|                             |       |
|-----------------------------|-------|
| <b>PROJECT NAME:</b>        | ..... |
| <b>IMPLEMENTING ENTITY:</b> | ..... |
| <b>DATE:</b>                | ..... |

#### SECTION 1: WETLAND ZONE IN WHICH WORK WILL BE UNDERTAKEN:

|           |          |           |                          |
|-----------|----------|-----------|--------------------------|
| Permanent | Seasonal | Temporary | Outside wetland boundary |
|-----------|----------|-----------|--------------------------|

#### SECTION 2: CONDITION OF VEGETATION

|   |      |          |      |
|---|------|----------|------|
| <b>Coverage:</b>                                    | Poor | Moderate | Good |
| <b>Species diversity:</b>                           | Poor | Moderate | Good |
| <b>Grazing in wetland:</b>                          | Yes  | No       |      |
| <b>Harvesting of vegetation in wetland:</b>         | Yes  | No       |      |
| <b>Level of alien invasive species infestation:</b> | Low  | Moderate | High |

Insert photos:

|  |  |
|--|--|
|  |  |
|  |  |

#### SECTION 3: SOIL

|                                  |                    |                         |   |
|----------------------------------|--------------------|-------------------------|---|
| <b>Topsoil depth:</b>            | ≥10cm              | ≥30cm                   | ≥ 50cm                                      |
| <b>Peat known to be present?</b> | Yes                | No                      |   |
| <b>Evidence of erosion</b>       | Yes                | No                      |   |
| <b>Type of erosion</b>           | Dryland            | Gullies/donga           | In-stream (undercutting, lateral, scouring) |
|                                  | Stormwater outlets | Dispersed overland flow | Tunnelling (dispersive soils)               |



**SECTION 4: IS THERE ANY EXISTING WASTE OR SPOIL ON SITE?**

|     |    |
|-----|----|
| Yes | No |
|-----|----|

If yes, specify the type and estimated quantity

|  |
|--|
|  |
|--|

Insert photos:

|  |  |
|--|--|
|  |  |
|  |  |

**SECTION 5: ARE THERE EXISTING ALIEN INVASIVE SPECIES ON THE SITE?**

|     |    |
|-----|----|
| Yes | No |
|-----|----|

If yes, list the species

|  |
|--|
|  |
|--|

Are any of the species Category 1a or b species? (Alien and Invasive Species Regulations, 2014 - GN R598/2014)

|     |    |
|-----|----|
| Yes | No |
|-----|----|

If yes, list the species and number/density of plants.

|  |
|--|
|  |
|--|

Insert photos:

|  |  |
|--|--|
|  |  |
|  |  |

**SECTION 6: ARE THERE EXISTING ACCESS ROADS TO THE SITE?**

|     |    |
|-----|----|
| Yes | No |
|-----|----|

If yes, what is the condition of the road(s)?

|      |          |      |
|------|----------|------|
| Good | Moderate | Poor |
|------|----------|------|

**SECTION 7: ARE THERE OTHER IMPACTED OR DISTURBED AREAS**

|              |             |        |                     |                            |
|--------------|-------------|--------|---------------------|----------------------------|
| Cleared area | Mining area | Kraal  | Previous site camps | Ploughed agricultural land |
| Roads        | Settlements | Other: |                     |                            |

**SECTION 8: EXISTING WATER QUALITY ISSUES**

|  |                                      |                          |                                |  |
|--|--------------------------------------|--------------------------|--------------------------------|--|
| High sediment loads (murky/cloudy water) | Eutrophication (excess algal growth) | High TDS (salt deposits) | Low pH (orange coloured water) | <i>E. coli</i> (leaking sewer lines, concentration of animals) |
|--|--------------------------------------|--------------------------|--------------------------------|--|



**SECTION 9: IS THERE EXISTING FENCING ON THE PROPERTY WHERE THE WORK WILL BE CONDUCTED?**

|     |    |
|-----|----|
| Yes | No |
|-----|----|

If yes, what type of fencing and what is the condition of the fencing?

|  |
|--|
|  |
|--|

Insert photos:

|  |  |
|--|--|
|  |  |
|  |  |

**SECTION 10: ARE THERE ANY KNOW PROTECTED PLANT SPECIES ON SITE?**

|     |    |
|-----|----|
| Yes | No |
|-----|----|

If yes, list the species

|  |
|--|
|  |
|--|

Insert photos:

|  |  |
|--|--|
|  |  |
|  |  |

**SECTION 11: ARE THERE ANY SIGNIFICANT TREES OR CLUMPS OF TREES WHICH NEED TO BE CONSERVED?**

|     |    |
|-----|----|
| Yes | No |
|-----|----|

If yes, specify the species and location.

|  |
|--|
|  |
|--|

Insert photos:

|  |  |
|--|--|
|  |  |
|  |  |

**SECTION 12: ARE THERE ANY KNOWN OR VISIBLE HERITAGE OBJECTS (E.G. OLD KRAAL, OLD FURROW, CORNER POSTS, OLD BUILDINGS)?**

|     |    |
|-----|----|
| Yes | No |
|-----|----|

If yes, specify the type of object and location.

|  |
|--|
|  |
|--|

Insert photos:

|  |  |
|--|--|
|  |  |
|  |  |



**SECTION 13: ARE THERE ANY EXISTING ANIMAL (DOMESTIC OR WILD) CROSSINGS ON OR CLOSE TO THE SITE?**

|     |    |
|-----|----|
| Yes | No |
|-----|----|

If, yes, will the planned work impact on the crossings and movement of the animals?

|     |    |
|-----|----|
| Yes | No |
|-----|----|

**SECTION 14: ARE THERE ANY EXISTING SERVICES ON OR NEAR THE SITE (E.G. POWER LINES, SUB-STATIONS, PIPELINES, TELEPHONE LINES)?**

|     |    |
|-----|----|
| Yes | No |
|-----|----|

If yes, specify the type of infrastructure and whether it will be impacted by the activities on site

|  |
|--|
|  |
|--|

Insert photos:

|  |  |
|--|--|
|  |  |
|  |  |



| Section   | Template available |
|---|--------------------|
| 1. Rehabilitation Plan and EMP  |                    |
| 2. Implementing Entity Agreements   |                    |
| 2.1. Undertaking in terms of Environmental Authorisation, Environmental Management Programme, Rehabilitation Plan and submitted Method Statements | Yes                |
| 3. Approvals and Licenses   |                    |
| 3.1. Environmental Authorisation  |                    |
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| 3.3. Waste license (if applicable)  |                    |
| 4. Communication  |                    |
| 4.1. Important correspondence e.g. notice to Competent Authority of commencement of construction  |                    |
| 4.2. Copy of public complaints register   | Yes                |
| 5. Site Management  |                    |
| 5.1. Approved layout  |                    |
| 5.2. Site instructions (or copies thereof)  |                    |
| 6. Environmental Training   |                    |
| 6.1. Proof of toolbox talks, environmental awareness and induction (incl. attendance register and training material)                              |                    |
| 7. Method Statements  |                    |
| 7.1. Combined method statements   | Yes                |
| 7.2. Additional method statements   | Yes                |
| 8. Records  |                    |
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| 8.2. Proof of legal/safe waste disposal   |                    |
| 8.3. Record of chemicals on site and Material Safety Data Sheets (MSDS)   |                    |
| 8.4. Record of water usage (if applicable)  |                    |
| 8.5. Request for deviations   | Yes                |
| <b>9. Audits</b>  |                    |
| 9.1. Baseline Audit   | Yes                |
| 9.2. ECO audit reports  |                    |
| <b>9.3. Internal audits/check conducted by the Implementing Entity</b>  | <b>Yes</b>         |
| 9.4. Incident and non-conformance reports   | Yes                |
| 9.5. Site closure   | Yes                |



## 9 Audits

### 9.3 Internal audits/check conducted by the Implementing Entity

|                             |                                   |
|-----------------------------|-----------------------------------|
| <b>PROJECT NAME:</b>        | .....                             |
| <b>IMPLEMENTING ENTITY:</b> | .....                             |
| <b>DATE:</b>                | .....                             |
| <b>WEEK:</b>                | <i>E.g. Week 1 / Week 2</i> ..... |

#### SECTION 1: SITE CONDITIONS

|  |
|--|
|  |
|--|

#### SECTION 2: LAYDOWN AREAS & SITE OFFICES

| ITEM  | DESCRIPTION                     | EVALUATION      |             | NOTES |
|-------|---------------------------------|-----------------|-------------|-------|
|       |                                 | Not to Standard | To Standard |       |
| 2.1   | Litter control                  |                 |             |       |
| 2.2   | Dust suppression                |                 |             |       |
| 2.3   | Erosion control                 |                 |             |       |
| 2.4   | Storm water / Runoff control    |                 |             |       |
| 2.5   | Toilets                         |                 |             |       |
| 2.6   | Fuel & oil storage & dispensing |                 |             |       |
| 2.7   | Material handling or Storage    |                 |             |       |
| 2.8   | Waste management                |                 |             |       |
| 2.8.1 | <i>Domestic Waste</i>           |                 |             |       |
| 2.8.2 | <i>Hazardous Waste</i>          |                 |             |       |
| 2.9   | Noise control                   |                 |             |       |

#### SECTION 3: CONSTRUCTION SITES

| ITEM | DESCRIPTION            | EVALUATION      |             | NOTES |
|------|------------------------|-----------------|-------------|-------|
|      |                        | Not to Standard | To Standard |       |
| 3.1  | Litter control/Recycle |                 |             |       |



|       |   |  |  |  |
|-------|---|--|--|--|
| 3.2   | Dust suppression  |  |  |  |
| 3.3   | Erosion control   |  |  |  |
| 3.4   | Toilets   |  |  |  |
| 3.5   | Eating areas  |  |  |  |
| 3.6   | Material handling and Storage                                 |  |  |  |
| 3.7   | No go areas, natural features and trees have not been damaged |  |  |  |
| 3.8   | Drip trays  |  |  |  |
| 3.9   | Waste management  |  |  |  |
| 3.9.1 | <i>Domestic Waste</i>   |  |  |  |
| 3.9.2 | <i>Hazardous Waste</i>  |  |  |  |
| 3.10  | Noise control   |  |  |  |
| 3.11  | Environmental Awareness Training                              |  |  |  |

**SECTION 4: COMPLIANCE WITH THE EA CONDITIONS AND EMP AND/OR ENVIRONMENTAL INCIDENTS**

**SECTION 5: GENERAL NOTES**



| Section   | Template available |
|---|--------------------|
| 1. Rehabilitation Plan and EMP  |                    |
| 2. Implementing Entity Agreements   |                    |
| 2.1. Undertaking in terms of Environmental Authorisation, Environmental Management Programme, Rehabilitation Plan and submitted Method Statements | Yes                |
| 3. Approvals and Licenses   |                    |
| 3.1. Environmental Authorisation  |                    |
| 3.2. Section 21(c) and (i) General Authorisation  |                    |
| 3.3. Waste license (if applicable)  |                    |
| 4. Communication  |                    |
| 4.1. Important correspondence e.g. notice to Competent Authority of commencement of construction  |                    |
| 4.2. Copy of public complaints register   | Yes                |
| 5. Site Management  |                    |
| 5.1. Approved layout  |                    |
| 5.2. Site instructions (or copies thereof)  |                    |
| 6. Environmental Training   |                    |
| 6.1. Proof of toolbox talks, environmental awareness and induction (incl. attendance register and training material)                              |                    |
| 7. Method Statements  |                    |
| 7.1. Combined method statements   | Yes                |
| 7.2. Additional method statements   | Yes                |
| 8. Records  |                    |
| 8.1. Record of waste generation – quantity, type, fate (incl. general/hazardous, liquid/solid)  |                    |
| 8.2. Proof of legal/safe waste disposal   |                    |
| 8.3. Record of chemicals on site and Material Safety Data Sheets (MSDS)   |                    |
| 8.4. Record of water usage (if applicable)  |                    |
| 8.5. Request for deviations   | Yes                |
| <b>9. Audits</b>  |                    |
| 9.1. Baseline Audit   | Yes                |
| 9.2. ECO audit reports  |                    |
| 9.3. Internal audits/check conducted by the Implementing Entity   | Yes                |
| <b>9.4. Incident and non-conformance reports</b>  | <b>Yes</b>         |
| 9.5. Site closure   | Yes                |





## 9 Audits

### 9.4 Incident and non-conformance reports

#### 9.4.1 Environmental Incident Report

|                             |       |
|-----------------------------|-------|
| <b>PROJECT NAME:</b>        | ..... |
| <b>IMPLEMENTING ENTITY:</b> | ..... |
| <b>DATE:</b>                | ..... |
| <b>REVISION:</b>            | ..... |

#### SECTION 1: DESCRIPTION OF INCIDENT

|  |
|--|
| <br><br><br><br><br><br><br><br><br><br> |
|--|

#### SECTION 2: REMEDIAL ACTION REQUIRED

|                                  |  |
|----------------------------------|--|
| <br><br><br><br>                 |  |
| <b>Remedial Action Due Date:</b> |  |

#### SECTION 3: RELEVANT DOCUMENTATION

|  |
|--|
| <br><br><br><br><br><br><br><br><br><br> |
|--|

#### SECTION 4: SIGNATURES

|              |  |                             |  |
|--------------|--|-----------------------------|--|
| <b>ECO:</b>  |  | <b>Implementing Entity:</b> |  |
| <b>Name:</b> |  | <b>Name:</b>                |  |
| <b>Date:</b> |  | <b>Date:</b>                |  |



**SECTION 5: REMEDIAL ACTION COMPLETED**

|   |  |
|---|--|
| Implementer to sign when remedial action has been completed and return original to ECO: |  |
| Name:   |  |
| Date:   |  |

**SECTION 6: REMEDIAL ACTION VERIFIED**

|       |  |                      |  |
|-------|--|----------------------|--|
| ECO:  |  | Implementing Entity: |  |
| Name: |  | Name:                |  |
| Date: |  | Date:                |  |

**SECTION 7: DRAWING/SKETCH**

|  |
|--|
|  |
|--|



9.4.2 Environmental Non-Conformance Notice

|                                   |
|-----------------------------------|
| <b>PROJECT NAME:</b> .....        |
| <b>IMPLEMENTING ENTITY:</b> ..... |
| <b>DATE:</b> .....                |
| <b>REVISION:</b> .....            |

**SECTION 1: INCIDENT SEVERITY**

| High  | Medium | Low |
|---|--------|-----|
| Number of previous similar non-conformances on same contract: |        |     |

**SECTION 2: DESCRIPTION OF INCIDENT**

|  |
|--|
|  |
|--|

**SECTION 3: DRAWING/SKETCH**

|  |
|--|
|  |
|--|

**SECTION 4: REMEDIAL ACTION REQUIRED**

|                           |  |
|---------------------------|--|
|                           |  |
| Remedial Action Due Date: |  |



**SECTION 5: DRAWING/SKETCH**

|  |
|--|
|  |
|--|

**SECTION 6: RELEVANT DOCUMENTATION**

|  |
|--|
|  |
|--|

**SECTION 7: SIGNATURES**

|              |  |                             |  |
|--------------|--|-----------------------------|--|
| <b>ECO:</b>  |  | <b>Implementing Entity:</b> |  |
| <b>Name:</b> |  | <b>Name:</b>                |  |
| <b>Date:</b> |  | <b>Date:</b>                |  |

**SECTION 8: REMEDIAL ACTION COMPLETED**

|  |  |
|--|--|
| <b>Implementer to sign when remedial action has been completed and return original to ECO:</b> |  |
| <b>Name:</b>   |  |
| <b>Date:</b>   |  |

**SECTION 9: REMEDIAL ACTION VERIFIED**

|              |  |                             |  |
|--------------|--|-----------------------------|--|
| <b>ECO:</b>  |  | <b>Implementing Entity:</b> |  |
| <b>Name:</b> |  | <b>Name:</b>                |  |
| <b>Date:</b> |  | <b>Date:</b>                |  |



| Section   | Template available |
|---|--------------------|
| 1. Rehabilitation Plan and EMP  |                    |
| 2. Implementing Entity Agreements   |                    |
| 2.1. Undertaking in terms of Environmental Authorisation, Environmental Management Programme, Rehabilitation Plan and submitted Method Statements | Yes                |
| 3. Approvals and Licenses   |                    |
| 3.1. Environmental Authorisation  |                    |
| 3.2. Section 21(c) and (i) General Authorisation  |                    |
| 3.3. Waste license (if applicable)  |                    |
| 4. Communication  |                    |
| 4.1. Important correspondence e.g. notice to Competent Authority of commencement of construction  |                    |
| 4.2. Copy of public complaints register   | Yes                |
| 5. Site Management  |                    |
| 5.1. Approved layout  |                    |
| 5.2. Site instructions (or copies thereof)  |                    |
| 6. Environmental Training   |                    |
| 6.1. Proof of toolbox talks, environmental awareness and induction (incl. attendance register and training material)                              |                    |
| 7. Method Statements  |                    |
| 7.1. Combined method statements   | Yes                |
| 7.2. Additional method statements   | Yes                |
| 8. Records  |                    |
| 8.1. Record of waste generation – quantity, type, fate (incl. general/hazardous, liquid/solid)  |                    |
| 8.2. Proof of legal/safe waste disposal   |                    |
| 8.3. Record of chemicals on site and Material Safety Data Sheets (MSDS)   |                    |
| 8.4. Record of water usage (if applicable)  |                    |
| 8.5. Request for deviations   | Yes                |
| <b>9. Audits</b>  |                    |
| 9.1. Baseline Audit   | Yes                |
| 9.2. ECO audit reports  |                    |
| 9.3. Internal audits/check conducted by the Implementing Entity   | Yes                |
| 9.4. Incident and non-conformance reports   | Yes                |
| <b>9.5. Site closure</b>  | <b>Yes</b>         |



## 9 Audits

### 9.5 Site closure

|                                   |
|-----------------------------------|
| <b>PROJECT NAME:</b> .....        |
| <b>IMPLEMENTING ENTITY:</b> ..... |
| <b>DATE:</b> .....                |

#### SECTION 1: SITE CLOSURE INSPECTION SHEET

|                                  |  |
|----------------------------------|--|
| <b>Slope:</b>                    |  |
| <b>Alien invasives:</b>          |  |
| <b>Topsoil:</b>                  |  |
| <b>Anti-erosion:</b>             |  |
| <b>Waste:</b>                    |  |
| <b>Other:</b>                    |  |
| <b>Timeframe for completion:</b> |  |

\_\_\_\_\_  
PC signature

\_\_\_\_\_  
Implementing Entity  
signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date



**SECTION 2: POST SITE CLOSURE INSPECTION COMMENTS**

|                         |  |
|-------------------------|--|
| <b>Slope:</b>           |  |
| <b>Alien invasives:</b> |  |
| <b>Topsoil:</b>         |  |
| <b>Anti-erosion:</b>    |  |
| <b>Waste:</b>           |  |
| <b>Other:</b>           |  |

Outstanding items:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Completion date: \_\_\_\_\_

\_\_\_\_\_  
PC signature

\_\_\_\_\_  
Implementing Entity  
signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date



## **Annexure C: Sensitive Areas**

Sensitive areas (incl. delineated wetland boundary)





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## Annexure D: Minimum Standards for Construction and Maintenance

*Note that maintenance information of structures (position, numbering and BoQ) will be determined as part of the planning process (by the PC and/or the Engineer) and will be included in the Rehabilitation Plan together with new wetlands. This information will be available on WetIS for inclusion in the PIPs. It is the Implementing Entity's responsibility to make provision for maintenance activities in the PIP as discussed and agreed with the PC.*

### Concrete Batching

- Concrete shall be mixed according to the correct MPa and mix information as specified in the construction notes of the respective design drawings.
- All material used in the mixing of concrete are to be of good quality, clean and clear of any organic material.
- Manufacturer's directions for mixing, consistency and treatment after pouring shall be complied with.
- Cement shall be stored in dry conditions for no longer than six weeks after delivery.
- When cement is stored temporarily infield it shall be kept on a dry waterproof base with a waterproof cover.
- The batching of concrete shall be done on a smooth impermeable surface (e.g. shutter plywood sheets). The batching area shall be prepared by cutting (not removing) the existing vegetation and covering the natural ground level (NGL) with Geotextile lining (minimum A4 grade). A sand retaining berm is to be constructed on top of the geotextile on the downstream end to contain any run-off. A 250µm plastic lining is to cover the geotextile and sand berm while secured to the NGL. The prepared area should be of sufficient size to prevent overspill of any material of substance. All wastewater resulting from batching of concrete shall be disposed of via a contaminated water management system and shall not be discharged into the environment.
- Contaminated water storage areas shall not be allowed to overflow and appropriate protection from rain and flooding shall be implemented.
- A demarcated site at least 20m away from water/ wetland edge shall be used for cement mixing. No batching activities shall occur directly on unprotected ground.
- Empty cement bags shall be stored in weather proof containers to prevent windblown cement dust and water contamination. Empty cement bags shall be disposed of on a regular basis via the solid waste management system, and shall not be used for any other purpose. Unused cement bags shall be stored so as not to be affected by rain or runoff events. In this regard, closed steel containers shall be used for the storage of cement powder and any additives.
- The Implementing Entity shall ensure that sand, aggregate, cement or additives used during the mixing process are contained and covered to prevent contamination of the surrounding environment.
- The Implementing Entity shall take all reasonable measures to prevent the spillage of cement/ concrete during batching and construction operations. During pouring, the soil surface shall be protected using plastic and all visible remains of concrete shall be physically removed on completion of the cement/ concrete pour and appropriately disposed of. All spoiled and excess



aggregate/ cement/ concrete shall be removed and disposed of via the solid waste management system.

- Construction using shuttering shall take into consideration the structure design dimensions and safe working heights to prevent over extension of shuttering. Steel shuttering panel sizes shall be used to match the dimensions of the final concrete section as close as possible.
- Concrete will be mixed and used on the same day. Time from mixing to final compaction should not exceed 45 minutes.
- The maximum haul distance of mixed concrete by means of wheel barrows should be limited to ensure the maximum time from mixing to final compaction does not exceed 45 minutes.
- Where sand, stone and cement are transported by wheelbarrow to their point of mixing the distance travelled should be limited to 150m.
- Where applicable, the location of the batching site (including the location of cement stores, sand and aggregate stockpiles) shall be as approved by the PC. The concrete batching plant shall be kept neat and clean at all times.
- Water used for mixing purposes will be of suitable non-potable quality and may not be obtained from natural water resources.

#### **Concrete Structures:**

- Concrete mix to follow the design specification.
- Participants shall be trained in concrete mixing and placing by an accredited organisation prior to performing construction of concrete structures.
- Concrete to be placed in 300mm layers and vibrated using a concrete vibrator.
- Minimum 50mm cover required on all concrete reinforcing and mesh unless otherwise specified.
- 250µm plastic sheets to be placed under structure.
- All concrete walls to be fully supported until they are backfilled to the designed level.
- All mesh reinforcing to have 500mm overlaps between sheets.
- Buttresses and walls to be cast monolithically with footing.
- Construction joints to be used wherever new concrete is cast against previously cast concrete.
- If rebar or mesh crosses a construction joint, it should be continuous through the joint and extend 600mm into each side.
- Foundation improvement to be constructed from 70kg sandbags made of BIDIM A4 and filled with sand or well graded gravel, where indicated.

#### **Gabion Structures:**

- Gabion work shall be done according to design specifications.
- Participants shall be trained in gabion construction by an accredited organisation prior to performing placing or construction of gabion structures.
- Gabion baskets and Reno mattresses to be constructed of minimum double twisted, hexagonal galvanized wire mesh of nominal diameter and 80mm mesh. Frame wire to be 3.4mm outside diameter (o/d) and mesh wire to be 2.7mm o/d with partitions at 1m centres.



- Support and binding wire shall be a minimum 2.2mm. Lacing shall be done according to specification.
- Support wires (bracing) shall be in place according to manufacturer's specifications.
- All adjoining baskets shall be laced together according to manufacturer's specifications.
- Geotextile shall line all faces of the gabion baskets that are exposed to earth and certain water exposed sides with a minimum of 200mm overlap in all directions and stitched with either polyester or galvanised wire at 300mm c/c.
- Water corrosivity shall be determined at each site; if necessary PVC coated gabion wire shall be used as specified.
- Soil dispersivity shall be determined at each site. If dispersive soils are detected, the ECO / Engineer shall be contacted.
- Density of fill material shall satisfy the gabion design. Clay bricks, weathered rock and sandstone and shale shall not be used as fill material. Any unconventional fill material shall be approved by the ECO / Engineer.
- Fill material shall not be smaller than mesh size.
- Where fill material is hauled to its point of placement by means of wheelbarrows, the haul distance shall not be greater than 150m.

#### **Stone Masonry Structures:**

- Stone to be packed and mortared in place using concrete with specified strength.
- Concrete mix to follow the design specification
- 100mm - 200mm stone to be used in all stone masonry, gabions and Reno mattresses. Stone fill must be non-friable & insoluble e.g. Granite, basalt, limestone or sandstone.

#### **Geo Cells:**

- Geo cells shall not be used in conditions that exceed their design specifications.
- Geo cell material shall be UV resistant.
- Geo cells shall be anchored in by the "trench" method and in such a way that prevents undermining of the cells.
- Fill material shall conform to the design specifications. The following general rules shall be applied: If soil is used to fill the cells, it shall be re-vegetated immediately with optimum prepared soil conditions.
- If concrete is used to fill the cells, some degree of permeability of the structure shall be permitted. If concrete is used as fill, concrete baffles should be inserted or as per specified design. Rock is not suitable for this purpose.

#### **Earth Works**

- Excavations may not exceed 1.5m depth without stepping, shoring and/or reinforcement.
- All excavated material temporarily stored shall be placed on Geotextile sheets covering the NGL. If stockpiled for extended periods, it will be done so at predetermined positions approved by the ECO.
- Excavation and compaction must comply with design specifications.



- The ECO / Engineer must be consulted for work undertaken in dispersive, unstable and organic soils.
- Backfilling in trenches must be done in layers of thickness not exceeding 100mm before compaction. Each layer shall be compacted using hand compactors or mechanical rammers at optimum moisture content.
- Where excavation material is hauled by means of wheelbarrows, the haul distance shall not be greater than 150m.

All earthworks shall be undertaken in such a manner so as to minimise the extent of any impacts caused by such activities, particularly with regards to erosion and dust generation. No equipment associated with earthworks shall be allowed outside of the Site and defined access routes unless expressly permitted by the ECO / Engineer.

#### **Rock Packing:**

- Stone must be non-friable and insoluble, e.g. granite, basalt, limestone or sandstone
- Rock packs placed across a stream to be tied min 1m into each bank.
- The ECO must approve the source of rocks if not supplied by suitable rock supplier.
- The haul distance may not be greater than 150m where rocks are transported to their point of placement by means of wheel barrows
- The size of rocks must comply with the specifications shown on the drawings and must be handled in a safe manner particularly during offloading/placing. Heavy duty gloves to be worn when handling rocks.

#### **Ecologs:**

- Wooden pegs used to anchor EcoLogs are to be no less than 40mm diameter and 1000mm in length.
- Pegs should protrude no less than 600mm from the soil @ 1000 c/c.

#### **MacMat / MacMat-R**

- MacMat / MacMat-R to be installed to manufacturers specifications.

#### **Working with Wire (Ecologs, fencing, silt traps)**

- Wire used must comply with the engineer's specifications.
- The appropriate tools are to be used for safe handling of wire.
- Heavy duty gloves must be worn when handling wire.
- No loose wire/sharp edges are to remain on completed interventions.
- All excess wire must be removed from the site.
- Stakes used for pegging should not present a tripping/piercing risk (as far as practically possible).



## Annexure E: Curriculum Vitae of EAP





## Franci Gresse

Franci is a senior environmental practitioner in Aurecon's Cape Town office. She has been involved in various environmental investigations, including environmental impact assessments (EIA's), environmental management plans (EMP's), environmental management programmes (EMP's), rehabilitation plans maintenance management plans (MMP's) and fatal flaw analysis.

Franci has been involved with the Working for Wetlands rehabilitation programme for the past five years, of which she has been acting as the Team Leader for the environmental assessment practitioners (EAP's) for the last three years. The Working for Wetlands project won the 2012 Aurecon Chairman's Award for its positive contribution to the natural and social environment. In addition, Franci has also been involved with a number of projects in the renewable energy sector.

Franci served on the committee of the South African affiliate of the International Association for Impact Assessment (IAIA) for the Western Cape Branch from 2009 to 2011, and remains a member. She completed a Bachelor of Science and an Honours Degree in Conservation Ecology at the University of Stellenbosch (South Africa).

### Qualifications

BSc (Hons) Conservation Ecology

Member, International Association of Impact Assessment (IAIA)

### Specialisation

Environmental Impact Assessment Practitioner

### Years in industry

8.08

## Experience

### **Working for Wetlands plan 2016 - 2018, Regional South Africa, Department of Environmental Affairs: Natural Resource Management Directorate, 06/2016 - Date, Project Leader**

The Natural Resource Management Directorate of the Department of Environmental Affairs appointed Aurecon to provide environmental and engineering services for the Working for Wetlands Programme which is a national wetland rehabilitation programme. Responsibilities include the management and coordination of the overall project, management of the environmental authorisation component of the project, as well as the compilation of basic assessment reports (BAR) for the country. Other responsibilities include the compilation of wetland rehabilitation plans for the Western Cape, Northern Cape and Limpopo Provinces, liaison with authorities and the public (public participation process) and management of wetland specialists.

### **Integrated Environmental Impact Assessment (EIA) for the proposed extension of the Ash Dam facility at Kriel power station, Mpumalanga Province, South Africa, Eskom Holdings, 06/2016 - date, Project Leader**

Appointed by Eskom to conduct an integrated environmental impact assessment (EIA) for the proposed construction of a fourth ash dam facility at the Kriel power station. Responsible for the general project management and finances, authority liaison and the compilation and review of the EIA documentation.

### **Amended Environmental and Socio-Economic Impact Assessment for a concentrated solar plant facility near Arandis in the Erongo Region, 02/2016 – 10/2016, Project Leader**

Aurecon was appointed by the NamPower to amend the Environmental Clearance Certificate (ECC) issued for the Erongo Coal-fired Power Station at Arandis, to a Concentrated Solar Plant. Responsibilities included project management (programme, finances and client expectations), liaison with authorities and relevant stakeholders, review of specialist reports and the compilation and review of the Amendment Report.



## Franci Gresse Senior Environmental Impact Assessment Practitioner

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### **Table Mountain Group (TMG) Aquifer feasibility study and pilot project, Western Cape Province, South Africa, City of Cape Town, 2015 - date, Environmental Consultant**

The TMG Aquifer Feasibility Study and Pilot Project was initiated in 2002 and is a long term planning initiative to investigate the groundwater potential of the TMG Aquifer as a water source to augment Cape Town's water supply. Given the recommendations in the Exploratory Phase report, and the fact that the TMG Aquifer has since been utilised as a water resource in areas such as Hermanus and Oudtshoorn, the City of Cape Town decided to omit the Pilot Phase and rather proceed with an extended Exploratory Phase, which would include limited pump testing. Aurecon was appointed to undertake the extended Exploratory Phase work. Responsibilities include the compilation of Environmental Management Plans for the additional test sites, liaison with the relevant authorities and landowners and management of the Environmental Control Officers on the project.

### **Implementation of the Hoekplaas environmental authorisation (EA), Northern Cape Province, South Africa, Mulilo Renewable Energy, 11/2013 - 05/2015, Project Leader**

Aurecon assisted the holder of the environmental authorisation (EA) for the 100 MW photovoltaic (PV) facility in De Aar with the implementation of the environmental conditions to ensure compliance to all relevant environmental legislation. Responsible for the management of tasks and review of all documentation. Also assisting client with questions on the environmental impact assessment (EIA) process.

### **Environmental impact assessment and compilation of an environmental management plan (EMP) for the Swakopmund-Mile 7 Water Supply, Phase 2, Swakopmund, Namibia, NamWater, 11/2013 - 10/2015, Project Leader**

NamWater appointed Aurecon to assist with the environmental impact assessment process for the proposed construction of a new bulk water pipeline between Swakopmund and Mile 7. Responsible for the management and review of the environmental impact assessment (EIA) reports and processes, as well as the project's finances.

### **Working for Wetlands plan 2014 - 2016, Regional South Africa, South African National Biodiversity Institute (SANBI), 06/2013 – 05/2016, Task Leader**

The South African National Biodiversity Institute (SANBI) appointed Aurecon to provide environmental and engineering services for the Working for Wetlands Programme which is a national wetland rehabilitation programme. Responsible for the management of the environmental authorisation component of the project, as well as the compilation of basic assessment reports (BAR) for the country. Other responsibilities include the compilation of wetland rehabilitation plans for the Western Cape, Northern Cape, North West and Limpopo Provinces, liaison with authorities and the public (public participation process) and management of wetland specialists.





## **Franci Gresse Senior Environmental Impact Assessment Practitioner**

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### **Maintenance management plans (MMP's) for flood damaged road infrastructure, Western Cape Province, South Africa, Western Cape Provincial Government Department of Transport and Public Works, 06/2013 - Date, Project Staff**

The project entails the compilation of maintenance management plans (MMP's) for two local municipal areas (Laingsburg and Worcester), as well as obtaining the necessary permits/ water use authorisations. Personally involved during the project commencement with regards to strategy development, meetings with the relevant authorities and assistance with the development of the MMP's.

### **Environmental impact assessment (EIA) for the expansion of approved solar energy facilities located near Prieska and De Aar, Northern Cape Province, South Africa, Mulilo Renewable Energy, 03/2013 - 09/2015, Phase Leader**

Mulilo Renewable Energy decided to expand the approved solar energy facilities on the farms Hoekplaas and Klipgats in Prieska, as well as on the farms Badenhorst Dam and Du Plessis Dam in De Aar. The expansion of Hoekplaas farm in Prieska includes ten additional 75 MW photovoltaic (PV) facilities and six additional PV units at Klipgats Pan farm. The expansion at Badenhorst Dam farm includes four additional 75 MW PV facilities and three additional PV units at Du Plessis Dam farm. Responsible for the management and review of the environmental impact assessment (EIA) reports and processes, as well as the project's finances.

### **Fatal flaw study for two potential Wind Energy Facility (WEF) sites, Northern and Western Cape Provinces, South Africa, Juwi Renewable Energies (Pty) Ltd, 03/2013 - 04/2013, Environmental Practitioner**

The study entailed a fatal flaw analysis of two potential wind energy facility (WEF) sites in the Northern and Western Cape Provinces. Responsible for the assessment of the sites and compilation of the fatal flaw report.

### **Richtersveld wind energy facility (WEF), Northern Cape Province, South Africa, TRE Tozzi Renewable Energy S.p.A and Guma Group, 07/2012 - 09/2013, Environmental Practitioner**

The project entailed a due diligence of the proposed wind energy facility (WEF) to review compliance with the requirements of the Department of Energy's independent power producer (IPP) process. Responsible for the review of the environmental reports and compilation of the due diligence report.

### **Three photovoltaic (PV) energy facilities near Copperton, Northern Cape Province, South Africa, Mulilo Renewable Energy (MRE), 09/2011 - 05/2015, Environmental Practitioner**

The project entailed three environmental impact assessments (EIA's) for three photovoltaic (PV) energy facilities comprising 75 MW to 150 MW, located near Copperton. Responsible for the management the EIA process and project specialists, compilation of scoping and EIA reports and liaison with authorities.

### **Fatal flaw study for four potential wind energy facility (WEF) sites, Northern and Western Cape Provinces, South Africa, Mainstream Renewable Power South Africa, 11/2011 - 05/2012, Environmental Practitioner**

The study entailed a fatal flaw analysis of four potential wind energy facility (WEF) sites across the Northern and Western Cape Provinces. Responsible for the management of specialists, review of reports, assessment of the sites and compilation of the fatal flaw report.



## **Franci Gresse Senior Environmental Impact Assessment Practitioner**

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### **Implementation of the Klipgats Pan environmental authorisation (EA), Northern Cape Province, South Africa, Mulilo Renewable Energy, 09/2011 - 05/2015, Project Leader**

Aurecon was appointed to undertake three environmental impact assessments (EIA's) for three proposed photovoltaic (PV) solar energy plants near Copperton. The first PV solar energy plant will generate around 100 MW (preferred alternative) or 150 MW (alternative) on the Hoekplaas Farm (Farm 146/RE). The proposed PV plant will cover approximately 300 ha (preferred alternative) or 450 ha (alternative). The second includes a PV solar energy plant to generate roughly 100 MW on the farm Klipgats Pan (Farm 117/4) near Copperton in the Northern Cape. The proposed PV plant will cover an estimated 300 ha. An alternative site for a 100 MW PV plant with a 300 ha footprint is also being considered. The third comprises a PV solar energy plant to generate about 100 MW (preferred alternative) or 300 MW (alternative) on the farm Struisbult (Farm 104, portion 1) which will cover 300 ha to 900 ha. Responsible for managing tasks and reviewing all documentation for updating the environmental management plan (EMP) and implementing the environmental authorisation (EA). Also assisted client with questions on the EIA process.

### **Proposed rehabilitation of Wetlands as part of the Working for Wetlands, Regional, South Africa, South African National Biodiversity Institute (SANBI), 08/2011 - 09/2013, Environmental Practitioner**

Appointed by the South African National Biodiversity Institute (SANBI) to conduct environmental impact assessments (EIA's) for the rehabilitation of specific wetlands in all provinces of South Africa over a five year period. Responsible for the compilation of basic assessment reports (BAR) and Wetland Rehabilitation Plans for the Western Cape, Northern Cape, Gauteng and Limpopo Provinces. Other responsibilities included liaison with authorities, public participation process, management of specialists and general project management of the environmental component of the project.

### **Repair of flood damage to road structures in the Eden District Municipality, Western Cape Province, South Africa, Western Cape Provincial Department of Transport and Public Works, 01/2011 - Date, Environmental Practitioner**

The project entails the compilation of maintenance management plans (MMP) for seven areas within the Eden District Management Area to repair. Responsible for compilation of MMP's, review of reports and liaison with stakeholders and authorities.

### **Environmental impact assessment (EIA) for the proposed extension of the Ash Dam facility at Kriel power station, Mpumalanga Province, South Africa, Eskom Holdings, 11/2009 - 12/2015, Environmental Practitioner**

Appointed by Eskom to conduct an environmental impact assessment (EIA) for the proposed construction of a fourth ash dam facility at the Kriel power station. Responsible for the general project management and finances, screening process, compilation of the scoping and EIA reports, public participation and the compilation of a waste management licence application.



## **Franci Gresse Senior Environmental Impact Assessment Practitioner**

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### **Environmental impact assessment (EIA) for proposed relocation of solar energy facility, Onder Rietvlei Farm, Aurora, Western Cape Province, South Africa, Solaire Direct Southern Africa, 2010 - 2011, Project Leader**

Appointed by Solaire Direct to undertake a basic environmental impact assessment (EIA) process for the proposed relocation of an approved, but not yet constructed 10 MW solar energy facility. Responsible for the management and review of the EIA process and finances.

### **Environmental impact assessment (EIA) for proposed solar energy facility, Onder Rietvlei Farm, Western Cape Province, South Africa, Solaire Direct Southern Africa, 07/2010 - 02/2012, Environmental Practitioner**

Appointed by Solaire Direct to undertake a basic environmental impact assessment process for the proposed construction of a 10 MW solar energy facility. Responsible for the compilation of the draft and final reports, public participation process, management of specialists and general project management.

### **Proposed Paarl Mountain and Ysterbrug pumping main upgrades, Western Cape Province, South Africa, Drakenstein Municipality, 06/2010 – 12/2015, Environmental Advisor**

The Drakenstein Municipality appointed Aurecon's engineers to investigate and plan the proposed upgrade of the Paarl Mountain and Ysterbrug Pumping Scheme. The upgrading of the pipelines feeding the Meulwater Water Treatment Works from the Bethel and Nantes dams, also part of this scheme, was also investigated. Responsible for providing advice on environmental processes required. Other responsibilities included the management of the independent environmental assessment practitioner and the review of all environmental impact assessment (EIA) documentation.

### **Environmental sensitivity study (ESS) for a proposed solar energy facility on a farm Near Aurora, Western Cape Province, South Africa, Solaire Direct Southern Africa, 2010, Environmental Practitioner**

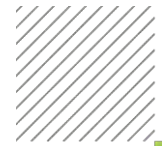
Appointed to provide an environmental sensitivity study (ESS) which inter alia highlights the potential constraints ('red flags') and opportunities presented by the site from an environmental perspective. Responsible for the compilation of the ESS.

### **Proposed remediation, rehabilitation and restoration of the Spruit, Krom, Leeu and Palmiet Rivers, Western Cape Province, South Africa, Drakenstein Municipality, 2009 - 2010, Environmental Practitioner**

Appointed by the Drakenstein Municipality to undertake the requisite environmental impact assessment (EIA) process for the rehabilitation, remediation and stabilisation of four rivers in Paarl and Wellington. Responsible for the EIA and public participation processes.

### **Proposed construction of a new pipeline from Bovlei Winer to Withoogte Dam, Wellington, Western Cape Province, South Africa, Drakenstein Municipality, 2009 - 2010, Environmental Practitioner**

The Drakenstein Municipality proposed to replace a section of the existing pipeline extending from the Withoogte Dam to the Welvanpas Reservoir near Wellington as part of the municipality's water master plan in order to improve the overall water supply. Responsible for the compilation of the environmental impact assessment (EIA) report, management of specialists and the public participation process.



## **Franci Gresse Senior Environmental Impact Assessment Practitioner**

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### **Proposed erection of Eskom communication sirens and public announcement (PA) systems, Blaauwberg, Western Cape Province, South Africa, Eskom, 2009 - 2010, Environmental Practitioner**

The project entailed three environmental impact assessment (EIA) processes for the (a) erection of 10 new sirens in the Parklands area, (b) the relocation of one siren in Bloubergstrand, and (c) the upgrade of five sirens on farms near Melkbosstrand. Responsible for compiling environmental impact assessment (EIA) reports, and the public participation process.

### **Overberg District Municipality integrated transport plan (ITP) strategic environmental informants, Western Cape Province, South Africa, Overberg District Municipality, 2009, Environmental Practitioner**

Aurecon's Transportation Unit was appointed to revise the integrated transport plan (ITP). The Environmental Unit was subcontracted to provide environmental input. Responsible for identifying and describing the relevant informants.

### **Annandale Commercial: development of petrol filling station on portion of Erf 5561, Kuils River, Western Cape Province, South Africa, Communicate, 2009, Environmental Practitioner**

Appointed to compile a construction environmental management plan (CEMP) for the construction of a filling station on the corner of Gladioli Street and Amandel Drive, Kuils River. Responsible for the compilation of the project specification document as part of the CEMP.

### **Environmental impact assessment (EIA) for the proposed Langezand Quays development in Struisbaai Harbour, Western Cape Province, South Africa, Golden Falls (Pty) Ltd, 2008 - Date, Environmental Practitioner**

Aurecon was appointed to undertake an environmental impact assessment (EIA) process for the proposed development of a four storey development on Erf 848 within the Struisbaai harbour precinct. Responsible for drafting responses to the Department of Environmental Affairs' independent review report on the proposed development.

### **Pre-feasibility and feasibility studies for augmenting the Western Cape water supply system, South Africa, Department of Water Affairs (DWA), 2008 - 2013, Project Staff**

The Department of Water Affairs commissioned pre-feasibility and feasibility studies for the augmentation of the Western Cape water supply system through the further development of the surface water resources. Surface water schemes to be investigated were identified by the Western Cape water supply system reconciliation strategy study. Responsible for the public participation process, managing environmental specialists, and compiling a socio-economic overview of the study area.

### **Proposed redevelopment of the Blaauwberg Conservation Area: Eersteste Node, Western Cape Province, South Africa, City of Cape Town, 2008 - 2010, Environmental Practitioner**

The project entailed an environmental impact assessment (EIA) process for redeveloping the Eersteste Conservation Area on the West Coast. Responsible for compiling the EIA report, as well as managing specialists and the public participation process.



## Franci Gresse Senior Environmental Impact Assessment Practitioner

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### **Table Mountain Group aquifer feasibility study and pilot project, Western Cape Province, South Africa, City of Cape Town, 2008 - 2010, Environmental Control Officer**

The City of Cape Town initiated a study into the Table Mountain Group Aquifer as a potential water source to augment the city's supply. The feasibility and pilot project phase record of decision (RoD) required completion for site-specific environmental management plans (EMP's) for drilling sites that were assessed to be environmentally sensitive. Site-specific EMP's were designed for sensitive sites to ensure minimal environmental impact during the drilling phase. Responsible for monitoring compliance with the RoD and EMP during the drilling phase.

### **Water reconciliation strategy for the Algoa water supply area, Eastern Cape Province, South Africa, 2008 - 2009, Environmental Practitioner**

This project provided an assessment of the environmental opportunities and constraints for a suite of water schemes in the Algoa water supply area. This was undertaken as part of a broader study in the area.

### **Application for rectification in terms of Section 24G of the National Environmental Management Act (NEMA) for the unlawful commencement of a fruit processing factory on Op de Tradouw Farm, Number 69, Barrydale, Western Cape Province, South Africa, Schoonies Family Trust, 2008 - 2009, Environmental Practitioner**

The project consisted of an application for rectification in terms of Section 24G of NEMA. Responsible for compiling an environmental impact report and an environmental management plan (EMP) for the application, as well as managing the public participation process.

### **Proposed development of apple and pear orchards on Soetmelksvlei Farm, Western Cape Province, South Africa, BETCO, 2008 - 2009, Project Staff**

This Agri-development project involved the development of 50 ha of apple and pear orchards in the Riviersonderend region. Responsible for compiling the basic assessment report, environmental management plan (EMP), and managing the specialists and public participation process.

### **C.A.P.E. Olifants-Doring Catchment Management Agency project: Development of a catchment management strategy water resource protection sub-strategy for the Olifants-Doring Catchment, South Africa, CapeNature, 2008 - 2009, Environmental Practitioner**

Appointed by CapeNature to compile a catchment management strategy water resource protection sub-strategy for the Olifants-Doorn catchment. Responsible for compiling a database that lists all institutions and their respective mandates in terms of water resource protection and biodiversity conservation decision making for the Olifants-Doring Catchment, workshop arrangements, and general project related work.

### **Environmental sensitivity study for the proposed Dasdrif poultry farm in Moorreesburg, Western Cape Province, South Africa, Eikenhoff Poultry Farms (Pty) Ltd, 2008, Project Staff**

The project consisted of an environmental sensitivity study (ESS) which, inter alia, highlighted the potential constraints ('red flags') and opportunities presented by the site from an environmental perspective. Responsible for compiling the ESS.



# Margaret Lowies

## Senior Environmental Scientist

Margaret is a senior environmental scientist currently based in Aurecon's Port Elizabeth office. She has over seven years of experience in environmental impact assessment (EIA) processes, water use licence applications, waste licence applications, environmental compliance auditing, mining permit applications, wetland assessments, due diligence assessments and water quality assessments. Most of these projects have been focussed at a municipal level within the various municipalities of the Eastern Cape, and her roles include both the technical work and overall project management. Her role as an environmental control officer (ECO) has also given her a very practical understanding of how projects of various scales are implemented.

She obtained a BSc degree in Geography and Environmental Management, a BSc in Geography (Hons) as well as an MSc degree in Geography from the University of Johannesburg, South Africa in 2008, 2010 and 2014 respectively. She is registered as an environmental assessment practitioner with the Environmental Assessment Practitioners Association of South Africa (EAPSA) and is a registered candidate natural scientist with the South African Council for Natural Scientific Professions (SACNASP). She is also member of the Institute of Waste Management of South Africa (IWMSA) and the South African affiliate of the International Association of Impact Assessment (IAIAsa).

### Qualifications

MSc Geography  
BSc (Geography and Environmental Management)  
BSc Geography (Hons)  
Environmental Assessment Practitioner, Interim Certification Board of Environmental Assessment Practitioners of South Africa  
Candidate Natural Scientist, South African Council for Natural Scientific Professions (SACNASP)  
Member, International Association for Impact Assessment (IAIAsa), South Africa  
Member, Institute of Waste Management of Southern Africa (IWMSA)

### Specialisation

Environmental Specialist

### Years in industry

7

### Languages

Afrikaans  
English

## Experience

### Training & Capacity Building

#### Working for Wetlands ECO training, South Africa,

Having worked on the planning cycles of the Working for Wetlands Programme for many years, Margaret provided training on the importance of implementing the appropriate mitigation measures during wetland rehabilitation. This was guided by her experience as an Environmental Control Officer.

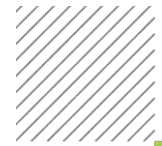
### Environmental Control Officer

#### Construction of Zone 7 municipal infrastructure to service the TNPA Tank Farm, Eastern Cape Province, South Africa, Coega Development Corporation (CDC), 10/2007 - 12/2025, Environmental Control Officer

The project involved the construction of roads, a stormwater detention pond and the installation of various services. Responsible for ensuring compliance with environmental assessment and CDC standard environmental specifications.

#### Dordrecht water and sanitation services upgrade, Eastern Cape Province, South Africa, Chris Hani District Municipality, 10/2015 - 12/2017, Environmental Control Officer

This project is divided into four future projects, which includes the construction of new sewage treatment facilities; the construction of new reticulation in Dordrecht; immediate water supply upgrades and long-term bulk water supply upgrades. Responsible for report review.



## Margaret Lowies Senior Environmental Scientist

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### **Northern outfall sewers, Mthatha, Eastern Cape Province, South Africa, Amatola Water - Amanzi, 06/2013 - 12/2017, Environmental Control Officer**

The project entailed consulting engineering, social facilitation and environmental services for the construction of the outfall sewers along the banks of the Mthatha River. This involved the installation of 1 200 mm diameter sewer pipes, crossing the river above ground and below the river bed level. The sewage will discharge into a 17 m-deep pump station, from where it will be pumped into the head of the existing wastewater treatment works (WWTW). The project also entailed the application for a water use licence application (WULA). Responsible for management of environmental site officer, report writing and WULA report/application review.

### **Construction of Graaff-Reinet solid waste site, Eastern Cape Province, South Africa, Camdeboo Local Municipality, 12/2010 - 12/2016, Environmental Control Officer**

The project comprised the construction of a new solid waste site outside Graaff-Reinet. Responsible for monitoring compliance with the environmental management plan (EMP) and record of decision (ROD).

### **Construction environmental management plan (EMP) for Ugie particle board plant, Eastern Cape Province, South Africa, PG Bison, 08/2006 - 08/2016, Environmental Control Officer**

The project entailed a construction environmental management plan (EMP), operation environmental management plan (OEMP), atmospheric emissions license (AEL) reviews and ongoing monitoring for the Ugie particle board plant. Responsible for operational compliance auditing.

### **Sidwadweni Bulk Regional Water Supply Scheme, Eastern Cape Province, South Africa, Amatola Water - Amanzi, 09/2012 - 07/2016, Environmental Control Officer**

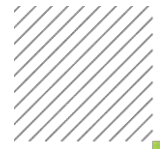
The project included the construction of river abstraction, raw water reservoir, water treatment works (WTW), clear water pump station and bulk supply mains for the Sidwadweni Bulk Regional Water Supply Scheme. Responsible for report review.

### **Idutywa East Water Supply Scheme (WSS), Eastern Cape Province, South Africa, Amathole District Municipality (ADM), 05/2006 - 12/2015, Environmental Control Officer**

Aurecon undertook the design and construction of the Idutywa East Water Supply Scheme (WSS) in the Eastern Cape Province. Responsible for ensuring environmental compliance and report review.

### **Khayamnandi housing development project, Eastern Cape Province, South Africa, Nelson Mandela Bay Metropolitan Municipality (NMBMM), 02/2011 - 01/2015, Environmental Control Officer**

The project entailed environmental services for the development of Khayamnandi extension on erven 114, 609, 590 and 24337, Bethelsdorp, including the construction of 7 960 residential stands, business stands and community facilities and supporting infrastructure. Responsible for overall environmental monitoring and inputs as well as compilation/review of monthly audit reports.



## Margaret Lowies Senior Environmental Scientist

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### **Cookhouse Wind Farm project, Eastern Cape Province, African Clean Energy Developments (ACED), 12/2012 - 12/2014, Environmental Control Officer**

Aurecon was appointed as owner's engineer for the construction of a 140 MW wind farm in the Eastern Cape Province of South Africa. The scope of services included design review, site supervision, environmental monitoring, health and safety monitoring and witnessing of commissioning and testing. The Cookhouse Wind Farm Stage 1 comprise 66 x Suzlon S88 2.1 MW wind turbines, associated roads and foundations, electrical reticulation, substation, supervisory control and data acquisition (SCADA) system as well as a 132 kV overhead line (OHL) to the Poseidon substation. The scope of owner's engineer services has been structured to align with the role and obligations of the owner's engineer defined in the draft engineering, procurement and construction (EPC) agreement for the project. Responsible for overseeing environmental compliance of the project including updating of the environmental management plan (EMP), approval of method statements, environmental authorisation and layout amendments, bi-weekly audits with a monthly environmental assessment (EA) and EMP compliance report.

### **Advisory**

### **Reconciliation strategy for Algoa Water Supply System (WSS), Eastern Cape Province, South Africa, Department of Water and Sanitation, 04/2016 - 03/2019, Environmental Specialist - Advisory**

The project objectives are to put arrangements and resources in place for the ongoing implementation of the recommendations and maintenance of the Algoa Reconciliation Strategy; to evaluate the efficiency of the Orange-Fish-River Project and to remove potential operating system constraints for the sustainable delivery of the Orange River bulk water supply to the Lower Sundays River Government Water Scheme (LSRGWS) and to Nelson Mandela Bay Municipality (NMBM) for water requirements up to 2040. In order to evaluate the efficiency of the Orange River Project Aurecon will estimate water use efficiency; determine catchment yields of the Fish and Sundays catchments; give recommendations for the phasing-out of current gratis allocations; identify potential water savings and provide options for re-allocation as well as confirm an official allocation from the Teebus Tunnel to the Orange-Fish System (OFS) in the Eastern Cape. While the focus is on providing additional balancing storage in addition to the Scheepersvlakte Balancing Dam, the provision of storage at other potential locations in the bulk transfer infrastructure must also be considered. Responsible for ad hoc advisory relating to environmental legislation compliance and general environmental matters.

### **Public Servant Association Social and Labour Plan (SLP), Eastern Cape Province, South Africa, Public Servant Association, 12/2010 - 02/2011, Environmental Assessment Practitioner**

The Social and Labour Plan (SLP) was done in order to obtain a mining right conversion for the Department of Mineral Resources (DMR) for the Gonubie Sand Mine. Responsible for compilation of SLP and communication with DMR.





## Margaret Lowies Senior Environmental Scientist

### Integrated Environmental Permitting (EIAs, EMPs and MMPs)

#### **Working for Wetlands Programme, Department of Environmental Affairs, 06/2011 - 04/2018, Environmental Assessment Practitioner - Coordinator of the Mpumalanga and Eastern Cape Provincial teams**

Aurecon was appointed in 2011, 2013 and then again in 2016 for a three-year cycle for the design, planning, environmental, project and risk management of the Working for Wetlands programme. The programme's objective is to rehabilitate damaged wetlands throughout South Africa, with an emphasis on complying with the principles of the Expanded Public Works Programme (EPWP) through employing only local small, medium and micro enterprises (SMMEs). Involvement included site work, a rehabilitation plan and basic assessment report to enable the rehabilitation of various wetlands within the Mpumalanga and Eastern Cape provinces. Responsible for coordination of provincial team (wetland specialist, engineer and DEA Assistant Director) and report writing.

#### **Motherwell North Bulk Sewer, Eastern Cape Province, South Africa, Nelson Mandela Bay Metropolitan Municipality (NMBMM), 12/2015 - 10/2017, Project Leader/Environmental Assessment Practitioner**

Aurecon was appointed to undertake environmental authorisations for the Motherwell North Bulk Sewer project. This included environmental impact assessment (EIA), heritage, water use licenses (WUL) and specialist studies for the 1.5 m diameter collector sewer of 10 km. Responsible for project management and review of report.

#### **Misgund augmentation bulk water supply, Eastern Cape Province, South Africa, Amatola Water - Amanzi, 01/2014 - 06/2017, Environmental Assessment Practitioner/Specialist**

The project entailed a study to determine the technical feasibility of bulk water supply in Misgund as per the Department of Water Affairs (DWA) guidelines for Regional Bulk Infrastructure Grant (RBIG) projects. Responsible for environmental impact assessment (EIA) process, water use licence application (WULA) and wetland assessment.

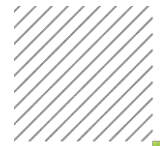
#### **Upgrading and permitting of the Klipplaat landfill site, Eastern Cape Province, South Africa, Ikwezi Local Municipality, 10/2011 - 06/2016, Environmental Assessment Practitioner**

The project involved the upgrading and permitting of the existing Klipplaat landfill site. This includes a scoping-environmental impact assessment (EIA) process as well as waste licence application process. Responsible for managing the EIA process, including public participation and report writing and review.

#### **Bende water supply scheme, Eastern Cape Province, South Africa, Amathole District Municipality, 05/2014 - 02/2015, Environmental Assessment Practitioner**

Aurecon was appointed for the environmental management for the proposed implementation of two rural water supply schemes at Bende and Shixini in the Eastern Cape Province. Responsible for report review, appointment of specialists and management of environmental impact assessment (EIA) process.

#### **Upgrading of National Route 61 Section 6 (R61/6) from All Saints (Km 68.5) to Section 7 - Baziya (Km 12), between Baziya and Queenstown, Eastern Cape Province, South Africa, South African National Roads Agency Limited**



## Margaret Lowies Senior Environmental Scientist

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### **(SANRAL), 04/2012 - 12/2014, Environmental Assessment Practitioner/Environmental Specialist**

Aurecon was appointed by Jeffares & Green (J&G), on behalf of the South African National Roads Agency Limited (SANRAL), to undertake an all environmental authorisation and public participation process (PPP) for the proposed road upgrade of National Route R61. The project involved the upgrading of a 36 km stretch of road as well as replacing five bridges. Responsible for project management, report writing and water quality specialist report.

### **Social impact assessment (SIA) for augmentation of the Driftsands collector sewer, Eastern Cape Province, South Africa, Nelson Mandela Bay Metropolitan Municipality (NMBMM), 08/2011 - 10/2011, Environmental Assessment Practitioner**

The project involved a survey of households in the Walmer Township that are impacted by the augmentation of the Driftsands sewer collector. Responsible for coordination of survey, capturing of data and report writing.

### **Other Environmental Permitting/ Management Projects**

- Churchill water treatment works (WTW), Eastern Cape Province, 03/2007 – 12/2020, Environmental Assessment Practitioner
- Upgrade of Brickfields pre-treatment works in Nelson Mandela Bay Metropolitan Municipality, 12/2010 – 07/2020, Environmental Assessment Practitioner
- Sewer maintenance backlog study for the Nelson Mandela Bay Metropolitan Municipality, Eastern Cape Province, South Africa, Nelson Mandela Bay Metropolitan Municipality (NMBMM), 10/2004 - 07/2020, Environmental Assessment Practitioner
- Environmental impact assessment for pipe upgrade of Eastbury Drive Sewer, KwaZulu-Natal Province, South Africa, eThekweni Municipality, 06/2016 - 05/2019, Environmental Assessment Practitioner
- Environmental services for upgrading of R75, Eastern Cape Province, South Africa, South African National Roads Agency Limited (SANRAL), 02/2015 - 02/2018, Project Leader/Environmental Assessment Practitioner
- Woodchem water use licence, Mpumalanga Province, South Africa, KAP Diversified Industrial (Pty) Ltd, 04/2016 - 07/2017, Environmental Specialist
- Environmental impact assessment (EIA) for Coega wastewater treatment works (WWTW), Eastern Cape Province, South Africa, Nelson Mandela Bay Metropolitan Municipality (NMBMM), 12/2014 - 05/2017, Project Leader/Environmental Assessment Practitioner
- Water use licence application (WULA) and wetland assessment for Grassridge to Melkhout 132 kV line, Eastern Cape Province, South Africa, Eskom SOC Ltd, 11/2014 - 12/2015, Environmental Specialist/Project Leader
- Proposed construction of the Ingquza Hill Museum - basic assessment, Eastern Cape Province, South Africa, National Department of Arts and Culture, 08/2013 - 10/2013, Environmental Assessment Practitioner

## **Appendix E**

### **ADDITIONAL INFORMATION**

## **Appendix E1**

### **EAP DECLARATION AND EXPERTISE**



# Jenny Youthed

## Environmental Practitioner

### Qualifications

PhD Geography  
MSc Geography  
BSc (Hons) Geography  
BSc Geography and Psychology  
BSc (Hons) Psychology  
Professional Member, Southern African Institute of Ecologists and Environmental Scientists (SAIEE)  
Member, International Association for Impact Assessment South African Affiliate (IAIAsa)

### Specialisation

Senior Environmental Practitioner

### Years in industry

21,25

Jenny is employed as a senior environmental practitioner in Aurecon's East London office. She has worked in both the consulting and government sectors, which has given her valuable knowledge of regulatory authority procedures. Her expertise includes environmental legislation, the environmental impact assessment (EIA) process, EIA reviews, monitoring, screening and feasibility studies.

Jenny obtained a Doctor of Philosophy in Geography in 2009 and a Bachelor of Science (Honours) in Psychology in 2003, both from the University of South Africa (UNISA). She obtained her Master of Science in Geography in 1996, her Bachelor of Science (Honours) in 1995 and a Bachelor of Science in 1994, all from Rhodes University, South Africa. She is a member of the International Association for Impact Assessment South Africa (IAIAsa) and a professional member of the Southern African Institute of Ecologists and Environmental Scientists (SAIEES).

## Experience

### **Establishment of the Amathole Mountain Biosphere Reserve (AMBR), Eastern Cape Province, South Africa, Amathole District Municipality (ADM), 02/2013 - Date, Project Leader**

The project involved consultative processes and awareness raising for the Amathole Mountain Biosphere Reserve (AMBR). Responsible for project management, report writing and presentations to the client as part of a team.

### **Upgrading of Woodchem's South African plan in Piet Retief, Mpumalanga Province, South Africa, 2012 - 2013**

Responsible for the basic assessment process and managing the project.

### **High-level fatal flaw screening for Kinira Dam in Matatiele, Eastern Cape Province, South Africa, Sektor Consulting Engineers (Pty) Ltd, 10/2012 - Date, Senior Environmental Practitioner**

Responsible for providing specialist environmental input to the project team and for drawing up the terms of reference (TOR) for the appointment of an independent environmental assessment practitioner.

### **Sidwadweni Regional Water Supply Scheme for Amatola Water, Eastern Cape Province, South Africa, Amatola Water - Amanzi, 09/2012 - Date, Environmental Engineer**

Aurecon was appointed to construct a river abstraction, raw water reservoir, water treatment works (WTW), clear water pump station and bulk supply mains for the Sidwadweni Regional Water Supply Scheme in order to supplement the Nqadu Dam Supply. A water reticulation network was also constructed to service the various communities to meet reconstruction and development programme (RDP) standards. Two alternative water supplies will be provided, which will



guarantee an uninterrupted water supply to the community. Responsible for providing environmental input, in conjunction with Amatola Water, to the project team.

**Environmental management for the Sundwana Water Supply Project, Eastern Cape Province, South Africa, HHO Africa, 02/2012 - 01/2014, Project Manager for the environmental impact assessment (EIA)**

The primary objective of this project was to provide bulk domestic water supply to the remaining communities in the Sundwana area, according to the reconstruction and development programme's (RDP's) standards. The secondary objective entailed the provision of a regional bulk supply to augment the water supply to the Nqabara north and south schemes, the Mhlohlozi scheme and the Mendu scheme. Aurecon's appointment entailed conducting the basic assessment and scoping processes in accordance with the requirements of the environmental impact assessment (EIA) regulations (R543 of June 2010), governing acts and departmental guidelines. Responsible for undertaking the scoping and EIA processes and liaising with specialists.

**Woodchem South Africa: Mkhondo, Mpumalanga Province, South Africa, 2012 - Date, Project Leader**

Responsible for undertaking and managing the atmospheric emissions licence (AEL) process.

**Working for Wetlands Programme for the Western Cape, Western Cape Province, South Africa, South African National Biodiversity Institute (SANBI), 08/2011 - 09/2013, Environmental Assessment Practitioner**

Aurecon was appointed to undertake the planning, design and environmental, project and risk management of the South African government's Working for Wetlands Programme. Aurecon assembled a team of wetland ecologists, environmentalists, hydrologists and engineers to repair and rehabilitate over 100 wetland sites in the Western Cape through the implementation of interventions, usually in the form of engineered structures. Appropriate hydrological assessments and engineering techniques were devised to enable design and construction, in many cases without anchoring in bedrock. Responsible for undertaking basic assessments, writing the rehabilitation report in conjunction with the project team, coordinating project team of wetland specialist, provincial wetland coordinator, specialist and engineer and liaising with the project director.

**Air emissions licence (AEL) applications for PG Bison in Boksburg, Gauteng Province, South Africa, PG Bison, 07/2011 - Date, Project Leader/Environmental Assessment Practitioner**

The project involved applying for an air emissions licence (AEL) in order to obtain environmental approval in terms of the National Environmental Management: Air Quality Act (No. 39 of 2004) (NEM: AQA). Responsible for compiling the necessary AEL application as well as the supporting documentation.

**Air emissions licence (AEL) applications for PG Bison in Ugie, Eastern Cape Province, South Africa, PG Bison, 07/2011 - Date, Project Leader/Environmental Assessment Practitioner**

The project involved applying for an air emissions licence in order to obtain environmental approval in terms of the National Environmental Management: Air Quality Act (No. 39 of 2004) (NEM: AQA). Responsible for compiling the necessary AEL application as well as the supporting documentation.

**Air emissions licence (AEL) applications for PG Bison in Piet Retief, Mpumalanga Province, South Africa, PG Bison, 07/2011 - Date, Environmental Assessment Practitioner**

The project involved applying for an air emissions licence (AEL) in order to obtain environmental approval in terms of the National Environmental Management: Air Quality Act (No. 39 of 2004) (NEM: AQA). Responsible for compiling the necessary AEL application, including the supporting documentation as well as ensuring that the AEL application ran in tandem with the required environmental impact assessment (EIA) application.



**Mvezo Bridge, Eastern Cape Province, South Africa, Department of Rural Development and Land Reform (DRDLR), 09/2010 - Date**

Responsible for undertaking monthly environmental audits to determine compliance with the environmental management plan (EMP).

**High-level feasibility study for the Alice urban regeneration strategy, Eastern Cape Province, South Africa, Amathole Economic Development Agency trading as Aspire, 06/2010 - Date, Environmental Specialist**

The client wished to investigate various options to stimulate the economic regeneration of the small town of Alice. A study team, including architects, a land use planner, engineer and environmental specialist, was assembled to assess the various development options presented by the client and the communities and to assist in implementing the selected options. Involved as a specialist on the study team and was responsible for providing environmental advice, assessing the proposed development options for environmental fatal flaws, giving environmental input into the high-level feasibility study and undertaking the necessary environmental processes to obtain the necessary environmental authorisation.

**High-level feasibility study for the Hamburg urban regeneration strategy, Eastern Cape Province, South Africa, Amathole Economic Development Agency trading as Aspire, 06/2010 - Date, Environmental Specialist**

The client wished to investigate various options to stimulate the economic regeneration of the small town of Hamburg. A study team, including architects, a land use planner, engineer and environmental specialist, was assembled to assess the various development options presented by the client and the community and to assist in implementing the selected options. Involved as a specialist on the study team and was responsible for providing environmental advice, assessing the proposed development options for environmental fatal flaws, giving environmental input into the high-level feasibility study and undertaking the necessary environmental processes to obtain necessary environmental authorisation.

**Working for Wetlands Programme for various provinces, Various provinces, South Africa, South African National Biodiversity Institute (SANBI), 12/2009 - 10/2011, Environmental Assessment Practitioner**

Aurecon was appointed to conduct the planning and implementation of rehabilitation interventions for the Working for Wetlands programme in the Gauteng, KwaZulu-Natal, Free State, Eastern and Western Cape, Limpopo and North West Provinces. The focus was on wetland conservation and poverty reduction through job creation and skills development. The project's key objective was to support and enable the protection, rehabilitation and sustainable use of South Africa's wetlands through cooperative governance and partnerships. The main work components included assessing wetland health for identification and prioritisation of remedial measures, obtaining environmental authorisation and undertaking the engineering design and site support for the implementation thereof. Responsible for undertaking basic assessments, writing the rehabilitation report in conjunction with the project team, coordinating the project team of wetland specialists, provincial wetland coordinator, specialist services, engineering and liaising with the project director.

**Sidwadweni Regional Water Supply Scheme, Phase V, Eastern Cape Province, South Africa, OR Tambo District Municipality, 12/2009 - Date, Senior Environmental Practitioner**

The Sidwadweni Regional Water Supply Scheme was split into five phases to allow for the spreading of the required funds over a number of financial years. Phase 5 included nine secondary reservoirs; 43 km of distribution mains; 135 km of village reticulation, including standpipes located so that no person has to walk more than 200 mm to a water source. A total of 22 villages/sub-villages, with a population of 23 500, would be served. Responsible for undertaking regular environmental audits to ensure continued compliance with environmental requirements.



**Relocation of a short cycle press for PG Bison, Mpumalanga Province, South Africa, PG Bison, 2009 - 2011, Environmental Assessment Practitioner**

The project entailed the undertaking of a basic environmental assessment in order to obtain environmental approval in terms of the environmental impact assessment (EIA) regulations. Responsible for the undertaking the basic environmental assessment.

**Blocked housing and breaking new ground (BNG) review process, Eastern Cape Province, South Africa, German Development Corporation/Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), 05/2009 - 07/2010**

The assignment involved two projects for research studies with the broad aim of establishing the extent of bottlenecks in the process of housing delivery in the province, and how these blockages could be corrected. Responsible for data collection and analysis and report writing in conjunction with the project team. Also responsible for presenting the results to the client's head of department (HOD).

**Desalination contractual investigation for Nelson Mandela Bay Metropolitan Municipality (NMBMM), Eastern Cape Province, South Africa, Nelson Mandela Bay Metropolitan Municipality (NMBMM), 12/2008 - 10/2010, Environmental Specialist**

Aurecon was appointed as lead consultant and project manager to assist the Nelson Mandela Bay Municipality (NMBM) to conduct a study into the contractual considerations associated with a bid to implement desalination as a source of salt in the Coega Industrial Development Zone (IDZ). This included conducting technical, financial, and legal reviews to guide the municipality in responding to the bid, and to determine the impact on water tariffs. Involved as a specialist on the study team and was responsible for the environmental input into the study.

**Ncera Macadamia Farming Project, Eastern Cape Province, South Africa, Ncera Macadamia Farming (Pty) Ltd, 06/2008 - 11/2013, Senior Environmental Practitioner**

A Section 24G application in terms of the National Environmental Management Act (Act No. 107 of 1998) (NEMA) was submitted to rectify the illegal commencement of the above project in East London. This is the first community-owned Macadamia plantation in the Eastern Cape. Responsible for compiling the act.

**Mncwasa bulk regional water supply scheme, Eastern Cape Province, South Africa, Amathole District Municipality (ADM), 04/2008 - 07/2010, Senior Environmental Practitioner**

The project involved an environmental impact assessment (EIA) for the establishment of a bulk water supply scheme with an off-channel storage dam and water treatment works (WTW) in order to supply water to communities in the Mncwasa area, which falls under the Mbashe Local Municipality. Responsible for all environmental aspects of the project.

**Study of sludge disposal options for the Nelson Mandela Bay Metropolitan Municipality (NMBMM), Eastern Cape Province, South Africa, Nelson Mandela Bay Metropolitan Municipality (NMBMM), 04/2008 - 04/2012, Environmental Specialist**

Nelson Mandela Bay Metropolitan Municipality (NMBMM) requested an investigation into the various options available to them for the disposal of sewage sludge. The study included legal, engineering, financial and environmental aspects. Involved as a specialist on the study team and was responsible for the environmental input into the study.

**Needs Camp - Kidd's Beach water supply pipeline, Eastern Cape Province, South Africa, Department of Agriculture, 2008 - Date, Senior Environmental Practitioner**

The project entailed the basic assessment process for the construction of a bulk water supply pipeline from an existing reservoir at Needs Camp to a new reservoir at Kidd's Beach. Appointed to undertake the required basic assessment process. Responsible for undertaking the environmental impact assessment (EIA) process.





**Environmental impact assessment (EIA) for the Dukathole Township infill development, Eastern Cape Province, South Africa, Maletswai Local Municipality, 09/2007 - 02/2011, Senior Environmental Practitioner**

Maletswai Local Municipality was in the process of formalising parts of Dukathole Township and appointed Aurecon to undertake the necessary basic assessment process. Responsible for undertaking scoping and the environmental impact assessment (EIA) processes.

**Sidwadweni Regional Water Supply Scheme, Phase IV, Eastern Cape Province, South Africa, OR Tambo District Municipality, 09/2007 - 06/2011, Senior Environmental Practitioner**

Responsible for undertaking regular environmental audits to ensure continued compliance with environmental requirements.

**Backlog review support for the Department of Environmental Affairs and Tourism (DEAT), Eastern Cape Province, South Africa, Department of Environmental Affairs and Tourism (DEAT), 2007 - 2008, Senior Environmental Practitioner**

Aurecon was appointed to assist the department with the review of outstanding environmental impact assessment (EIA) applications in terms of the Environment Conservation Act (Act No. 73 of 1989) (NEMA) in the Eastern Cape. Responsible for assisting in the evaluation and processing of these applications.

**Environmental auditing for PG Bison in Ugie, Eastern Cape Province, South Africa, PG Bison, 06/2007 - Date, Senior Environmental Practitioner**

The project involved undertaking independent environmental audits of PG Bison's compliance with its environmental management plans (EMPs) during the construction and operational phases of the development. Responsible for quarterly operational phase audits.

**Development of an operational environmental management plan (OEMP) for PG Bison, East London, South Africa, PG Bison, 06/2007 - Date, Senior Environmental Practitioner**

PG Bison requested assistance with developing an operational environmental management plan (OEMP) for a new particle board factory in Ugie. Responsible for assisting with the finalisation of the OEMP for the project.

**Sidwadweni Regional Water Supply Scheme, Phases I, II and III, Eastern Cape Province, South Africa, OR Tambo District Municipality, 11/2002 - Date, Senior Environmental Practitioner**

The first phase of the Sidwadweni Water Supply Scheme covered the construction of the water treatment works (WTW) and the bulk electrical supply to the WTW. The second phase encompassed the construction of all bulk distribution mains and reticulation to the first five villages on the eastern side of the works and the third phase dealt with the construction of bulk distribution mains and reticulation to the first six villages on the western side of the works. Responsible for undertaking regular environmental audits to ensure continued compliance with environmental requirements.

**Environmental auditing for the Needs Camp water supply scheme, Eastern Cape Province, South Africa, Buffalo City Metropolitan Municipality (BCMM), 05/2004 - 02/2009, Senior Environmental Practitioner**

The project involved the construction of a bulk water supply pipeline across the Buffalo River as well as a bulk supply reservoir. Responsible for audits on the project to ensure compliance with environmental requirements.



**Stream flow reduction licensing application assessment committee for afforestation applications, Eastern Cape Province, South Africa, Department of Water Affairs (DWA), 2004 - 2007, Senior Environmental Officer**

Appointed as a member of the committee that coordinates the approval of afforestation developments in the Eastern Cape. Responsible for commenting on environmental aspects, advising on environmental impact assessment (EIA) processes and facilitating dovetailing of the various environmental approval processes.

**Incident management system (IMS) for National Route 6 (N6) between Queenstown and Aliwal North, Eastern Cape Province, South Africa, Chris Hani District Municipality (CHDM), 2000, Senior Environmental Officer**

Responsible for providing input into the development of an incident management system (IMS) for the section of National Route 6 (N6) between Jamestown and Aliwal North. Included in this plan were the environmental actions that needed to be taken in the event of an incident, such as a tanker fuel spill.

**Integrated development plans (IDPs) for municipalities within the Chris Hani and Ukhahlamba municipal areas, Eastern Cape Province, South Africa, Various municipalities within the Chris Hani and Ukhahlamba District Municipalities, 1999 - 2007, Senior Environmental Officer**

Appointed as a representative of the provincial environmental authority. Responsible for providing environmental input into the integrated development plan IDP processes for the municipalities.

**Review of applications submitted in terms of the environmental impact assessment (EIA) regulations, Eastern Cape Province, South Africa, Department of Economic Development and Environmental Affairs (DEDEA), 1997 - 2007, Environmental Officer**

Appointed as environmental officer at the Department of Economic Development and Environmental Affairs (DEDEA) in Queenstown. Key projects included the Beta-Delphi 800 kv line between Bloemfontein and Queenstown; the 66 kv line between Ugie and Qumbu; above and underground fuel storage; impact assessments for the construction of filling stations; PG Bison particle board plant at Ugie; golf estate at Zwartbosch; low-income township development applications; release of organisms for biological control; national environmental impact assessment (EIA) applications for the release of biological control agents; upgrading of Tiffindell Ski Resort; construction and upgrading of the Ugie-Langeni, Cala-Lady Frere and Maclear-Mount Fletcher roads; sewage treatment works (STWs) EIAs for Engcobo, Ugie, Maclear, Hofmeyer and Barkly East; telecommunications towers for Telkom, Vodacom, MTN, Cell C, Sentech and the South African Police Service (SAPS); waste disposal site EIAs for Lady Grey, Aliwal North, Steynsburg, Queenstown, Molteno, Sterkstroom, Ugie and Maclear; scoping reports for water supply schemes to villages in the Chris Hani and Ukhahlamba District municipal areas and the construction of dams at Jamestown, Barkly East, Maclear and Mount Fletcher. Tasks included reviewing over 500 EIA reports, undertaking site inspections, holding meetings with clients and drawing up the necessary records of decision (RoDs).

**Review of environmental management plans (EMPs), Eastern Cape Province, South Africa, Department of Economic Development and Environmental Affairs (DEDEA), 1997 - 2007, Environmental Officer**

Appointed as environmental officer at the Department of Economic Development and Environmental Affairs (DEDEA) in Queenstown. Responsible for reviewing environmental management plans (EMPs), including the PG Bison development at Ugie; the upgrading of Tiffindell Ski Resort and EMPs for water supply schemes, road upgrades and telecommunication masts. Also responsible for reviewing environmental management programme reports (EMPRs), including the prospecting of coal near Indwe; the development of a hard rock quarry between Maclear and Mount Fletcher; the establishment of borrow pits and sand mining. Responsible for assessing over 20 as required in terms of the environmental impact assessment (EIA) regulations as well as reviewing and providing comments on the EMPRs submitted to the provincial environmental authority for comment by the Department of Minerals and Energy (DME).





## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

### DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

|                        | (For official use only) |
|------------------------|-------------------------|
| File Reference Number: |                         |
| NEAS Reference Number: | DEA/EIA/                |
| Date Received:         |                         |

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

#### PROJECT TITLE

**Working for Wetlands Programme**

#### Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

#### Departmental Details

##### Postal address:

Department of Environmental Affairs  
Attention: Chief Director: Integrated Environmental Authorisations  
Private Bag X447  
Pretoria  
0001

##### Physical address:

Department of Environmental Affairs  
Attention: Chief Director: Integrated Environmental Authorisations  
Environment House  
473 Steve Biko Road  
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:  
Email: [EIAAdmin@environment.gov.za](mailto:EIAAdmin@environment.gov.za)

## 1. ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP) INFORMATION

|  |  |       |                                    |
|--|--|-------|------------------------------------|
| EAP Company Name:                      | <b>Aurecon South Africa (Pty) Ltd</b>                                      |       |                                    |
| B-BBEE                                 | Contribution level (indicate 1 to 8 or non-compliant)                      | 1     | Percentage Procurement recognition |
|  |  |       | 135                                |
| EAP name:                              | Jennifer Gay Youthed   |       |                                    |
| EAP Qualifications:                    | PhD Environmental Management   |       |                                    |
| Professional affiliation/registration: | South African Institute of Ecologists & Environmental Scientists<br>IAIAsa |       |                                    |
| Physical address:                      | 1 Pearce Street, East London, 5241   |       |                                    |
| Postal address:                        | PO Box 19553, Tecoma,  |       |                                    |
| Postal code:                           | 5214   | Cell: | -                                  |
| Telephone:                             | 043 721 0900   | Fax:  | -                                  |
| E-mail:                                | Jenny.youthed@aurecongroup.com   |       |                                    |

The appointed EAP must meet the requirements of Regulation 13 of GN R982 of 04 December 2014, as amended.

## 2. DECLARATION BY THE EAP

I, Jennifer Gay Youthed, declare that –

- I act as the independent environmental assessment practitioner in this application;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I will take into account, to the extent possible, the matters listed in Regulation 13 of the Regulations when preparing the application and any report relating to the application;
- I undertake to disclose to the applicant and the Competent Authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the Competent Authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the Competent Authority, unless access to that information is protected by law, in which case it will be indicated that such information exists and will be provided to the Competent Authority;
- I will perform all obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I am aware of what constitutes an offence in terms of Regulation 48 and that a person convicted of an offence in terms of Regulation 48(1) is liable to the penalties as contemplated in Section 49B of the Act.

**Disclosure of Vested Interest (delete whichever is not applicable)**

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations;

  
\_\_\_\_\_  
Signature of the Environmental Assessment Practitioner

Aurecon  
\_\_\_\_\_  
Name of Company:

27 August 2019  
\_\_\_\_\_  
Date

**3. UNDERTAKING UNDER OATH/ AFFIRMATION**

I, Jennifer Gay Youthed, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.

  
\_\_\_\_\_  
Signature of the Environmental Assessment Practitioner

Aurecon  
\_\_\_\_\_  
Name of Company

27 August 2019  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Signature of the Commissioner of Oaths



27 August 2019  
\_\_\_\_\_  
Date

## **Appendix E2**

### **SPECIALIST DECLARATION AND EXPERTISE**



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

|  |
|--|
|  |
|  |
|  |

### DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

|                        |   |
|------------------------|---|
| File Reference Number: | (For official use only)<br>12/12/20/ or 12/9/11/L |
| NEAS Reference Number: | DEA/EIA   |
| Date Received:         |   |

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

### PROJECT TITLE

Working for Wetlands Rehabilitation Programme: Eastern Cape

|                                      |  |       |              |
|--------------------------------------|--|-------|--------------|
| Specialist:                          | Craig Cowden   |       |              |
| Contact person:                      | Craig Cowden   |       |              |
| Postal address:                      | 9 Quarry Road, Hilton  |       |              |
| Postal code:                         | 3245   | Cell: | 082 748 8522 |
| Telephone:                           | 033 343 2229   | Fax:  | 086 599 2300 |
| E-mail:                              | craig@groundtruth.co.za  |       |              |
| Professional affiliation(s) (if any) | South African Council for Natural Scientific Professions<br>Registration Number: 400197/05 |       |              |

|                     |                                 |       |              |
|---------------------|---------------------------------|-------|--------------|
| Project Consultant: | Aurecon South Africa Pty (Ltd)  |       |              |
| Contact person:     | Claire Blanché                  |       |              |
| Postal address:     | PO Box 494                      |       |              |
| Postal code:        | 8000                            | Cell: | 082 445 5438 |
| Telephone:          | 021 526 6937                    | Fax:  | 021 526 9500 |
| E-mail:             | Claire.Blanche@aurecongroup.com |       |              |

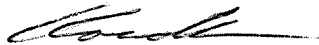


4.2 The specialist appointed in terms of the Regulations\_

I, Craig Cowden , declare that --

General declaration:

I act as the independent specialist in this application;  
I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;  
I declare that there are no circumstances that may compromise my objectivity in performing such work;  
I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;  
I will comply with the Act, Regulations and all other applicable legislation;  
I have no, and will not engage in, conflicting interests in the undertaking of the activity;  
I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;  
all the particulars furnished by me in this form are true and correct; and  
I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



Signature of the specialist:

Ground Truth

Name of company (if applicable):

18/01/2019

Date:

## Curriculum Vitae – Craig Cowden

### Personal Details:

Name: Craig Cowden  
Profession: Wetland Ecologist  
Date of Birth: 14 March 1978  
Nationality: South African



### Key Qualifications:

Seventeen years' experience in ecosystem functioning and management, specializing in wetland ecosystems. Involvement in a variety of studies to determine practical and applied ecological solutions. Specialist input into various studies, focusing on:

- Mapping and infield delineation of wetland habitat within various regions of Southern Africa, including South African provinces of KwaZulu-Natal, Mpumalanga, Free State, Eastern Cape and Gauteng, and Lesotho for inventory and management purposes.
- Assessment of various wetland ecosystems to highlight potential impacts, within current and proposed landscape settings, and recommend appropriate mitigation and offsets based on assessing wetland ecosystem service delivery (functioning) and ecological health/integrity.
- Assessment of various wetland ecosystems to plan appropriate wetland rehabilitation activities and performance evaluation and monitoring of wetland rehabilitation projects.
- Literature reviews and research relating to impacts, best management practices, promoting biodiversity, monitoring and evaluating rehabilitation within wetland ecosystems.

### Education and Training:

- 2017 MSc (Environmental Science) Rhodes University, Grahamstown. MSc has been accepted pending corrections.
- 2017 Wetland Delineation Course - Wetland Training Institute, Convington (Louisiana), USA.
- 2017 Natural Processes for the Restoration of Drastically Disturbed Sites. VII World Conference on Ecological Restoration, Foz do Iguassu, Brazil, August 26, 2017.
- 2015 A Methodology for Determining Buffer Zones for Rivers, Wetlands and Estuaries. National Training and Development Workshop, Pretoria, Gauteng, November 24-25, 2017.
- 2005 Wetland Assessments to Inform Wetland Rehabilitation Planning - University of KwaZulu-Natal.
- 2001 Forest Certification Course - SGS Qualifor.
- 2001 Wetland Rehabilitation Planning and Implementation - Mondi Wetlands Project.
- 1999 B.Sc. (Agriculture) University of Natal, Pietermaritzburg – Four-year Degree (Honours equivalent), majoring in Wildlife Science & Zoology.

### Professional Memberships:

- Professional Natural Scientist (Pr.Sci.Nat) in Ecological Science - The South African Council for Natural Scientific Professions (Reg. No. 400197/05)
- Founding Member - South African Wetland Society
- Member -Society of Wetland Scientists (International)
- Member -Society of Ecological Restoration (International)

### Professional Awards:

- National Wetland Award under the "Stewardship" category awarded in 2013 in recognition of the wetland rehabilitation associated with the Greater Edendale Mall development.
- Mondi Wetlands Programme acknowledgment of "Contributions towards wetland conservation" awarded in 2012.

### Experience Record:

2009 to Present: GroundTruth (GT) - Management of the wetland division within GT.

2001 to 2009: Land Resources International (LRI) - Management of the environmental division within LRI.

### Examples of Projects:

- Implementation of wetland rehabilitation planning in various provinces, including KwaZulu-Natal, Mpumalanga, Limpopo, Gauteng, Free State and Western Cape for the Working for Wetlands Programme from 2005-2012, 2016-2018.
- Wetland specialist input and support to Burundi Nature Action and Association pour la Conservation de la Nature au Rwanda on behalf of the International Union for the Conservation of Nature – Netherlands Committee.
- Assessments of impacted wetland systems and rehabilitation planning to inform the offset requirements for proposed development at the Cascades Mall in Pietermaritzburg.
- Assessments of impacted wetland systems and rehabilitation planning to inform the offset requirements for Exxaro coal mining operations.
- Assessment of wetland systems potentially affected by the proposed expansion of Lumwana Mine near Solwezi, Zambia on behalf of SRK Consultants.
- Water Research Commission research project on developing a monitoring and evaluation framework to assess wetland rehabilitation in South Africa.

## Publications

- **Cowden C**, Kotze DC, Ellery WN & Sieben EJJ. 2014. *Assessment of the long-term response to rehabilitation of two wetlands in KwaZulu-Natal, South Africa*. African Journal of Aquatic Science, Vol. 39, No. 3.
- Rivers-Moore NA, **Cowden C**. 2012. *Regional prediction of wetland degradation in South Africa*. *Wetlands Ecology and Management*, DOI 10.1007/s11273-012-9271-5.
- Macfarlane DM, Walters D & **Cowden C**, 2011. A wetland health assessment of KZN's priority wetlands. Draft Unpublished Report prepared for Ezemvelo KZN Wildlife, Pietermaritzburg.
- **Cowden C** & Kotze DC, 2009. WET-RehabEvaluate: Guidelines for the monitoring and evaluation of wetland rehabilitation projects. WRC Report No. TT 342/08, Water Research Commission, Pretoria.
- Kotze DC, **Cowden C**. 2009. KZN Biodiversity Stewardship Programme: Guidelines for the *in situ* Management of Ecosystems in KwaZulu-Natal, according to Biodiversity Conservation Principles – Wetlands. Unpublished Report prepared for Ezemvelo KZN Wildlife by Land Resources International, Pietermaritzburg.
- **Cowden C**, Ellery W, Kotze D, Grenfell M, McCulloch D, Woods D, Grenfell S, Bambus O. 2009. *Performance evaluation of the wetland rehabilitation undertaken at Killarney Wetland in Ntsikeni Nature Reserve, KwaZulu-Natal Province* **In** Kotze DC, Ellery WN. 2009. *WET-OutcomeEvaluate: An Evaluation of the rehabilitation outcomes at six wetland sites in South Africa*. WRC Report No. TT 343/09. Water Research Commission, Pretoria.

## Conference Presentations:

- **Cowden C**, Kotze D, Walters D, Browne B. Monitoring and evaluation framework for wetland restoration in South Africa, using an urban wetland case study. *Presented during VII World Conference on Ecological Restoration*. Foz do Iguassu, Brazil, August 28 - September 1, 2017.
- **Cowden C**. Wetland specialist input into the Working for Wetlands rehabilitation planning cycle. 21<sup>st</sup> National Wetlands Indaba, Hoedspruit, Mpumalanga, October 25-28, 2016.
- **Madikizela B**, Cowden C, Kotze D, Ellery W. *Documenting lessons and refining the wetland restoration field of practice in South Africa: The response of two wetlands to Working for Wetlands Restoration*, *Presented during V World Conference on Ecological Restoration*. Wisconsin, USA, September 6-11, 2013.
- **Cowden C**, Kotze D, Ellery W. *Assessment of the long-term response of specific wetlands to rehabilitation interventions by Working for Wetlands*, 17<sup>th</sup> National Wetlands Indaba. Klein Kariba, Limpopo, October 23-26, 2012.
- **Cowden C**. *Urban Wetland Rehabilitation: A KwaZulu-Natal Case Study*, 16<sup>th</sup> National Wetlands Indaba. Didima, KwaZulu-Natal, October 18-21, 2011.

## **Appendix E3**

### **WETLAND FORUM MEETING MINUTES**



| <b>PROVINCIAL WETLANDS FORUM MEETING</b><br><b>Minutes of the Meeting</b><br><b>Held at DEDEAT offices in King Williams Town</b><br><b>At 10H00 ON THE 11<sup>th</sup> of September 2018</b> |  |                                |
|--|--|--------------------------------|
|  | <b>CHAIRPERSON : Mr. B. Mzamo</b><br><b>SECRETARIAT : V. Banzi</b><br><b>Z.Ngxowa</b>  |                                |
|  | <b>AGENDA ITEMS</b>  | <b>RESPONSIBLE OFFICIAL(S)</b> |
| <b>1.</b>  | <b>OPENING, INTRODUCTION AND WELCOMING</b><br>The chairperson declared the meeting officially opened. He welcomed everyone present at the meeting and allowed a round of introductions to everyone.  | B. Mzamo                       |
| <b>2.</b>  | <b>ATTENDANCE REGISTER AND APOLOGIES</b> <ul style="list-style-type: none"> <li>• <b>Attendance:</b> Attendance Register was circulated in the meeting</li> <li>• <b>Apologies:</b> Unathi Makati (DEA) – site inspections; Shane October (ECPTA)- attending a meeting at ADM; Noluthando Bam (DEDEAT) – meeting with HOD; Mbulelo Xalu (DEDEAT) – attending meeting in North West.</li> </ul> | All                            |
| <b>3</b>   | <b>ADOPTION OF THE AGENDA</b> <ul style="list-style-type: none"> <li>• The proposed agenda was adopted by Hennie and seconded by Sino as the working agenda for the day.</li> </ul>  | All                            |
| <b>4</b>   | <b>MINUTES OF THE PREVIOUS MEETING</b><br><br><b>4.1 MINUTES READING</b> <ul style="list-style-type: none"> <li>• The minutes of the last meeting were read as the true reflection of the proceedings of the last meeting.</li> </ul> <b>4.2 MATTERS ARISING</b><br><br><b>4.2.1 WORKING FOR WETLANDS</b>  | All                            |



|   |   |        |
|---|---|--------|
| 5   | <p>Sarah Baartman Region</p> <ul style="list-style-type: none"> <li>• Kromme River: maintenance of the structures</li> <li>• Tsitsikamma: maintenance of the structures.</li> <li>• Baviaanskloof: new ROD to be conducted.</li> <li>• No new projects on the western side that have been approved</li> </ul> | Hennie |
|   | <p>Amathole Region</p> <ul style="list-style-type: none"> <li>• Western side of Seymour has been spotted on google maps. There will be a site visit on the 25<sup>th</sup> of September to explore and evaluate the situation.</li> </ul>   | Eric   |
|   | <p><b>4.2.2 DEDEAT (EES)</b></p> <ul style="list-style-type: none"> <li>• Buntu was to attend EES next meeting. No meeting has been held, thus matter is still on going.</li> </ul>   | Buntu  |
|   | <p><b>5.2 FEEDBACK FROM WETLAND TRAINING</b></p> <ul style="list-style-type: none"> <li>• Farmers that were part of the training should be included in the forum. They will be invited in the next meeting.</li> </ul>  | All    |
|   | <p><b>5.3 AOB</b></p> <p>Terms of reference will be circulated once Buntu sends them to the secretariat.</p>  | All    |
|   | <p><b>4.3 ADOPTION OF PREVIOUS MINUTES</b></p> <ul style="list-style-type: none"> <li>• The minutes were adopted by Hennie.</li> </ul>  |        |
| <p><b>NEW ITEMS</b></p> <p><b>5.1 Reports from stakeholders</b></p> |   |        |



|  |   |                             |
|--|---|-----------------------------|
|  | <p><b>5.1.1 DEDEAT (OR TAMBO)</b></p> <ul style="list-style-type: none"> <li>No burning issues for the present moment.</li> </ul> <p><b>5.1.2 BUFFALO CITY MUNICIPALITY</b></p> <ul style="list-style-type: none"> <li>Rehabilitation of John Dube (Scenary Park in East London) by Mathongo Lamani. Wetland strategy developed in conjunction with ICLEI and John Dube Wetland was identified. Wetland currently being used as a dumping site. Wetland was used as a recreational area and the municipality seeks to restore the situation. Project divided into three phases: clearing, assessment and rehabilitation. Project is still in planning phase and any suggestions are welcome.</li> <li>It was suggested by the forum that the community must form part of the planning so they can take ownership of the project. Mr Qonya must link the municipality with DEDEAT EES. In planning meeting that was held, it was decided that BCM EES will liaise with DEDEAT EES. The counselor and the community have committed themselves to be part and parcel of the project.</li> <li>Illegal dumping is still ongoing but money has been allocated for the clearing during phase 1 of the project. The wetland is a pit with various pollutions. Asbestos was even found in the wetland. There is also rabble.</li> <li>German company have developed disposable nappies that are biodegradable but currently those nappies are expensive. The nappies degrade in 6 months</li> <li><b>Secretariat requested that all reports be sent via e-mail to them in order to include them in the minutes.</b></li> </ul> <p><b>5.1.3 DEDEAT (JOE GQABI)</b></p> <ul style="list-style-type: none"> <li>Chevy Chase wetland in Mount Fletcher. Previously used for agricultural purposes but department intervened and activities were stopped. Wetland is now used for grazing by the community as it is a seasonal wetland.</li> </ul> | <p>Mathongo</p> <p>Jane</p> |
|--|---|-----------------------------|



|  |  |  |
|--|--|--|
|  | <ul style="list-style-type: none"> <li>Wetland along R56 from Mount Fletcher. Community had used the wetland as a dumping site but after awareness was conducted by the department the situation improved.</li> <li>Mount Fletcher wetland in private land where farmer is using the wetland for dumping old cars. The region asked for recommendations on how to proceed since the activity is in a wetland.<br/><b>Resolution:</b> region to liaise with compliance with regard to the situation so that the owner can stop the activity.</li> <li><b>Resolution:</b> Water Affairs should be part of the forum as well as affected municipalities where illegal dumping on wetlands is abound. Communities state that the municipalities are not picking up their waste and they resort to dump in the wetland. Water Affairs are part of the mailing list but no one responds. Invitation for the next meeting will be sent to them again for their representation in the forum.</li> <li><b>Secretariat requested that all reports be sent via e-mail to them in order to include them in the minutes</b></li> </ul> <p><b>5.1.4 DEDEAT (CHRIS HANI)</b></p> <ul style="list-style-type: none"> <li>Proposed Fuel Station in St Marks, Cofimvaba. There is a wetland near the proposed site. The primary site was rejected and the alternate site for the project will be inspected. The inspection is scheduled for the 20<sup>th</sup> of September and will include DEDEAT, Water &amp; Sanitation and Earth Free Environmental Consulting. Report will be given in next meeting.</li> <li>Wetland inventory for the region will be conducted. This will be on a finer scale.</li> <li>The forum made mention of the ECBCP where wetlands included in the plan. Department will workshop the plan in all the regions, Buntu will send the dates when they are released.</li> </ul> | <p>Vuyokazi</p> <p>All</p> <p>Viwe</p> |
|--|--|--|





**5.1.5 DEDEAT (SARAH BAARTMAN)**

Gamtoos River Mouth has closed for the first time in 50 years and the water levels have affected salt marsh wetlands. Artificial breaching of the estuary will occur sometime during the week because the berm is now too high.

Hennie

**5.1.6 DEDEAT (AMATHOLE)**

- Leiches Bay - Communities use the wetland as a food source. Questions put forward by the forum on this matter: Is DRDAR aware that the Leiches Bay wetland has consumable resources? If so, are they managing the situation? Mr Qonya to liaise with DRDAR regarding the matter.  
Is there a permit or license that is issued for harvesting of resources in a wetland? Whose mandate is to manage the resource? Matter to be investigated further.
- Ncera wetland: development on the wetland near R72. Builder to construct a wall to stop water from wetland. He says that he was given the site by the community.
- Chalumna sand mining on a wetland. DMR and DEDEAT intervened and now the activity has stopped.
- Seymour wetland rehabilitation: black wattle has invaded the wetland once more; no maintenance of the wetland was done after the rehabilitation.
- Hogsback rehabilitation: new structures will be put into place that will replace the old structures.

Eric


**5.2 NATIONAL WETLANDS INDABA**

- The Indaba will be held on 8 - 11 October in Kimberly. A presentation is to be given by the Forum.



|    |   |       |
|----|---|-------|
|    | <ul style="list-style-type: none"> <li>The presentation will give an overview of the forum and its representation, training, how many meetings, successes and challenges. Previous presentations from stakeholders can be made use of. Also include pictures of benefits of wetlands (making of baskets, food ect). 9 officials from DEDEAT will be attending the Indaba.</li> <li>Presentation must be circulated to the members before the Indaba for inputs by the 28th of September.</li> </ul> <p><b>5.3 AOB</b></p> <ul style="list-style-type: none"> <li>Institutions of higher learning must be incorporated in the forum.</li> <li>Water Affairs have to be included in the forum. Issues discussed in forum affect their mandate. We must get relevant contact persons from WA.</li> </ul> | All   |
| 6. | <p><b>DATE OF NEXT MEETING</b></p> <ul style="list-style-type: none"> <li>Next meeting to be held on the 5<sup>th</sup> of September in East London at the DAFF offices.</li> </ul>   | All   |
| 7  | <p><b>7. CLOSURE</b></p> <ul style="list-style-type: none"> <li>Chairperson thanked everyone for attending the meeting.</li> </ul>  | Buntu |

Compiled by: V. Banzi  
Z. Ngxowa

  
.....  
Secretariat

Endorsed by: B. Mzamo

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# APPENDIX F

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## SCREENING TOOL REPORTS

# APPENDIX F1

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## SCREENING REPORTS

**SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION OR  
FOR A PART TWO AMENDMENT OF AN ENVIRONMENTAL AUTHORISATION  
AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE  
ENVIRONMENTAL SENSITIVITY**

**EIA Reference number:**

**Project name:** Amethole Wetland Rehabilitation

**Project title:** Wetland S32E-01

**Date screening report generated:** 09/10/2019 06:46:24

**Applicant:** Working for Wetlands

**Compiler:** Aurecon SA (Pty) Ltd

**Compiler signature:**

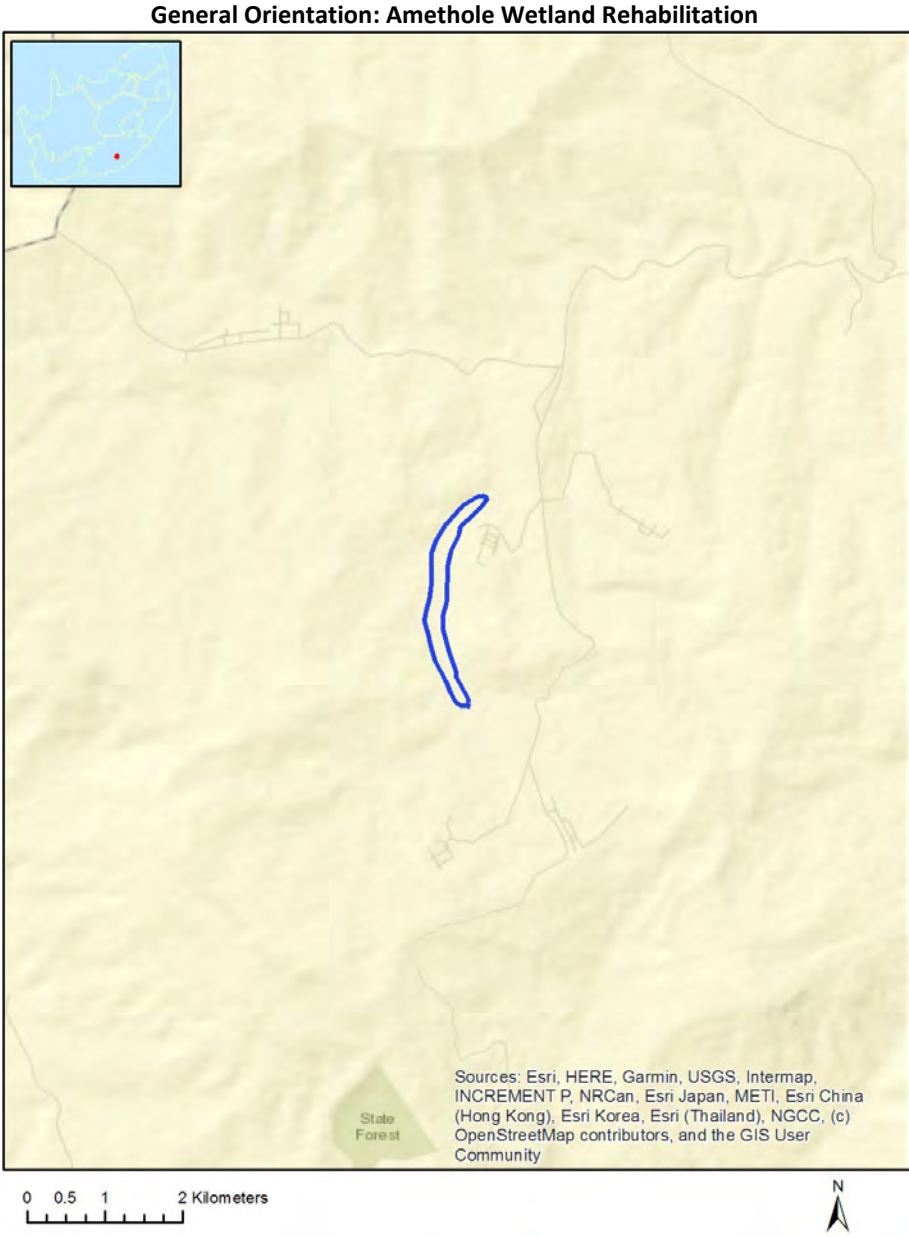
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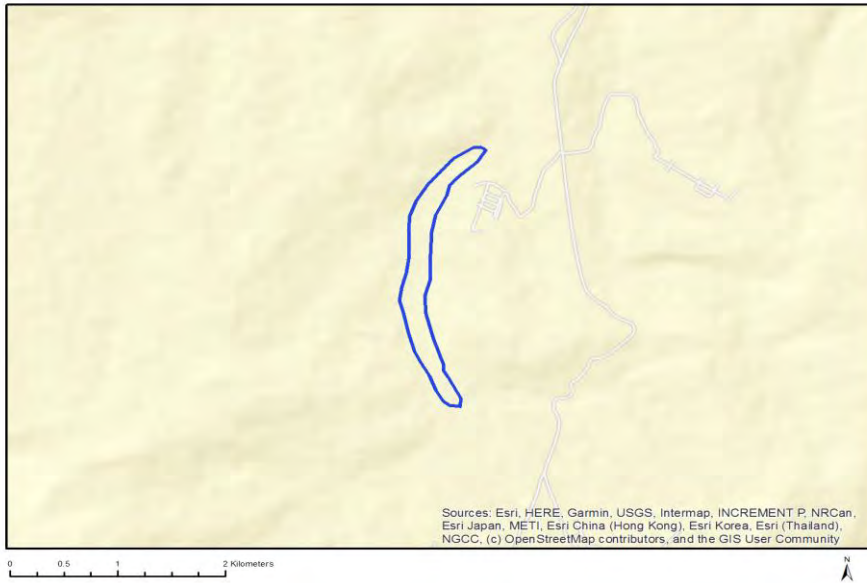
# Proposed Project Location

Orientation map 1: General location





## Map of proposed site and relevant area(s)



## Cadastral details of the proposed site

Property details:

| No | Farm Name | Farm/ Erf No | Portion | Latitude     | Longitude    | Property Type |
|----|-----------|--------------|---------|--------------|--------------|---------------|
| 1  | OTTERBURN | 99           | 0       | 32°25'53.69S | 26°47'20.14E | Farm          |
| 2  | OTTERBURN | 99           | 1       | 32°26'11.66S | 26°46'9.23E  | Farm Portion  |
| 3  | OTTERBURN | 99           | 2       | 32°25'48.89S | 26°46'57.83E | Farm Portion  |

Development footprint<sup>1</sup> vertices:

No development footprint(s) specified.

## Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No nearby wind or solar developments found.

## Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

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<sup>1</sup> “development footprint”, means the area within the site on which the development will take place and includes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

## Environmental screening results and assessment outcomes

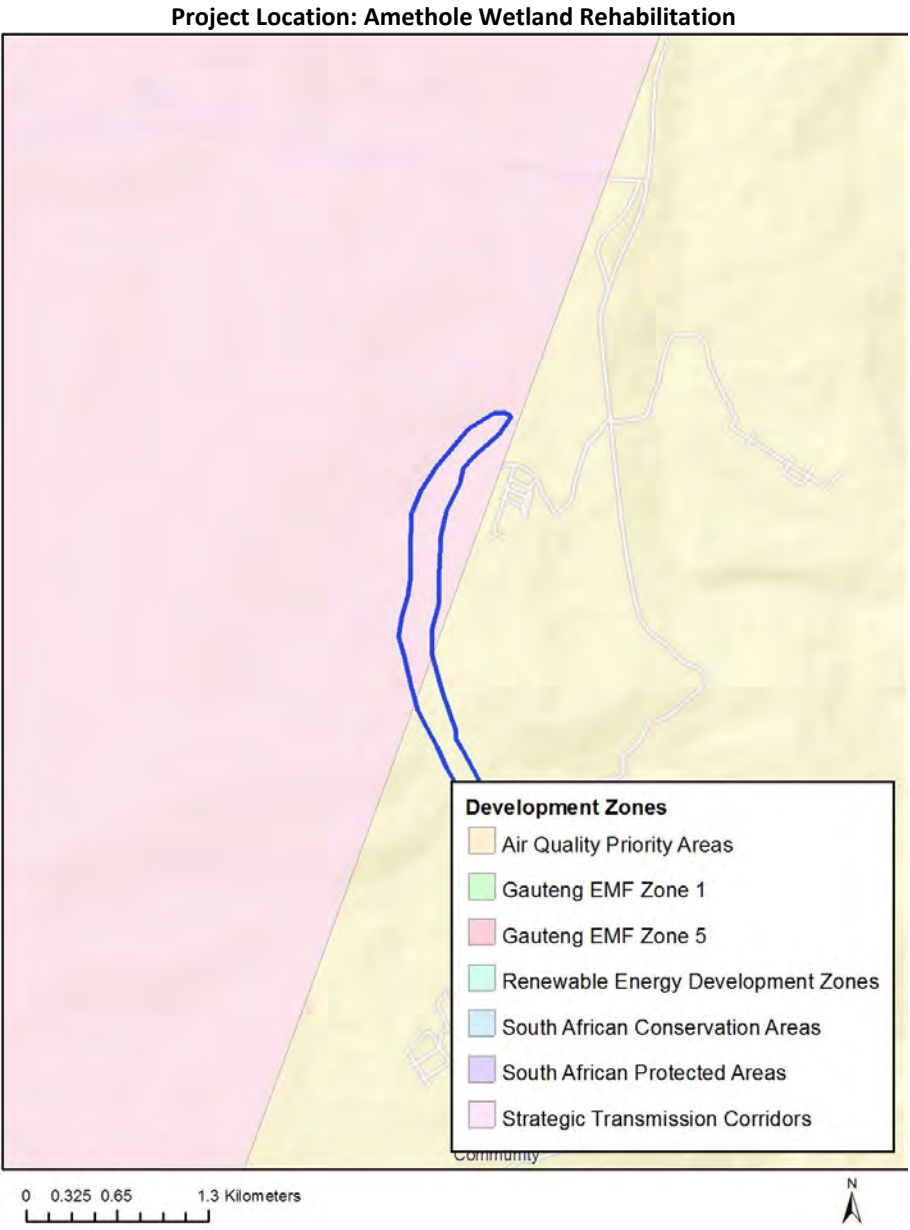
The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is:  
Any activities within or close to a watercourse | Any activities within or close to a watercourse.

### Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

| <b>Incentive, restriction or prohibition</b>     | <b>Implication</b>  |
|--|---|
| Strategic Transmission Corridor-Eastern corridor | <a href="https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/GNR_350_of_13_April_2017.pdf">https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/GNR_350_of_13_April_2017.pdf</a> |

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones



**Proposed Development Area Environmental Sensitivity**

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

| Theme                | Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|----------------------|-----------------------|------------------|--------------------|-----------------|
| Agriculture Theme    |                       | X                |                    |                 |
| Aquatic Biodiversity |                       |                  |                    | X               |

|                                |   |   |   |   |
|--------------------------------|---|---|---|---|
| Theme                          |   |   |   |   |
| Civil Aviation Theme           |   |   |   | X |
| Paleontology Theme             |   | X |   |   |
| Plant Species Theme            |   |   | X |   |
| Defence Theme                  |   |   |   | X |
| Terrestrial Biodiversity Theme | X |   |   |   |

### Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

| N o | Specialist assessment                                  | Assessment Protocol   |
|-----|--|---|
| 1   | Landscape/Visual Impact Assessment                     | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 2   | Archaeological and Cultural Heritage Impact Assessment | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 3   | Palaeontology Impact Assessment                        | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 4   | Terrestrial Biodiversity Impact Assessment             | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf</a> |
| 5   | Aquatic Biodiversity Impact Assessment                 | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Aquatic_Biodiversity_Assessment.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Aquatic_Biodiversity_Assessment.pdf</a>                             |
| 6   | Hydrology Assessment                                   | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 7   | Socio-Economic   | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |

|   |                           |   |
|---|---------------------------|---|
|   | Assessment                |   |
| 8 | Plant Species Assessment  | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a> |
| 9 | Animal Species Assessment | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a> |

## Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

### MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

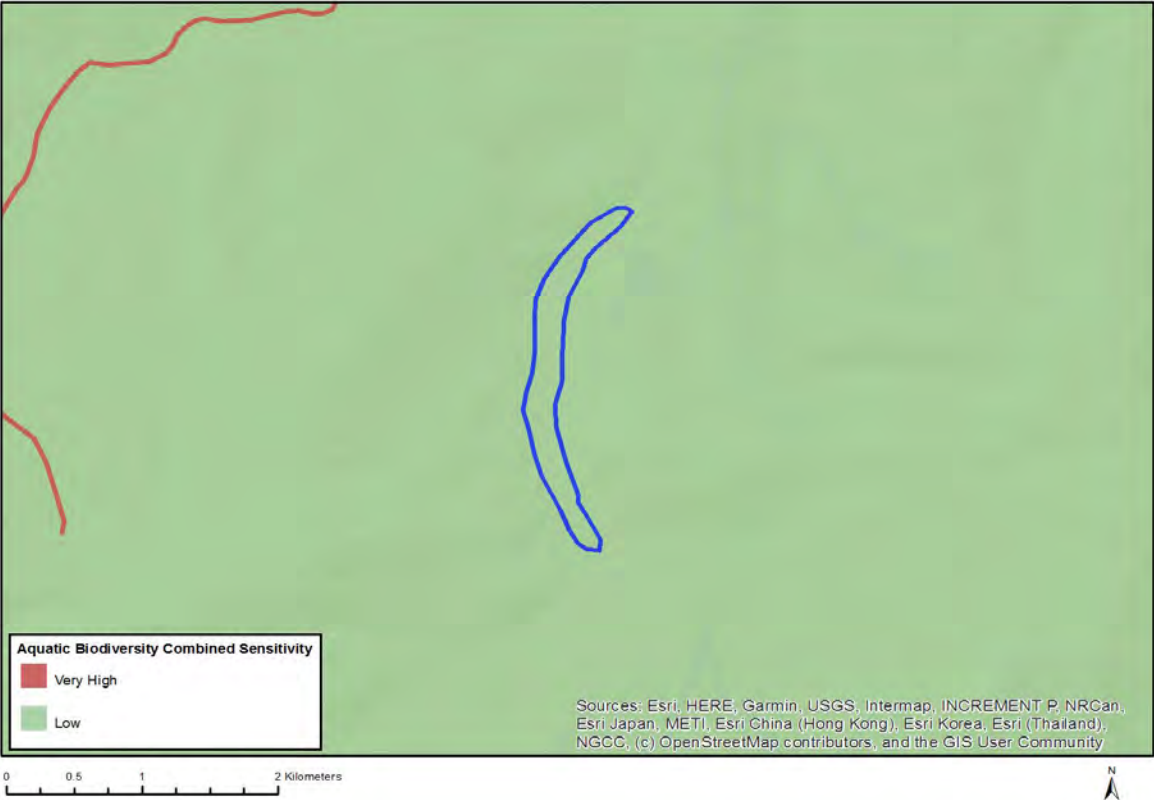


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       | X                |                    |                 |

#### Sensitivity Features:

| Sensitivity | Feature(s)  |
|-------------|---|
| High        | Subsistence Farming 1;Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low |
| High        | Subsistence Farming 1;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate                      |
| Low         | Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low                       |
| Medium      | Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate  |

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY



| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  |                    | X               |

Sensitivity Features:

| Sensitivity | Feature(s)            |
|-------------|-----------------------|
| Low         | Low Sensitivity Areas |

## MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY



| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  |                    | X               |

### Sensitivity Features:

| Sensitivity | Feature(s)      |
|-------------|-----------------|
| Low         | Low sensitivity |



## MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

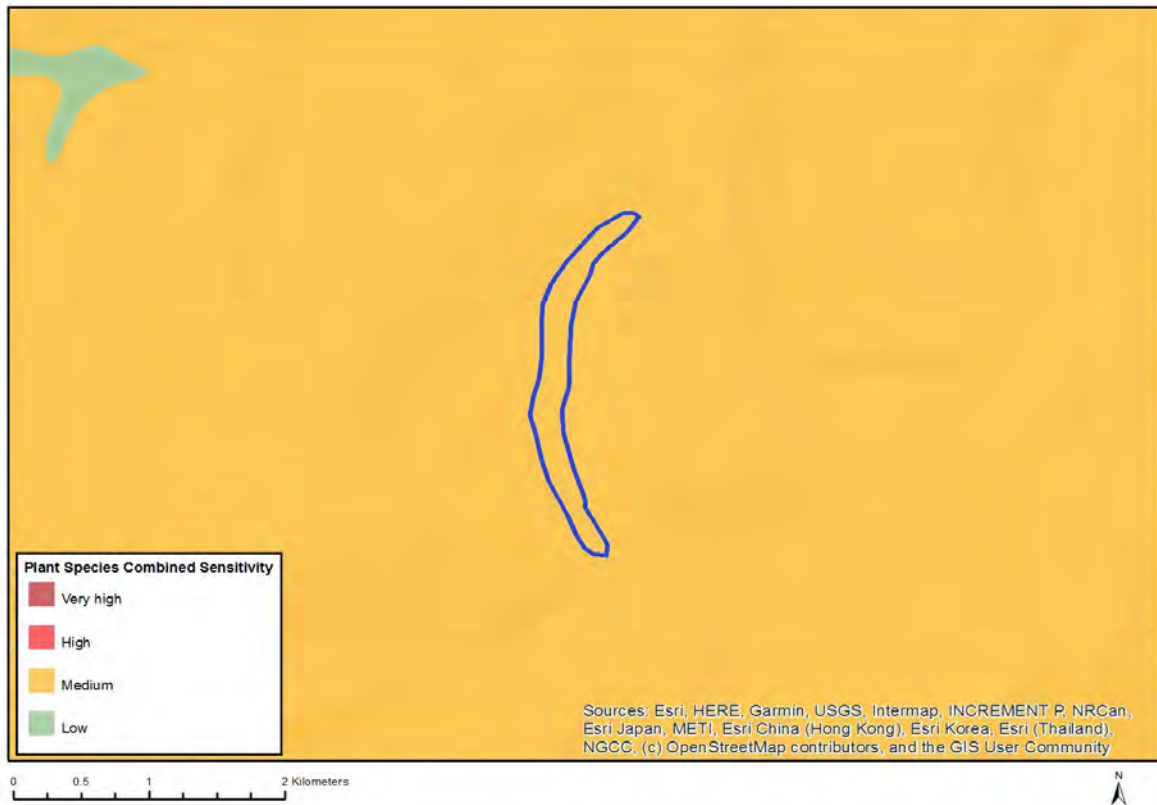


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       | X                |                    |                 |

### Sensitivity Features:

| Sensitivity | Feature(s)   |
|-------------|--|
| High        | Rock units with a high paleontological sensitivity |

## MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  | X                  |                 |

### Sensitivity Features:

| Sensitivity | Feature(s)              |
|-------------|-------------------------|
| Medium      | Syringodea flanagani    |
| Medium      | Sensitive species 12    |
| Medium      | Sensitive species 294   |
| Medium      | Helichrysum montis-cati |
| Medium      | Aspalathus katbergensis |

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

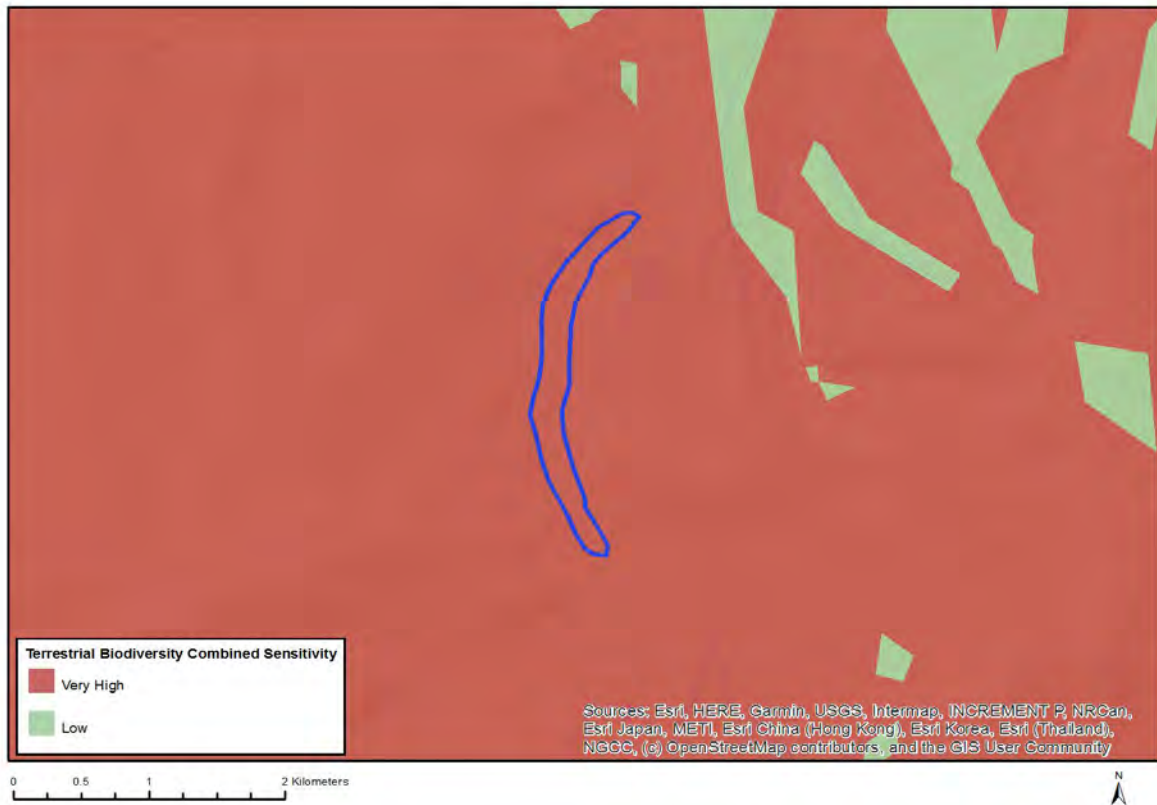


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  |                    | X               |

Sensitivity Features:

| Sensitivity | Feature(s)      |
|-------------|-----------------|
| Low         | Low sensitivity |

## MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
| X                     |                  |                    |                 |

### Sensitivity Features:

| Sensitivity | Feature(s)   |
|-------------|--|
| Low         | None   |
| Very High   | Critical Biodiversity Area 1                         |
| Very High   | Focus Areas for land-based protected areas expansion |
| Very High   | Strategic Water Source Area                          |

**SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION OR  
FOR A PART TWO AMENDMENT OF AN ENVIRONMENTAL AUTHORISATION  
AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE  
ENVIRONMENTAL SENSITIVITY**

**EIA Reference number:** TBC

**Project name:** Amathole Wetland Rehabilitation

**Project title:** S32E-02

**Date screening report generated:** 09/10/2019 06:37:34

**Applicant:** Working for Wetlands

**Compiler:** Aurecon SA (Pty) Ltd

**Compiler signature:**

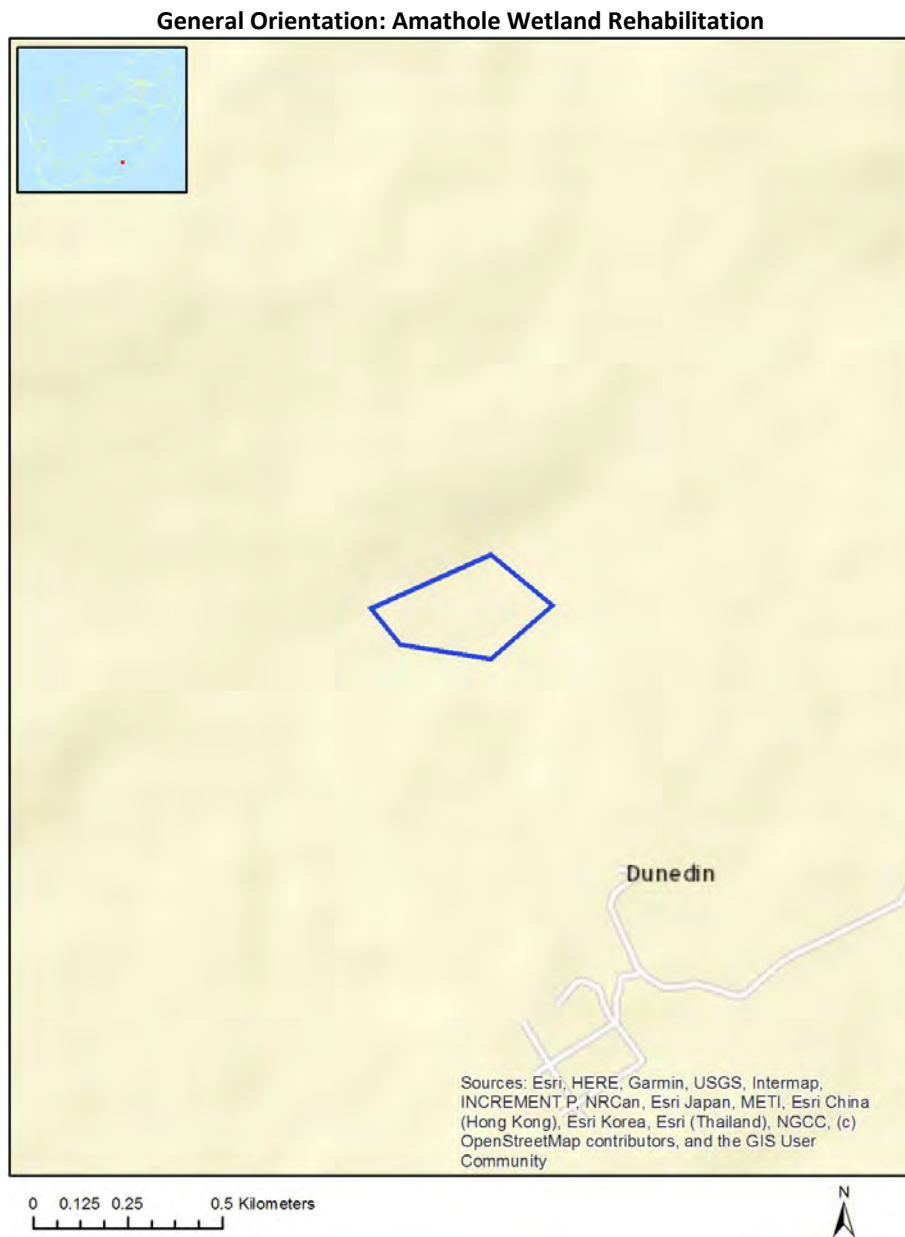
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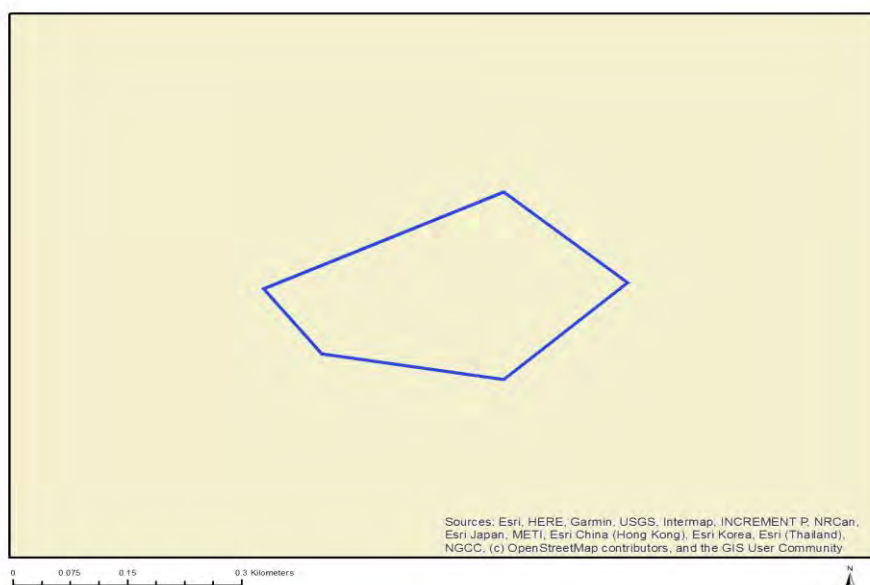
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# Proposed Project Location

## Orientation map 1: General location



## Map of proposed site and relevant area(s)



## Cadastral details of the proposed site

Property details:

| No | Farm Name | Farm/ Erf No | Portion | Latitude     | Longitude    | Property Type |
|----|-----------|--------------|---------|--------------|--------------|---------------|
| 1  | DUNEDIN   | 100          | 0       | 32°27'6.87S  | 26°46'40.04E | Farm          |
| 2  | DUNEDIN   | 100          | 1       | 32°27'11.66S | 26°45'54.82E | Farm Portion  |

Development footprint<sup>1</sup> vertices:

No development footprint(s) specified.

## Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No nearby wind or solar developments found.

## Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

---

<sup>1</sup> "development footprint", means the area within the site on which the development will take place and includes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.



## Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is:

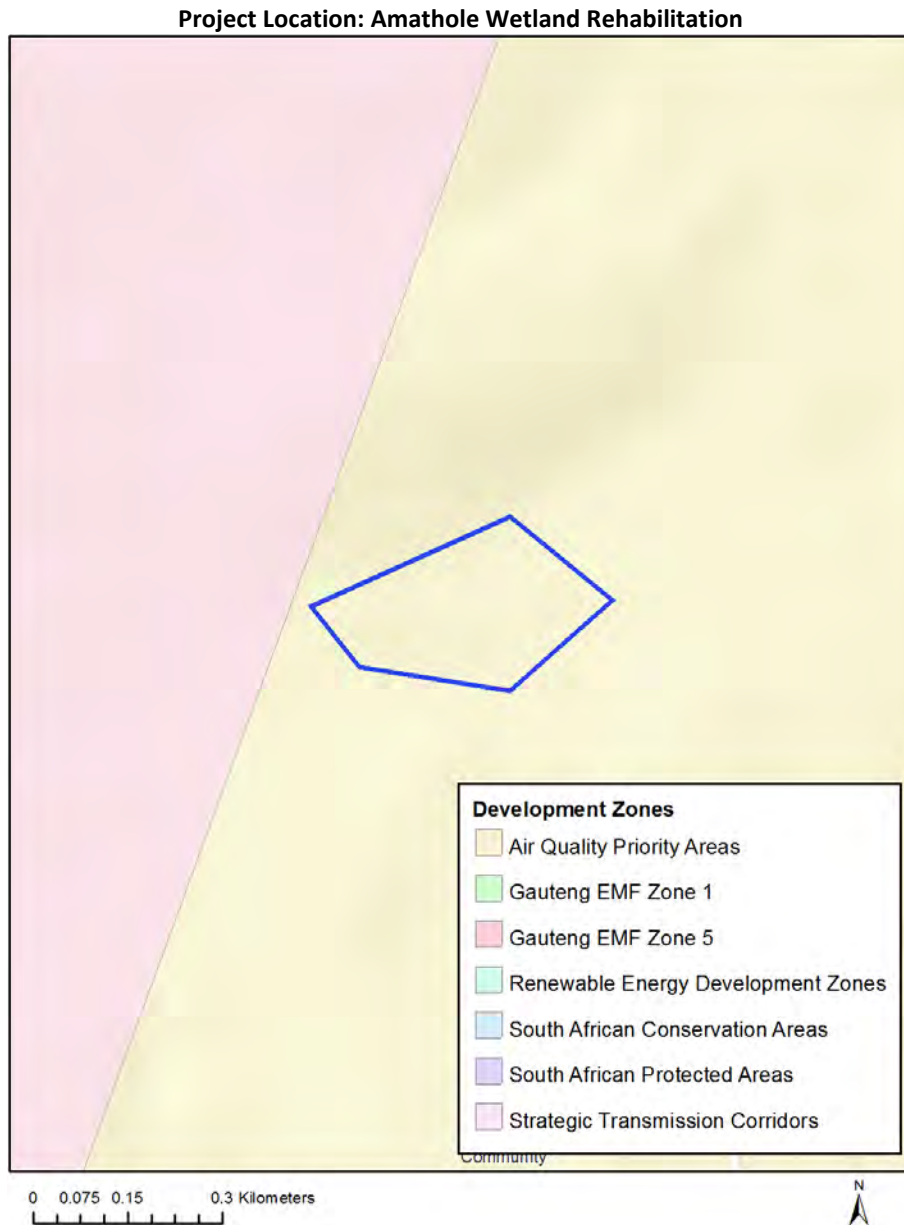
Any activities within or close to a watercourse | Any activities within or close to a watercourse.

### Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

No intersection with any development zones found.

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones



### Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

| Theme                | Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|----------------------|-----------------------|------------------|--------------------|-----------------|
| Agriculture Theme    |                       |                  | X                  |                 |
| Aquatic Biodiversity |                       |                  |                    | X               |

|                                |   |   |   |   |
|--------------------------------|---|---|---|---|
| Theme                          |   |   |   |   |
| Civil Aviation Theme           |   |   |   | X |
| Paleontology Theme             |   | X |   |   |
| Plant Species Theme            |   |   | X |   |
| Defence Theme                  |   |   |   | X |
| Terrestrial Biodiversity Theme | X |   |   |   |

### Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

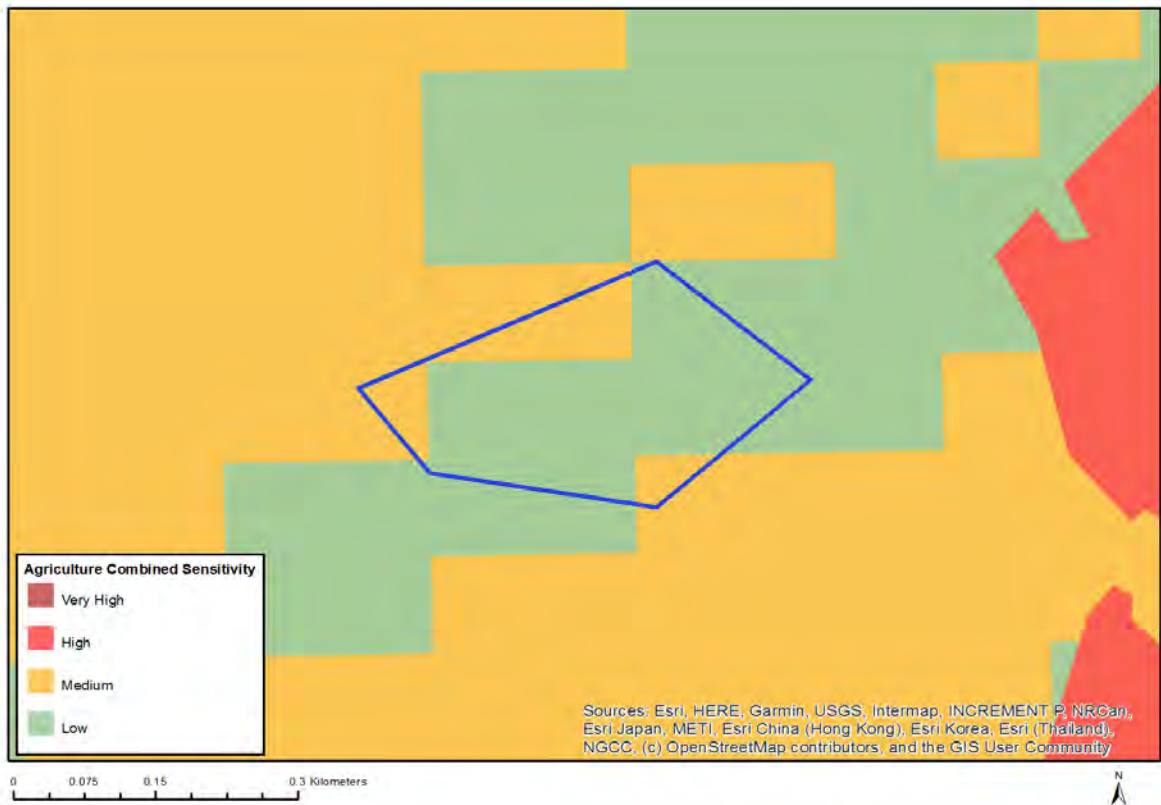
| <b>N o</b> | <b>Specialist assessment</b>                           | <b>Assessment Protocol</b>  |
|------------|--|---|
| 1          | Landscape/Visual Impact Assessment                     | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 2          | Archaeological and Cultural Heritage Impact Assessment | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 3          | Palaeontology Impact Assessment                        | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 4          | Terrestrial Biodiversity Impact Assessment             | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf</a> |
| 5          | Aquatic Biodiversity Impact Assessment                 | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Aquatic_Biodiversity_Assessment.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Aquatic_Biodiversity_Assessment.pdf</a>                             |
| 6          | Hydrology Assessment                                   | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 7          | Socio-Economic   | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |

|   |                           |   |
|---|---------------------------|---|
|   | Assessment                |   |
| 8 | Plant Species Assessment  | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a> |
| 9 | Animal Species Assessment | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a> |

## Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

### MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

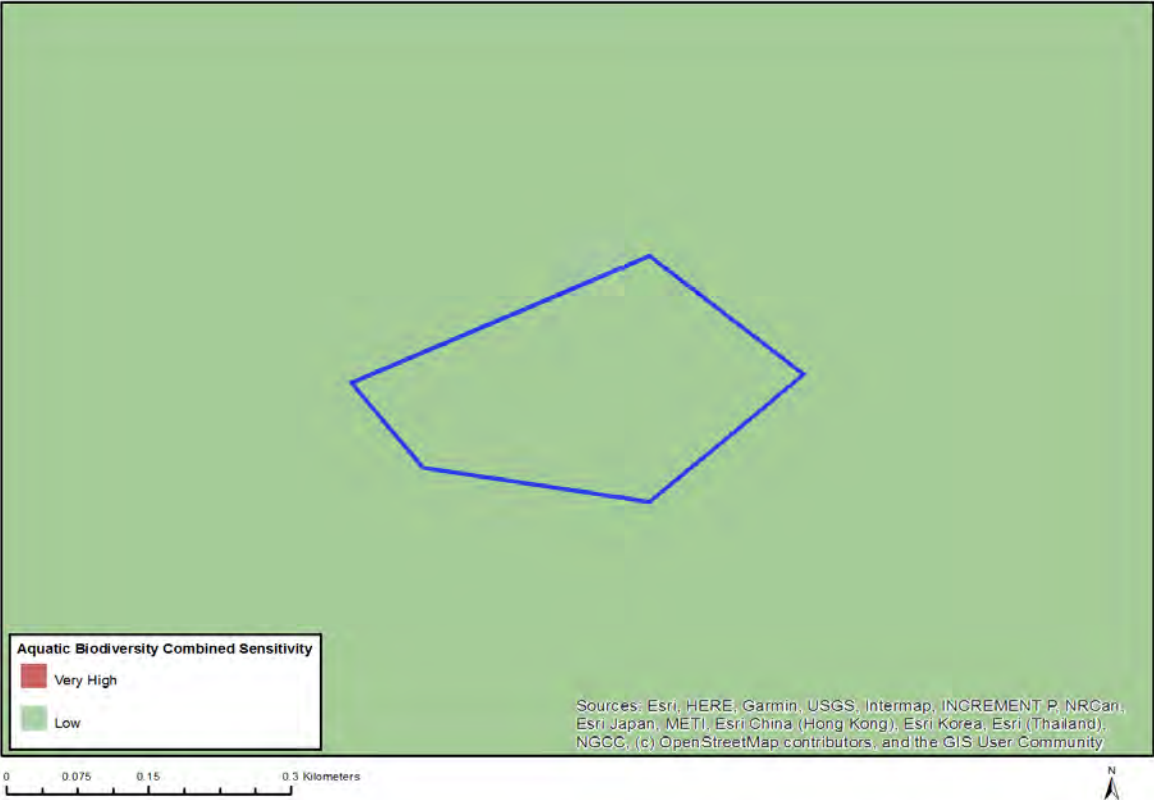


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  | X                  |                 |

#### Sensitivity Features:

| Sensitivity | Feature(s)  |
|-------------|---|
| Low         | Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low |
| Medium      | Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate                      |

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

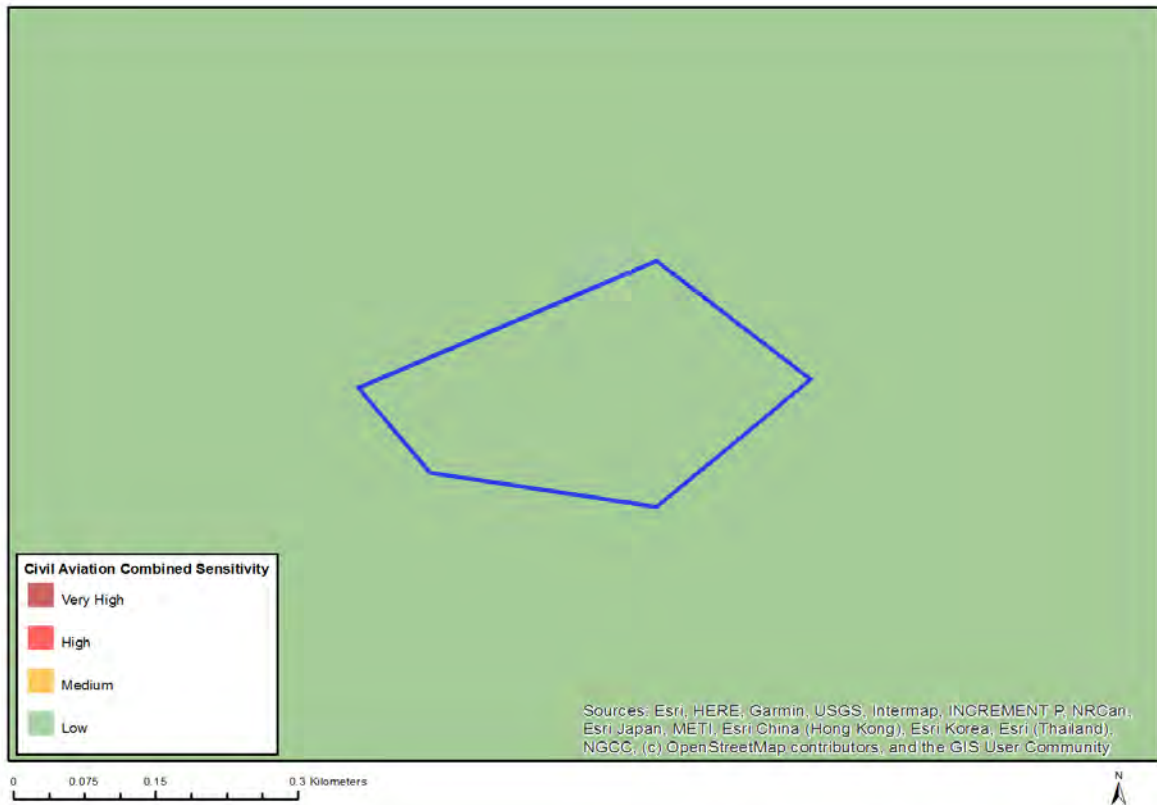


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  |                    | X               |

Sensitivity Features:

| Sensitivity | Feature(s)            |
|-------------|-----------------------|
| Low         | Low Sensitivity Areas |

## MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

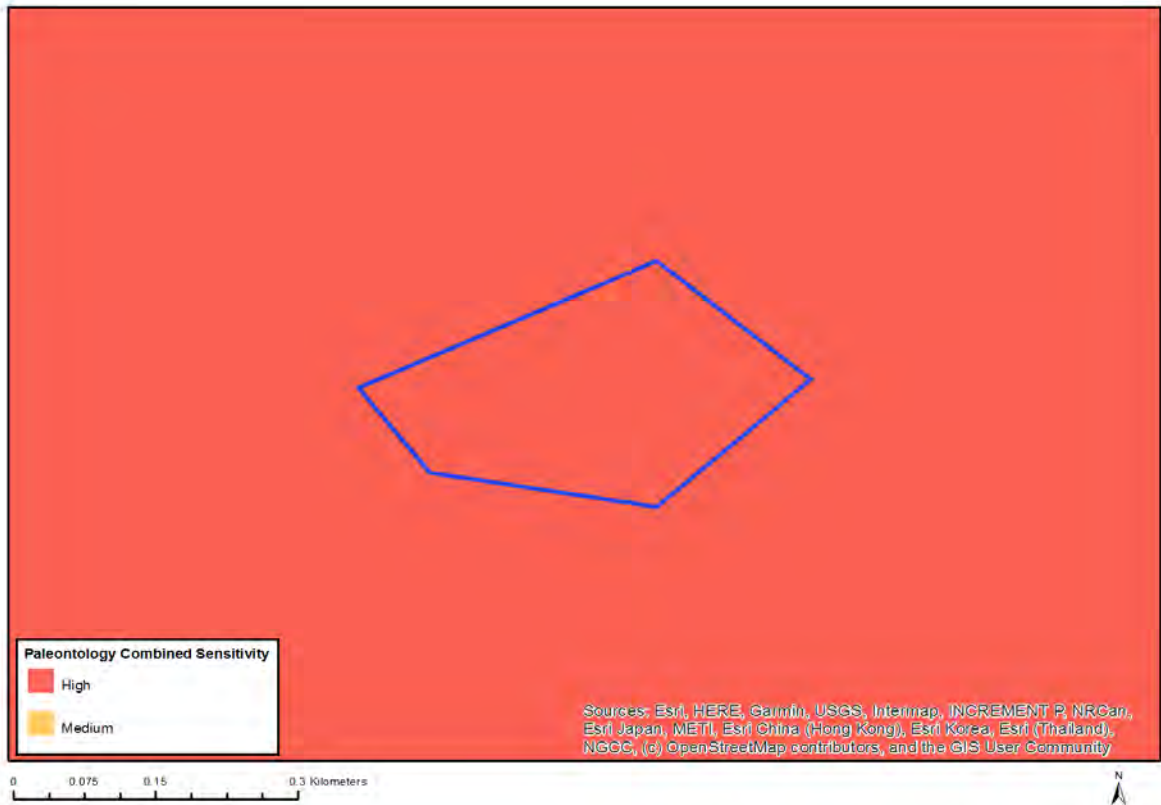


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  |                    | X               |

### Sensitivity Features:

| Sensitivity | Feature(s)      |
|-------------|-----------------|
| Low         | Low sensitivity |

## MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY



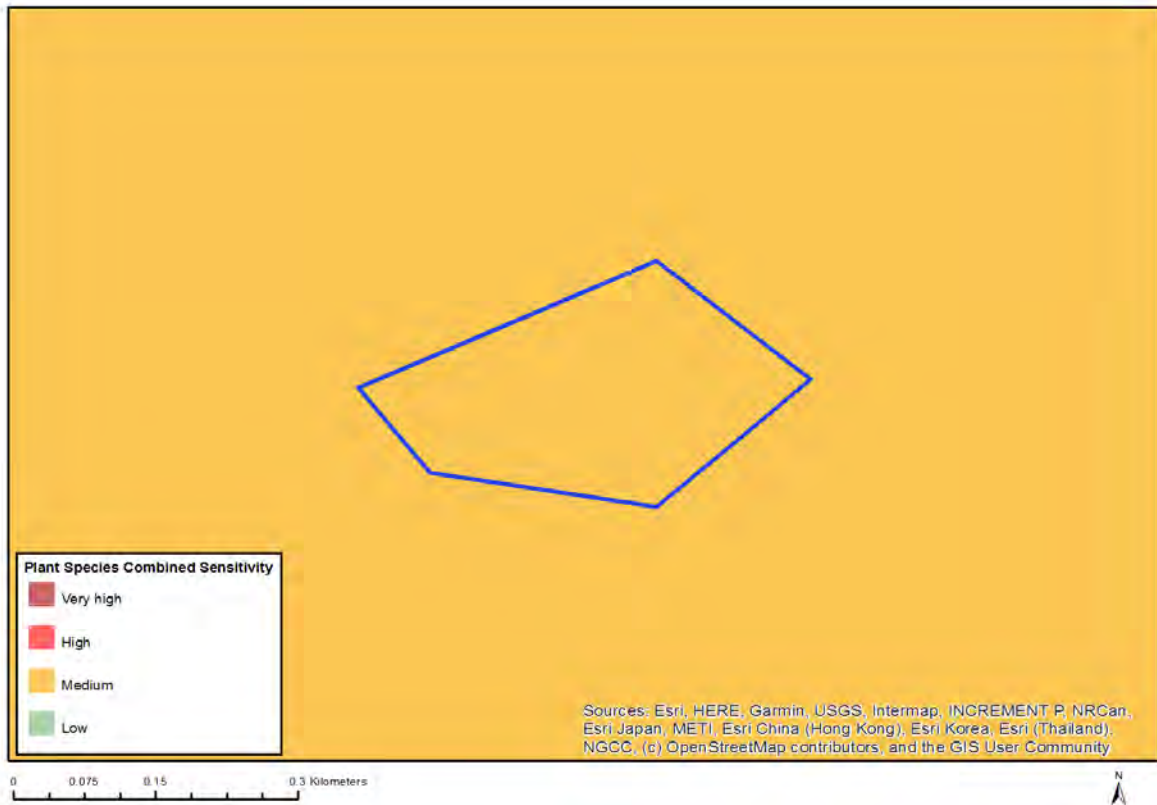
| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       | X                |                    |                 |

### Sensitivity Features:

| Sensitivity | Feature(s)   |
|-------------|--|
| High        | Rock units with a high paleontological sensitivity |



## MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY

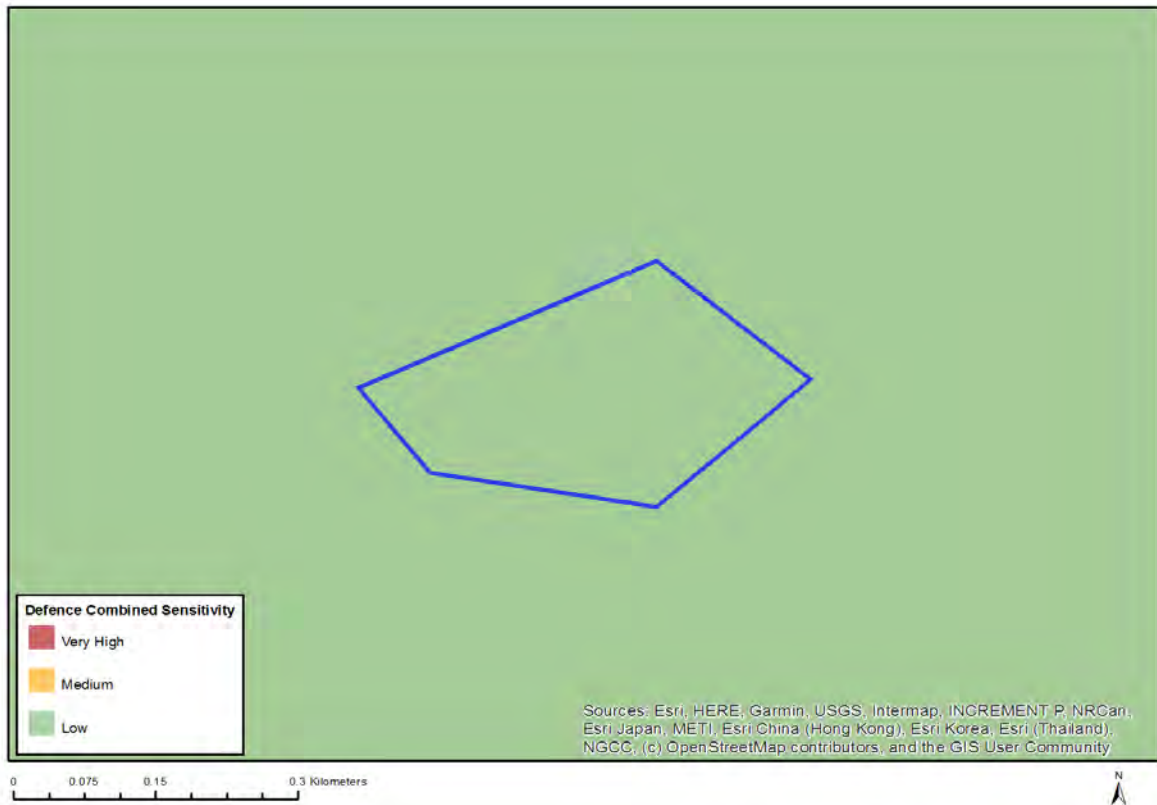


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  | X                  |                 |

### Sensitivity Features:

| Sensitivity | Feature(s)              |
|-------------|-------------------------|
| Medium      | Syringodea flanaganii   |
| Medium      | Sensitive species 12    |
| Medium      | Sensitive species 294   |
| Medium      | Helichrysum montis-cati |
| Medium      | Aspalathus katbergensis |

## MAP OF RELATIVE DEFENCE THEME SENSITIVITY



| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  |                    | X               |

### Sensitivity Features:

| Sensitivity | Feature(s)      |
|-------------|-----------------|
| Low         | Low sensitivity |

## MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
| X                     |                  |                    |                 |

### Sensitivity Features:

| Sensitivity | Feature(s)   |
|-------------|--|
| Low         | None   |
| Very High   | Critical Biodiversity Area 1                         |
| Very High   | Focus Areas for land-based protected areas expansion |
| Very High   | Strategic Water Source Area                          |

**SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION OR  
FOR A PART TWO AMENDMENT OF AN ENVIRONMENTAL AUTHORISATION  
AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE  
ENVIRONMENTAL SENSITIVITY**

**EIA Reference number:**

**Project name:** Amathole Wetland Rehabilitation

**Project title:** Wetland S32E-03

**Date screening report generated:** 09/10/2019 07:00:23

**Applicant:** Working for Wetlands

**Compiler:** Aurecon SA (Pty) Ltd

**Compiler signature:**

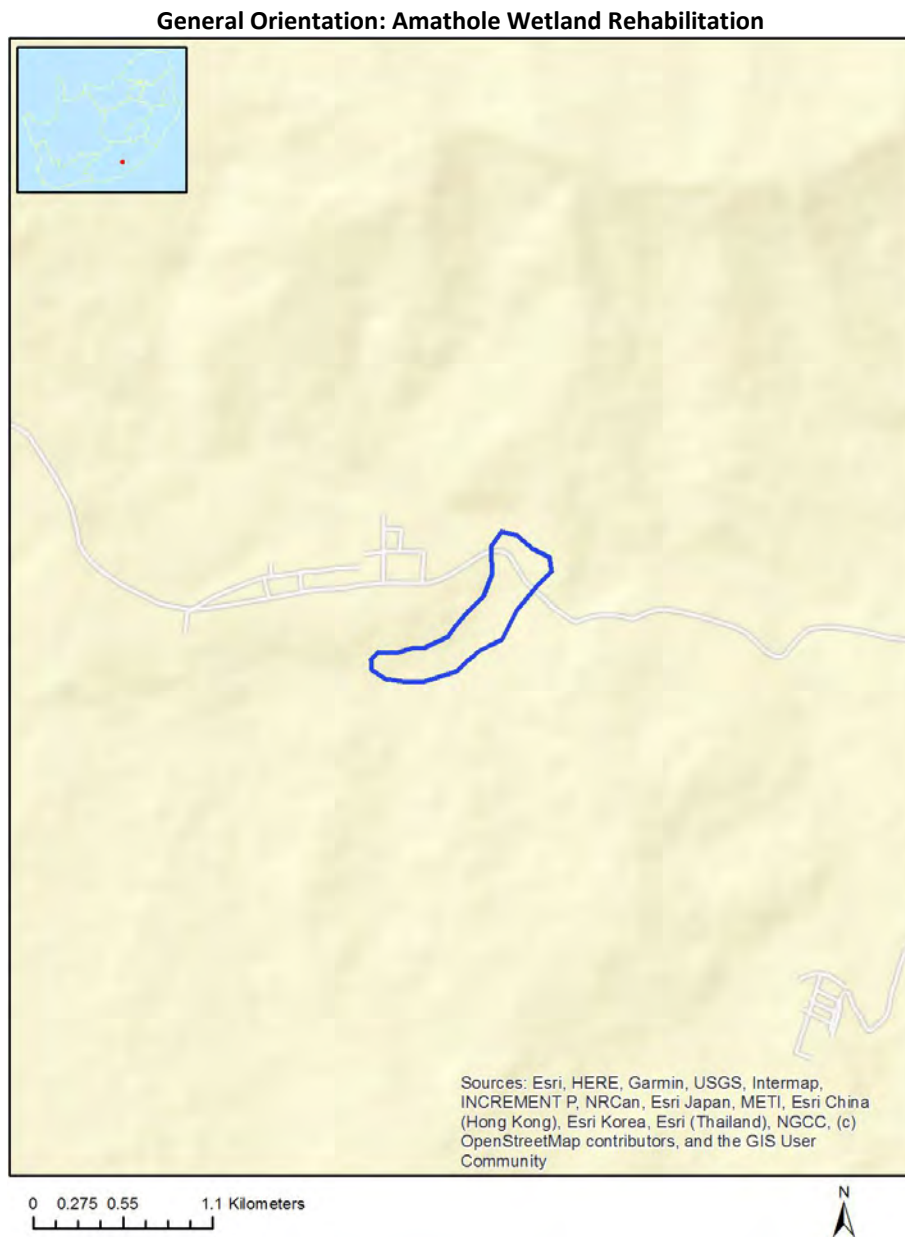
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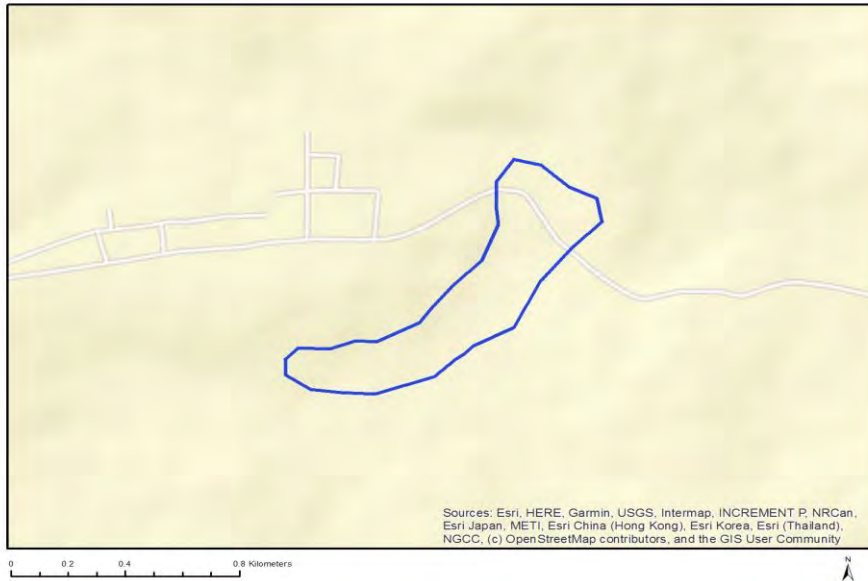
|   |    |
|---|----|
| Proposed Project Location .....   | 3  |
| Orientation map 1: General location .....   | 3  |
| Map of proposed site and relevant area(s) .....   | 4  |
| Cadastral details of the proposed site .....  | 4  |
| Wind and Solar developments with an approved Environmental Authorisation or applications<br>under consideration within 30 km of the proposed area ..... | 4  |
| Environmental Management Frameworks relevant to the application .....   | 4  |
| Environmental screening results and assessment outcomes .....   | 5  |
| Relevant development incentives, restrictions, exclusions or prohibitions .....   | 5  |
| Map indicating proposed development footprint within applicable development incentive,<br>restriction, exclusion or prohibition zones .....             | 6  |
| Proposed Development Area Environmental Sensitivity .....   | 6  |
| Specialist assessments identified .....   | 7  |
| Results of the environmental sensitivity of the proposed area .....   | 9  |
| MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY .....   | 9  |
| MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY .....  | 10 |
| MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY .....  | 11 |
| MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY .....  | 12 |
| MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY .....  | 13 |
| MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY .....   | 14 |
| MAP OF RELATIVE DEFENCE THEME SENSITIVITY .....   | 15 |
| MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY .....  | 16 |

# Proposed Project Location

## Orientation map 1: General location



## Map of proposed site and relevant area(s)



## Cadastral details of the proposed site

Property details:

| No | Farm Name | Farm/ Erf No | Portion | Latitude     | Longitude    | Property Type |
|----|-----------|--------------|---------|--------------|--------------|---------------|
| 1  |           | 423          | 0       | 32°25'30.02S | 26°45'16.18E | Farm          |
| 2  |           | 422          | 0       | 32°24'38.25S | 26°43'59.25E | Farm          |
| 3  |           | 421          | 0       | 32°23'1.65S  | 26°44'57.36E | Farm          |
| 4  |           | 423          | 0       | 32°25'3.81S  | 26°45'45.59E | Farm Portion  |
| 5  |           | 421          | 1       | 32°23'35.14S | 26°45'33.54E | Farm Portion  |
| 6  |           | 422          | 0       | 32°24'18.39S | 26°44'45.31E | Farm Portion  |

Development footprint<sup>1</sup> vertices:  
No development footprint(s) specified.

## Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No nearby wind or solar developments found.

## Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

<sup>1</sup> “development footprint”, means the area within the site on which the development will take place and includes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

## Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is:  
Any activities within or close to a watercourse | Any activities within or close to a watercourse.

### Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

| <b>Incentive, restriction or prohibition</b>     | <b>Implication</b>  |
|--|---|
| Strategic Transmission Corridor-Eastern corridor | <a href="https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/GNR_350_of_13_April_2017.pdf">https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/GNR_350_of_13_April_2017.pdf</a> |



Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones



**Proposed Development Area Environmental Sensitivity**

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

| Theme                      | Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|----------------------------|-----------------------|------------------|--------------------|-----------------|
| Agriculture Theme          |                       | X                |                    |                 |
| Aquatic Biodiversity Theme | X                     |                  |                    |                 |

|  |   |   |   |   |
|--|---|---|---|---|
| Archaeological and Cultural Heritage Theme |   | X |   |   |
| Civil Aviation Theme                       |   |   |   | X |
| Paleontology Theme                         |   | X |   |   |
| Plant Species Theme                        |   |   | X |   |
| Defence Theme                              |   |   |   | X |
| Terrestrial Biodiversity Theme             | X |   |   |   |

### Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

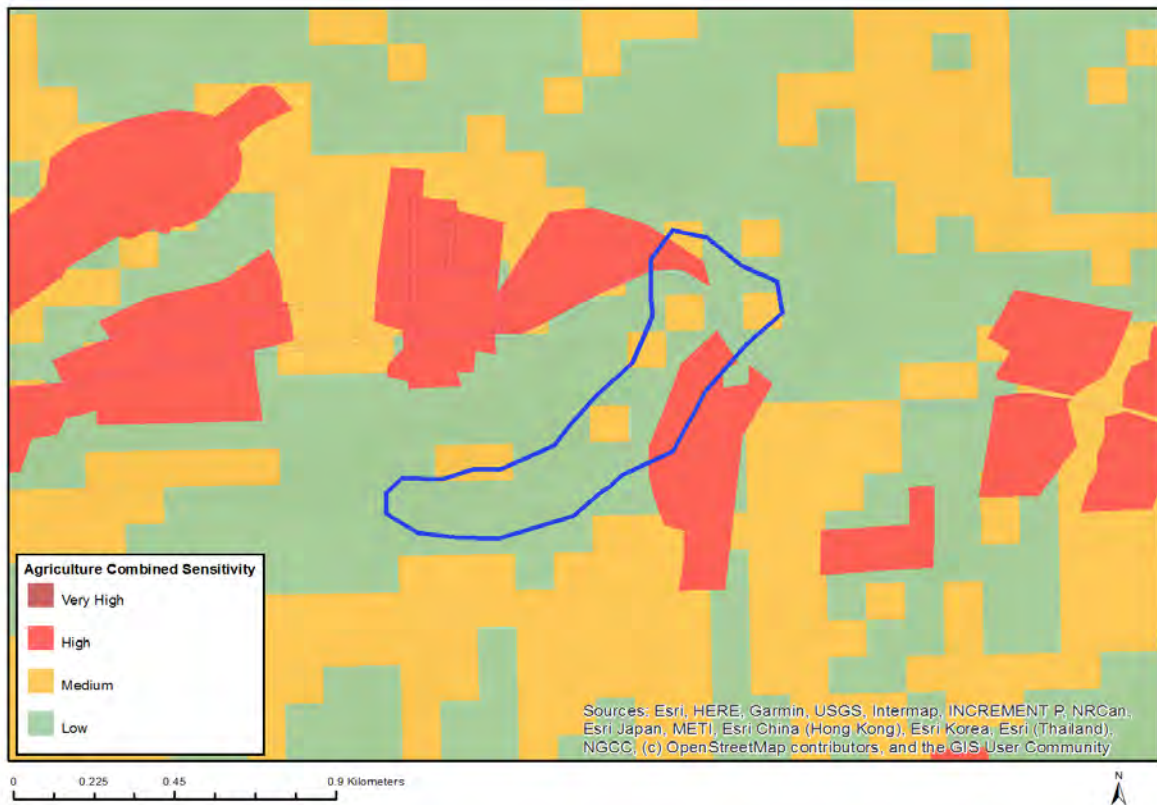
| <b>N o</b> | <b>Specialist assessment</b>                           | <b>Assessment Protocol</b>  |
|------------|--|---|
| 1          | Landscape/Visual Impact Assessment                     | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 2          | Archaeological and Cultural Heritage Impact Assessment | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 3          | Palaeontology Impact Assessment                        | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 4          | Terrestrial Biodiversity Impact Assessment             | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf</a> |
| 5          | Aquatic Biodiversity Impact Assessment                 | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Aquatic_Biodiversity_Assessment.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Aquatic_Biodiversity_Assessment.pdf</a>                             |
| 6          | Hydrology Assessment                                   | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 7          | Socio-Economic   | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |

|   |                           |   |
|---|---------------------------|---|
|   | Assessment                |   |
| 8 | Plant Species Assessment  | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a> |
| 9 | Animal Species Assessment | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a> |

## Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

### MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

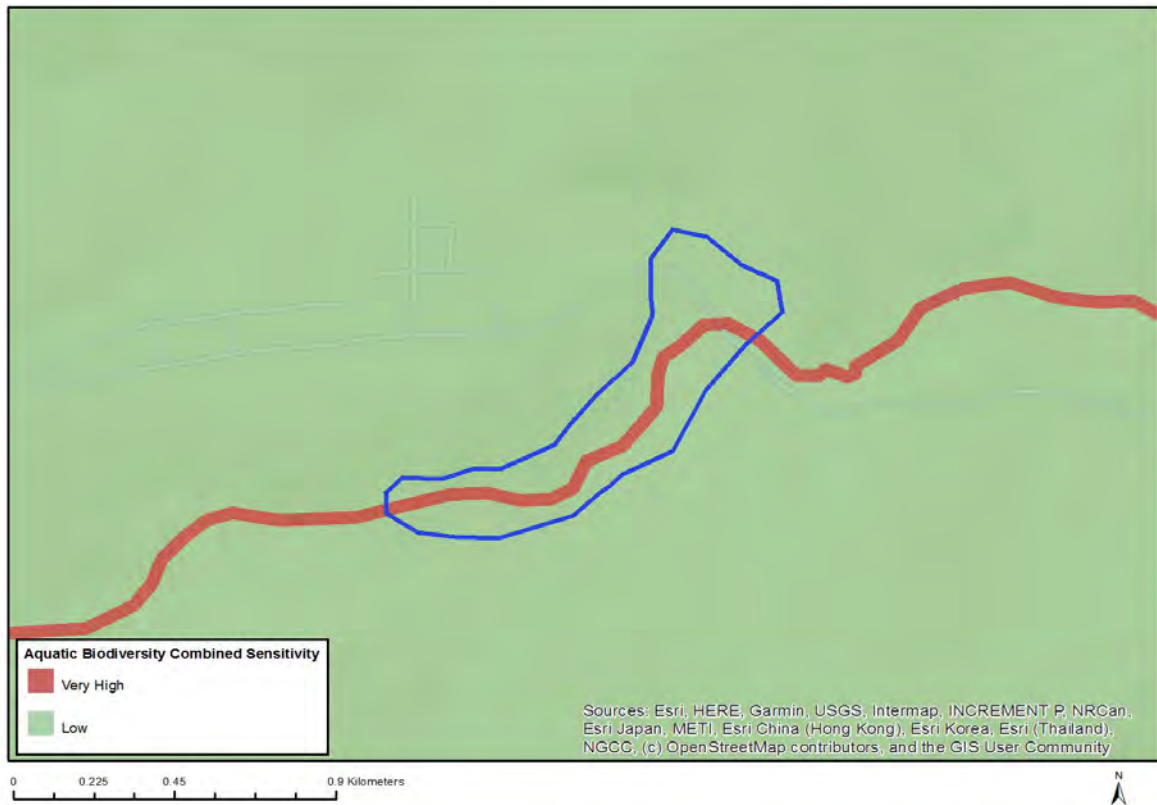


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       | X                |                    |                 |

#### Sensitivity Features:

| Sensitivity | Feature(s)  |
|-------------|---|
| High        | Subsistence Farming 1; Land capability; 01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low |
| High        | Subsistence Farming 1; Land capability; 06. Low-Moderate/07. Low-Moderate/08. Moderate                      |
| Low         | Land capability; 01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low                        |
| Medium      | Land capability; 06. Low-Moderate/07. Low-Moderate/08. Moderate   |

## MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

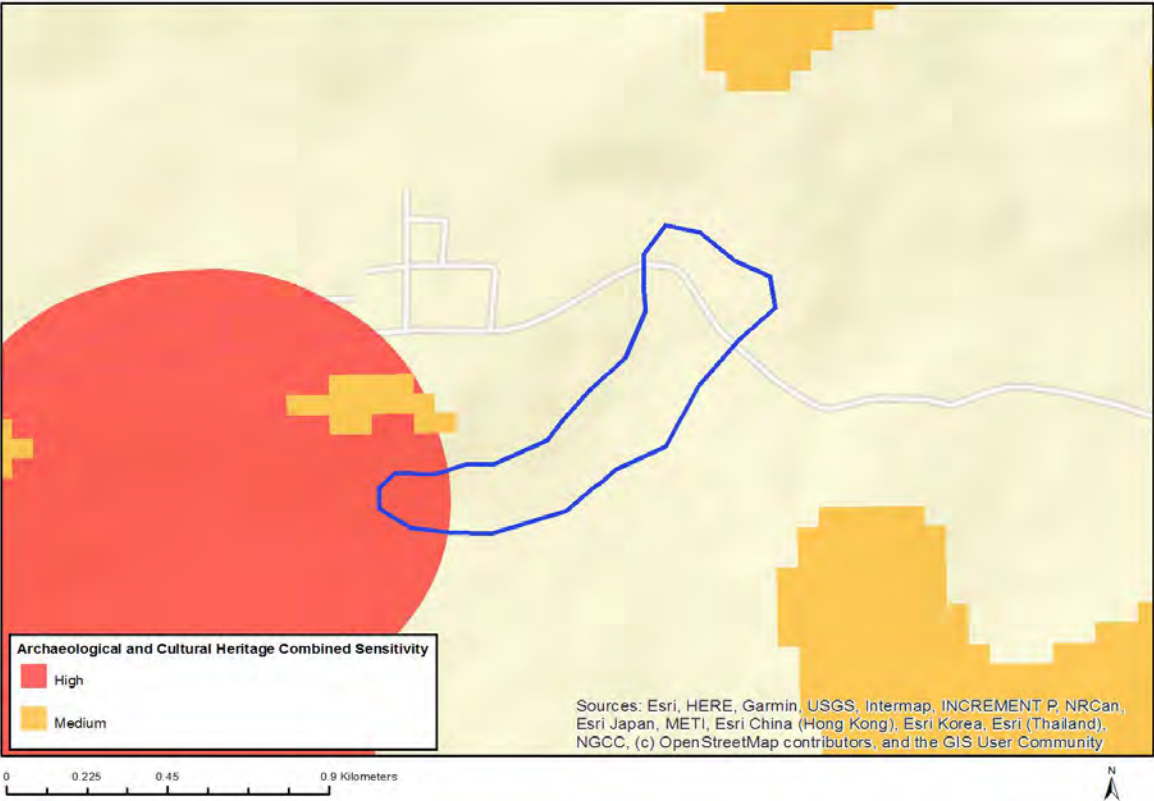


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
| X                     |                  |                    |                 |

### Sensitivity Features:

| Sensitivity | Feature(s)            |
|-------------|-----------------------|
| Low         | Low Sensitivity Areas |
| Very High   | CBA,River,Krom        |

# MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

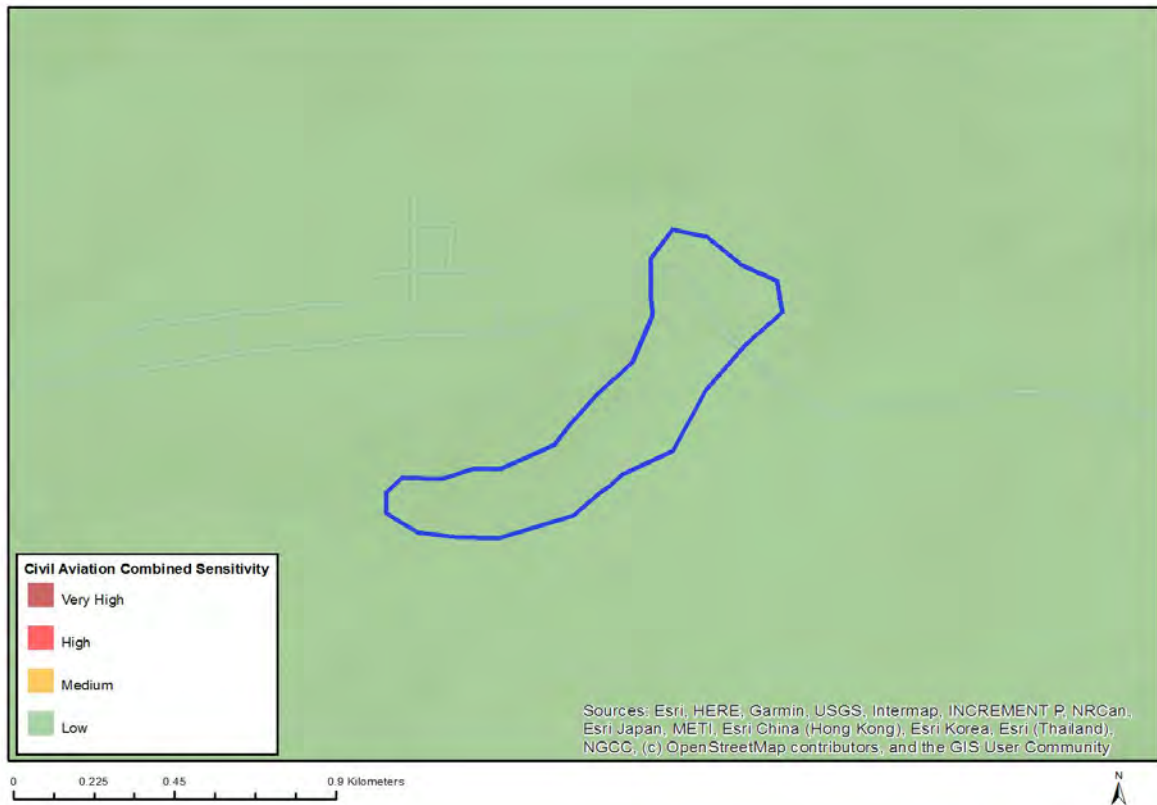


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       | X                |                    |                 |

**Sensitivity Features:**

| Sensitivity | Feature(s)                           |
|-------------|--------------------------------------|
| High        | Within 500 m of an important wetland |

## MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY



| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  |                    | X               |

### Sensitivity Features:

| Sensitivity | Feature(s)      |
|-------------|-----------------|
| Low         | Low sensitivity |

## MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY



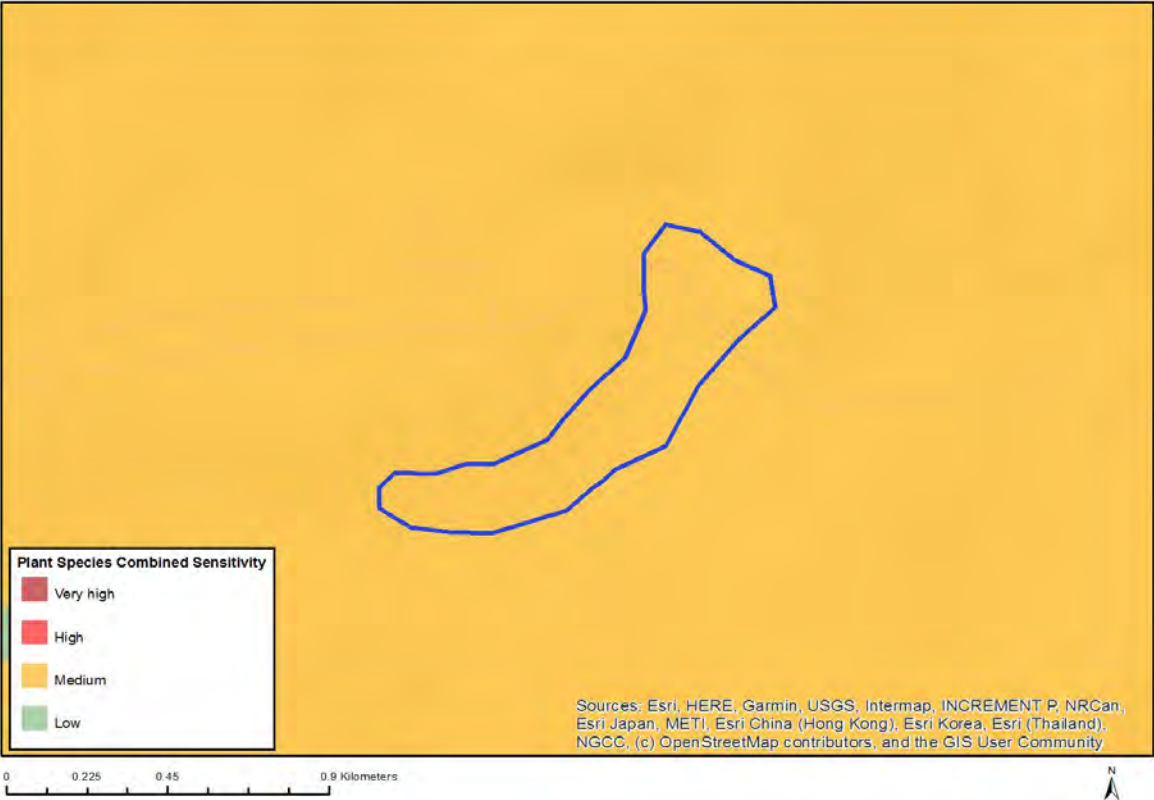
| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       | X                |                    |                 |

### Sensitivity Features:

| Sensitivity | Feature(s)   |
|-------------|--|
| High        | Rock units with a high paleontological sensitivity |



MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY

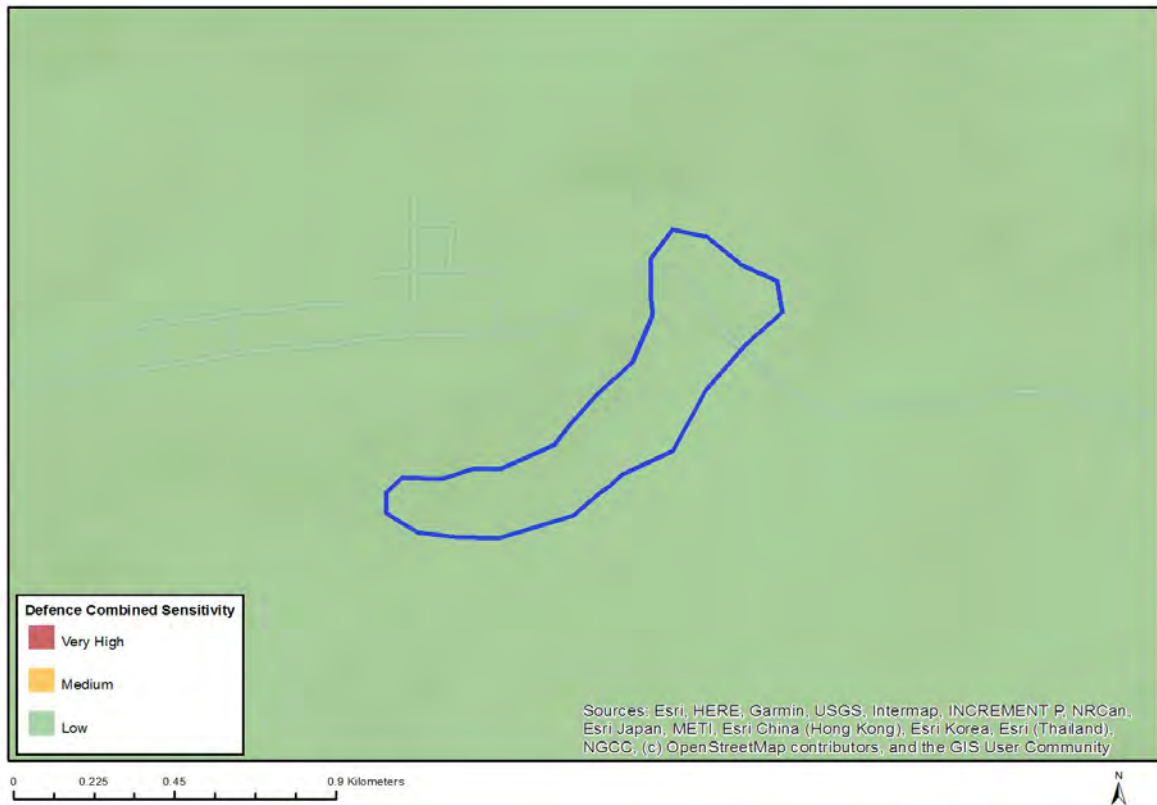


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  | X                  |                 |

Sensitivity Features:

| Sensitivity | Feature(s)              |
|-------------|-------------------------|
| Medium      | Sensitive species 12    |
| Medium      | Sensitive species 294   |
| Medium      | Helichrysum montis-cati |
| Medium      | Aspalathus katbergensis |

## MAP OF RELATIVE DEFENCE THEME SENSITIVITY

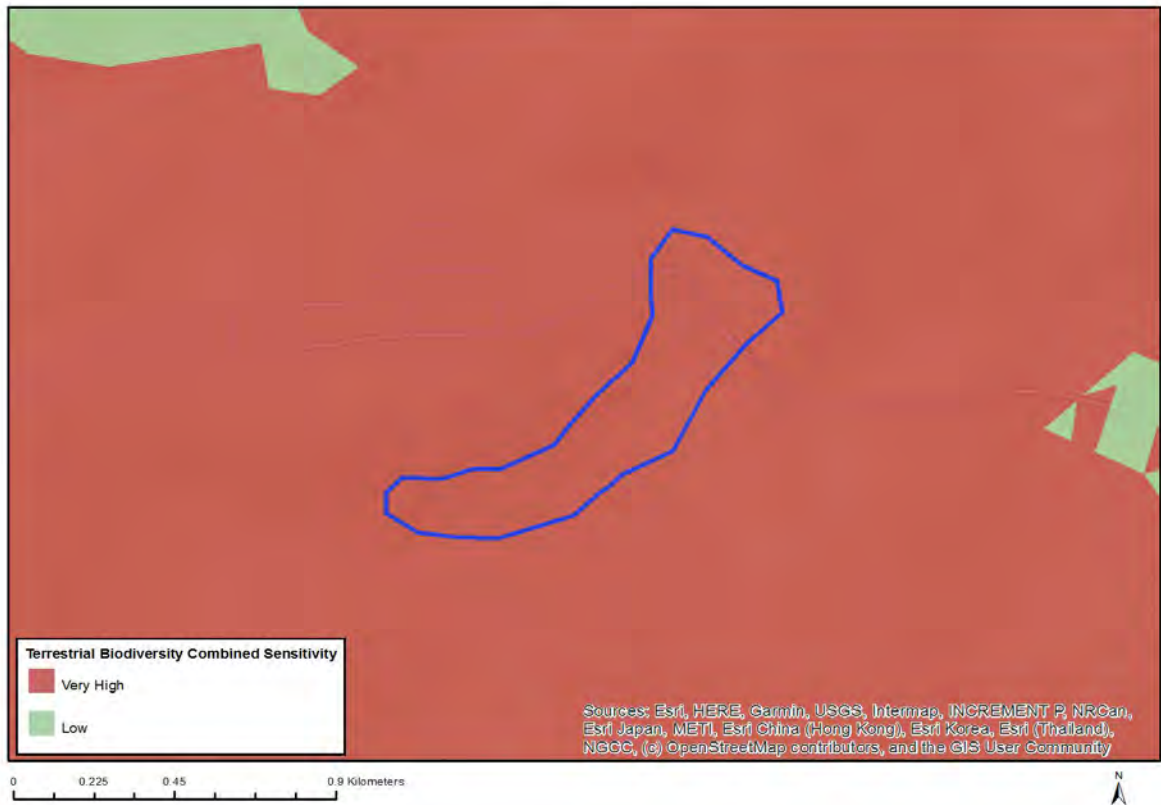


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  |                    | X               |

### Sensitivity Features:

| Sensitivity | Feature(s)      |
|-------------|-----------------|
| Low         | Low sensitivity |

## MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
| X                     |                  |                    |                 |

### Sensitivity Features:

| Sensitivity | Feature(s)   |
|-------------|--|
| Low         | None   |
| Very High   | Critical Biodiversity Area 2                         |
| Very High   | Critical Biodiversity Area 1                         |
| Very High   | Focus Areas for land-based protected areas expansion |
| Very High   | Strategic Water Source Area                          |

**SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION OR  
FOR A PART TWO AMENDMENT OF AN ENVIRONMENTAL AUTHORISATION  
AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE  
ENVIRONMENTAL SENSITIVITY**

**EIA Reference number:**

**Project name:** Amathole Wetland Rehabilitation

**Project title:** Kolomane 16 (S32E-04)

**Date screening report generated:** 09/10/2019 15:53:41

**Applicant:** Working for Wetlands

**Compiler:** Aurecon SA (Pty) Ltd

**Compiler signature:**

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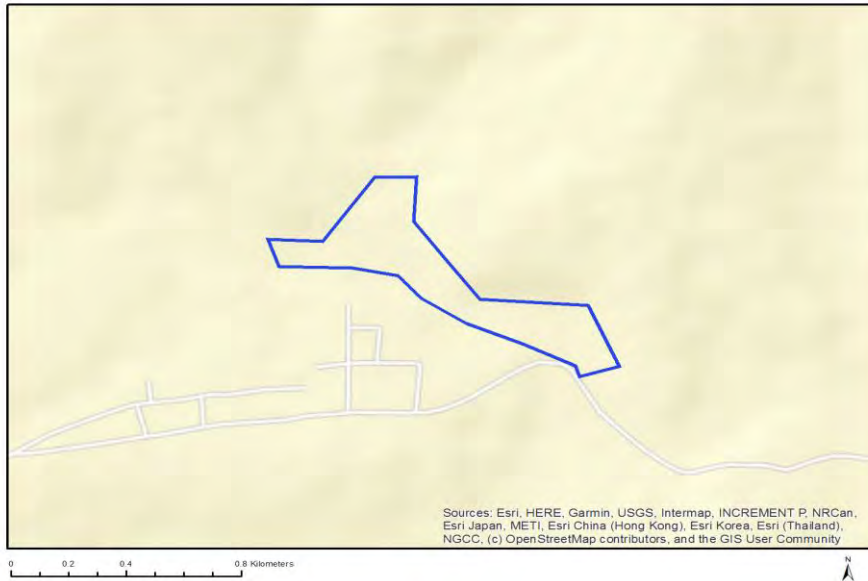
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- Environmental screening results and assessment outcomes ..... 5
  - Relevant development incentives, restrictions, exclusions or prohibitions ..... 5
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  - MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY ..... 9
  - MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY ..... 10
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  - MAP OF RELATIVE DEFENCE THEME SENSITIVITY ..... 14
  - MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY ..... 15

# Proposed Project Location

Orientation map 1: General location



## Map of proposed site and relevant area(s)



## Cadastral details of the proposed site

Property details:

| No | Farm Name | Farm/ Erf No | Portion | Latitude     | Longitude    | Property Type |
|----|-----------|--------------|---------|--------------|--------------|---------------|
| 1  |           | 422          | 0       | 32°24'38.25S | 26°43'59.25E | Farm          |
| 2  |           | 421          | 0       | 32°23'1.65S  | 26°44'57.36E | Farm          |
| 3  |           | 422          | 0       | 32°24'18.39S | 26°44'45.31E | Farm Portion  |
| 4  |           | 421          | 1       | 32°23'35.14S | 26°45'33.54E | Farm Portion  |

Development footprint<sup>1</sup> vertices:

No development footprint(s) specified.

## Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No nearby wind or solar developments found.

## Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

<sup>1</sup> "development footprint", means the area within the site on which the development will take place and includes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

## Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is:

Any activities within or close to a watercourse | Any activities within or close to a watercourse.

### Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

| <b>Incentive, restriction or prohibition</b>     | <b>Implication</b>  |
|--|---|
| Strategic Transmission Corridor-Eastern corridor | <a href="https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/GNR_350_of_13_April_2017.pdf">https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/GNR_350_of_13_April_2017.pdf</a> |



Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones



**Proposed Development Area Environmental Sensitivity**

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

| Theme                | Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|----------------------|-----------------------|------------------|--------------------|-----------------|
| Agriculture Theme    |                       | X                |                    |                 |
| Aquatic Biodiversity |                       |                  |                    | X               |

|                                |   |   |   |   |
|--------------------------------|---|---|---|---|
| Theme                          |   |   |   |   |
| Civil Aviation Theme           |   |   |   | X |
| Paleontology Theme             |   | X |   |   |
| Plant Species Theme            |   |   | X |   |
| Defence Theme                  |   |   |   | X |
| Terrestrial Biodiversity Theme | X |   |   |   |

### Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

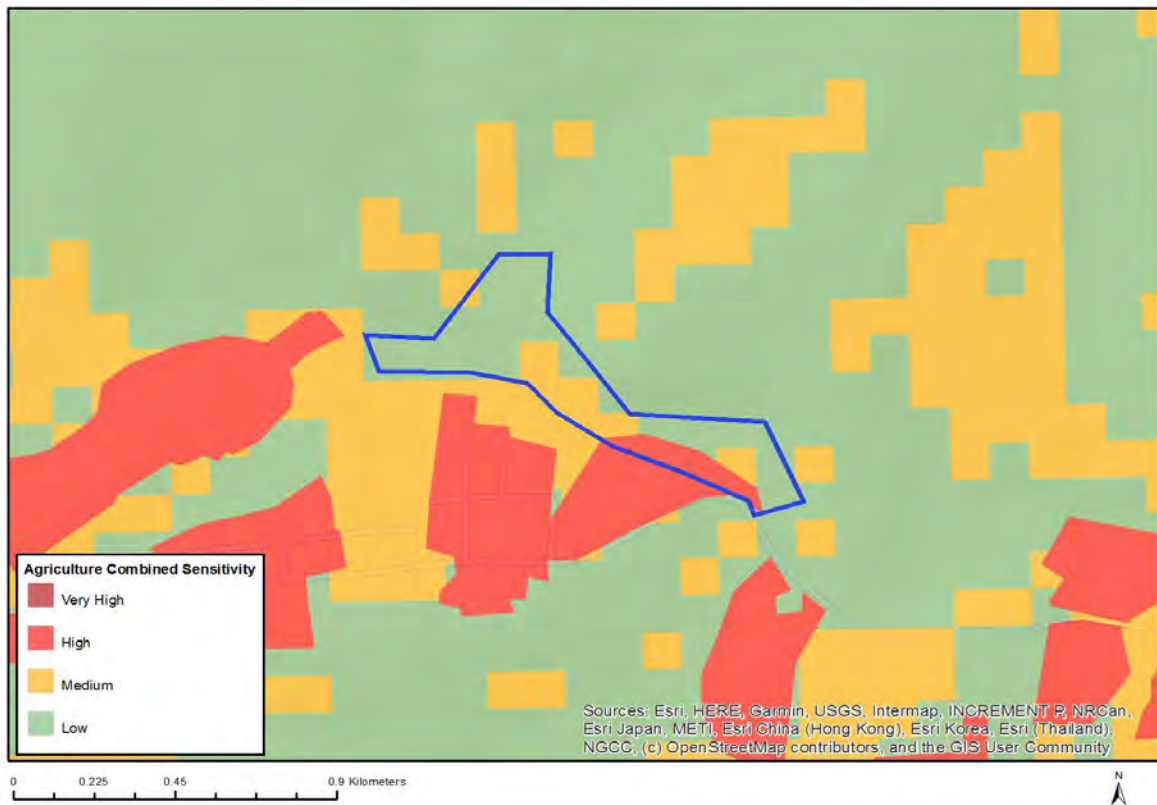
| N o | Specialist assessment                                  | Assessment Protocol   |
|-----|--|---|
| 1   | Landscape/Visual Impact Assessment                     | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 2   | Archaeological and Cultural Heritage Impact Assessment | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 3   | Palaeontology Impact Assessment                        | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 4   | Terrestrial Biodiversity Impact Assessment             | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf</a> |
| 5   | Aquatic Biodiversity Impact Assessment                 | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Aquatic_Biodiversity_Assessment.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_Aquatic_Biodiversity_Assessment.pdf</a>                             |
| 6   | Hydrology Assessment                                   | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |
| 7   | Socio-Economic   | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a>           |

|   |                           |   |
|---|---------------------------|---|
|   | Assessment                |   |
| 8 | Plant Species Assessment  | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a> |
| 9 | Animal Species Assessment | <a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/DraftGazetted_General_Requirement_Assessment_Protocols.pdf</a> |

## Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

### MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

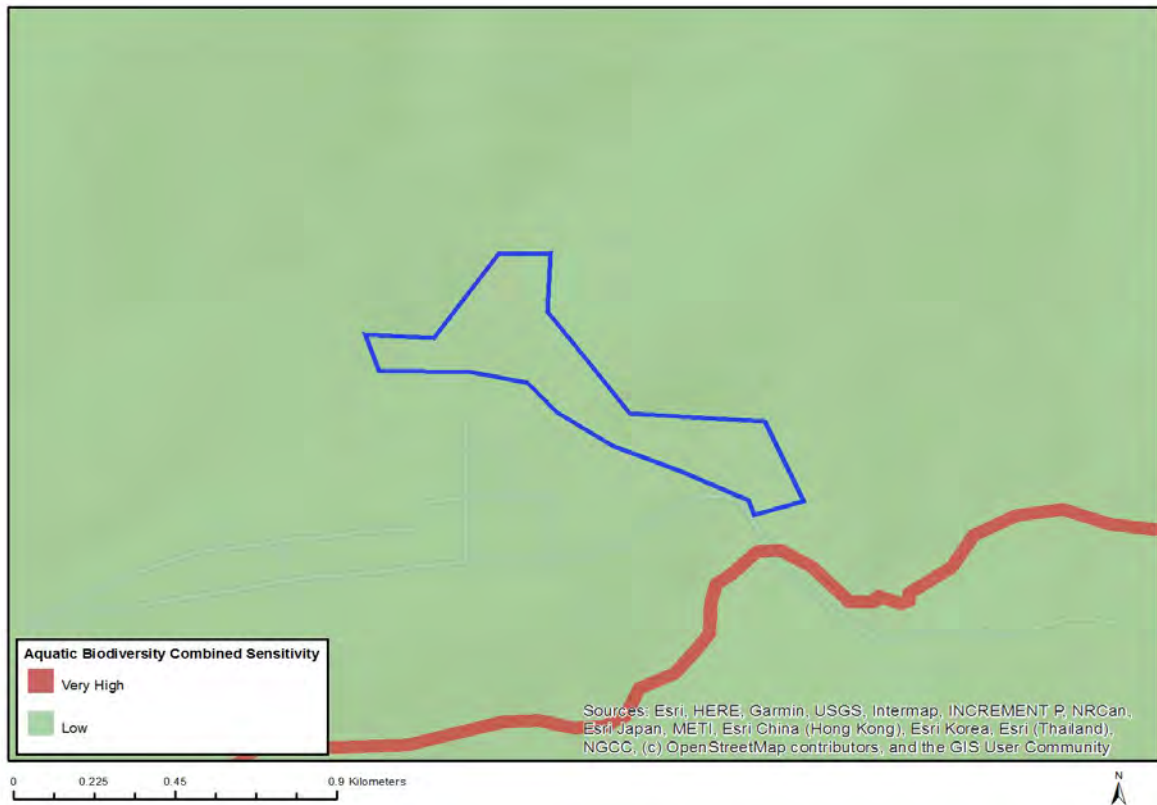


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       | X                |                    |                 |

#### Sensitivity Features:

| Sensitivity | Feature(s)  |
|-------------|---|
| High        | Subsistence Farming 1; Land capability; 06. Low-Moderate/07. Low-Moderate/08. Moderate                      |
| High        | Subsistence Farming 1; Land capability; 01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low |
| Low         | Land capability; 01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low                        |
| Medium      | Land capability; 06. Low-Moderate/07. Low-Moderate/08. Moderate   |

## MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

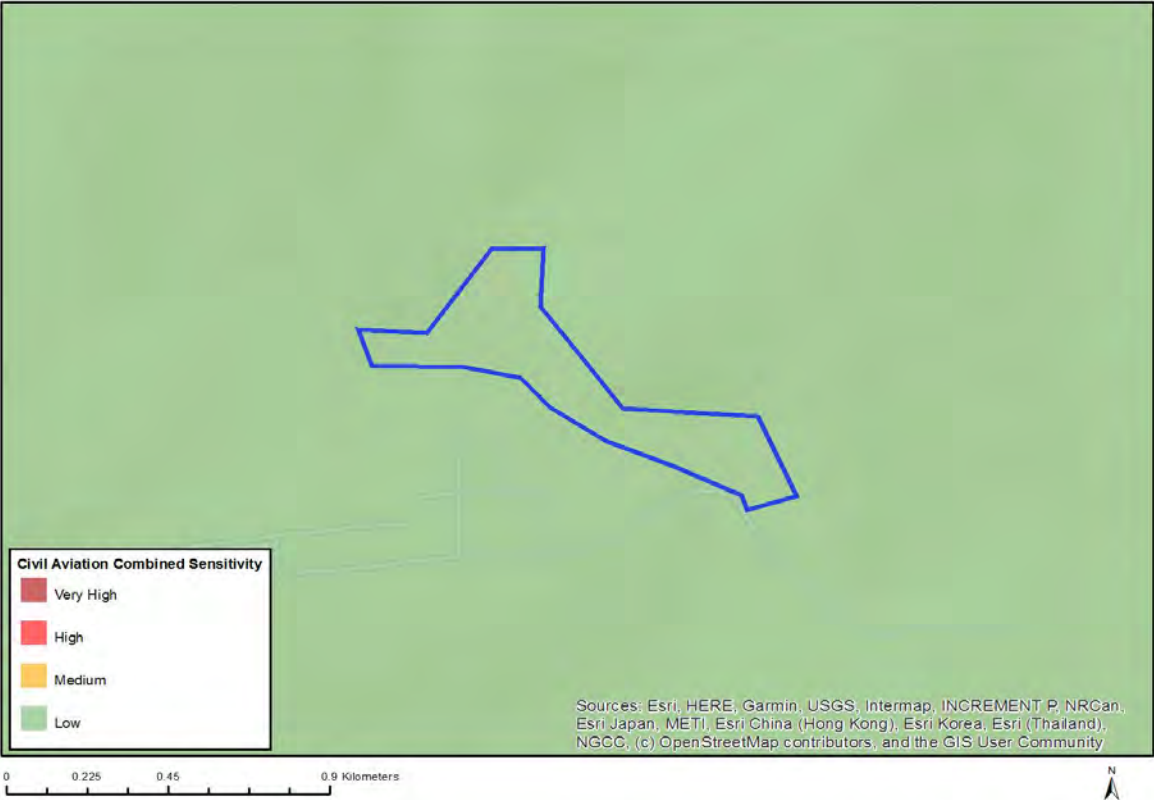


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  |                    | X               |

### Sensitivity Features:

| Sensitivity | Feature(s)            |
|-------------|-----------------------|
| Low         | Low Sensitivity Areas |

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY



| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  |                    | X               |

Sensitivity Features:

| Sensitivity | Feature(s)      |
|-------------|-----------------|
| Low         | Low sensitivity |

## MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

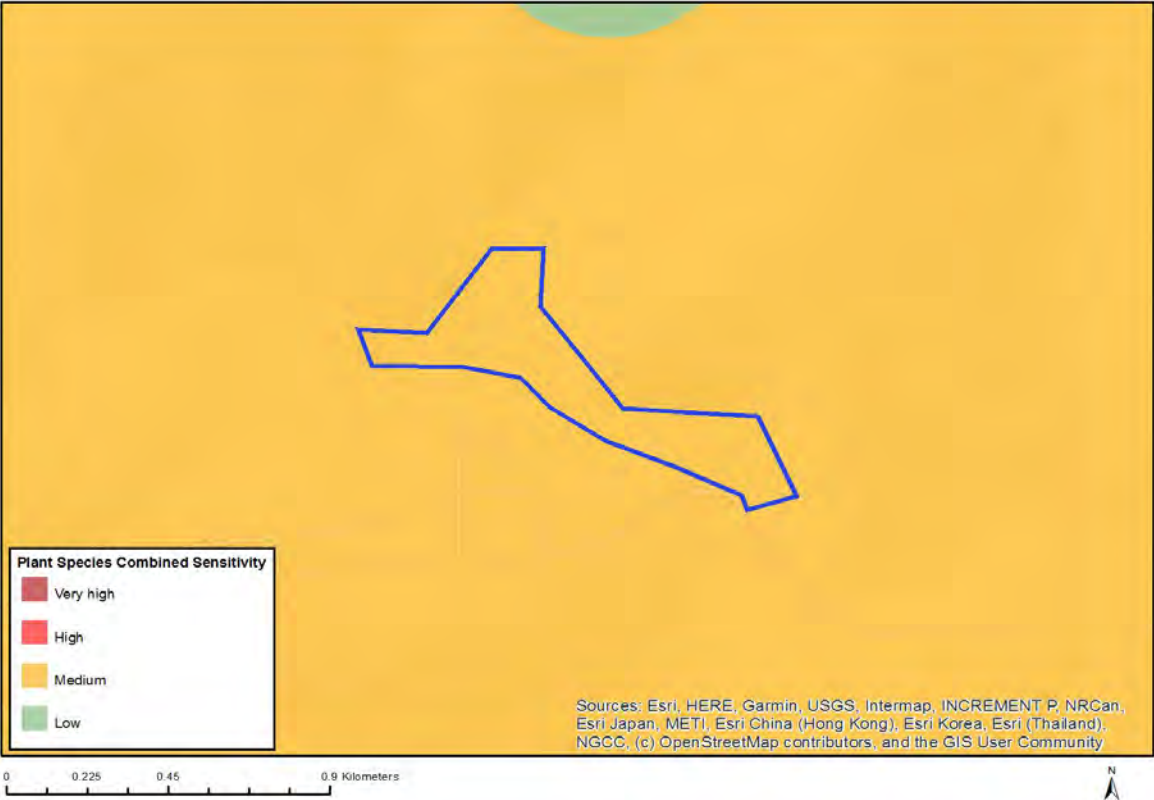


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       | X                |                    |                 |

### Sensitivity Features:

| Sensitivity | Feature(s)   |
|-------------|--|
| High        | Rock units with a high paleontological sensitivity |

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



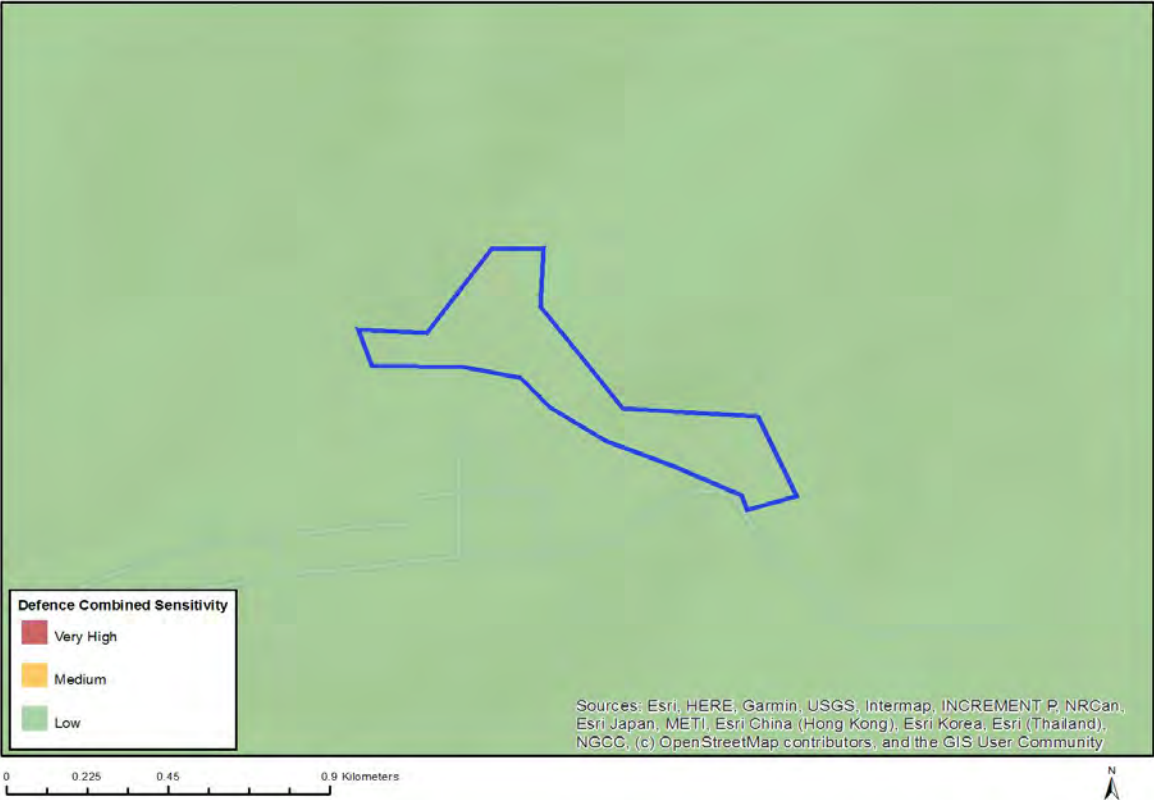
| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  | X                  |                 |

Sensitivity Features:

| Sensitivity | Feature(s)              |
|-------------|-------------------------|
| Medium      | Sensitive species 12    |
| Medium      | Sensitive species 294   |
| Medium      | Helichrysum montis-cati |
| Medium      | Aspalathus katbergensis |



MAP OF RELATIVE DEFENCE THEME SENSITIVITY

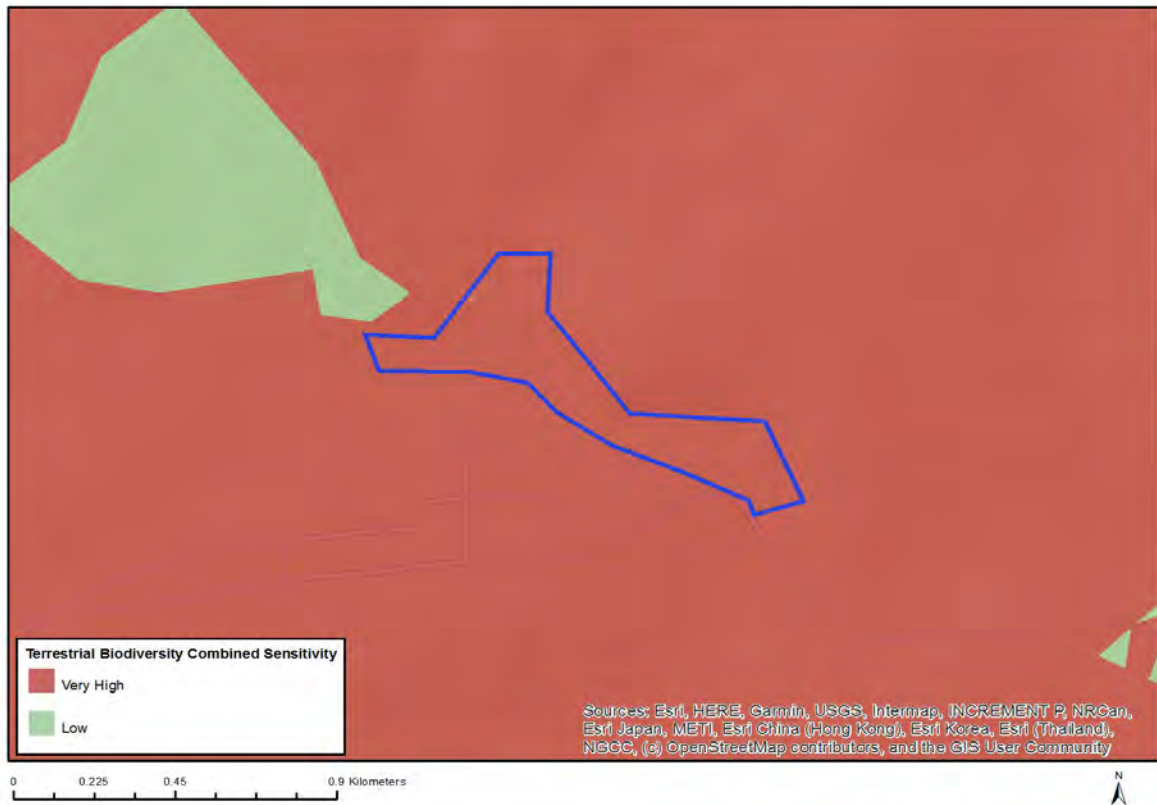


| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
|                       |                  |                    | X               |

Sensitivity Features:

| Sensitivity | Feature(s)      |
|-------------|-----------------|
| Low         | Low sensitivity |

## MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
| X                     |                  |                    |                 |

### Sensitivity Features:

| Sensitivity | Feature(s)   |
|-------------|--|
| Low         | None   |
| Very High   | Critical Biodiversity Area 1                         |
| Very High   | Focus Areas for land-based protected areas expansion |
| Very High   | Strategic Water Source Area                          |

# APPENDIX F2

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## MOTIVATION

## Franci Gresse

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**From:** Piet-Louis Grundling <PGrundling@environment.gov.za>  
**Sent:** Thursday, October 10, 2019 1:08 PM  
**To:** Farai Tererai; Franci Gresse  
**Subject:** RE: 113223 WfWetlands: Amathole palaeontological sensitivity

VERION 2

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**From:** Piet-Louis Grundling  
**Sent:** 10 October 2019 11:44 AM  
**To:** Farai Tererai <FTererai@environment.gov.za>; 'Franci Gresse' <Franci.Gresse@aurecongroup.com>  
**Cc:** Grant Walters <GWalters@environment.gov.za>; 'francois.karst@yahoo.com' <francois.karst@yahoo.com>  
**Subject:** RE: 113223 WfWetlands: Amathole palaeontological sensitivity

Dear Farai and Franci

It is a pleasure to assist WfWetlands in clarifying the palaeontological sensitivity of the Amathole wetland rehabilitation projects. I have cc-ed Prof Francois Durand, a world renown palaeontologist from the University of Johannesburg who is willing to provide further clarification if required (he actually did his primary research in this area).

1. The wetlands which required rehabilitation are indeed located in a landscape underlain by Tarkstad Subgroup sandstones and dolerite intrusions (Figure 1 below).
2. The Tarkastad Subgroup is well known for its richness in fossils such as *Lystrosaurus* (3226 King Williams Town, 1: 250 000 Geological Map, 1976, Council for Geoscience)
3. However, these occur in the inert sandstone layers and requires power tools to be removed (*pers. Comm. Prof Francois Durand*)
4. Furthermore no fossils occur within the dolerite intrusions and adjacent sandstones where the intense heat during the extensive dolerite intrusion phase would have destroyed any fossils present.
5. The wetlands occur in valleys that were scoured out during two uplifts of southern Africa 20 million and 5 million years ago (WET-Origin, 2009, Water Research Commission) and subsequently infilled. These wetlands are typically of Holocene age and it is therefore unlikely that any Tarkastad Subgroup fossils (of about about 250 million years) will be preserved in these recent wetland sediments.
6. Furthermore, the excavations of the wetland restoration structures planned are typically 0.2m (for earth plugs: the most common intervention planned) and 0.5m (for 3 concrete structures) in the incised, eroded stream channels and drains and 2.3 m in adjacent banks. Consequently excavations will be limited to the Holocene infill (wetland sediments) and will therefore not exposed sandstones of the Tarkastad Subgroup

*Figure 1: The wetlands identified in the polygon below in a Google Earth Image on the left and the geology Map (Council for Geoscience) on the right. The Tarkastad formation is the yellow colour and the dolerite intrusions in red.*



I have worked in various wetlands in that area, amongst other in the Dunedin peatland (in 2001) where we have sampled peat of deeper than 2 m and we did not encounter sandstone sub-outcrop neither any fossils and as such it is my professional opinion that the planned Amathole wetland restoration will not have an adverse effect on the palaeontology of the wetland and related catchment.

Regards, Piet-Louis

Dr Piet-Louis Grundling

(SACNSP - 400088/06)

Deputy Director

Legal, Authorisation and Compliance Inspectorate

Tel +27 (0)12 399 9592 | +27 72 793 8248 |

Email: [PGrundling@environment.gov.za](mailto:PGrundling@environment.gov.za)

Dept. of Environ. Affairs | Cnr Steve Biko & Soutpansberg Rds | Tshwane, 0002

Address: 473 Steve Biko, Arcadia | Pretoria | 0083 | South Africa

Postal: Private Bag X447 | Pretoria | 0001 | South Africa

DEA Values: Integrity | Passion | People Centric | Performance | Pro-active



Hotline for tip-offs to report Environmental Crimes: 0800 205 005

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**From:** Franci Gresse [<mailto:Franci.Gresse@aurecongroup.com>]

**Sent:** 08 October 2019 05:52 PM

**To:** Piet-Louis Grundling <[PGrundling@environment.gov.za](mailto:PGrundling@environment.gov.za)>

**Cc:** Farai Tererai <[FTererai@environment.gov.za](mailto:FTererai@environment.gov.za)>

**Subject:** 113223 WfWetlands: Amathole palaeontological sensitivity

Hi Piet-Louis

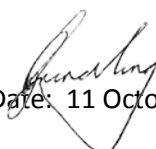
## Curriculum Vitae (CV) for Piet-Louis Grundling

|    |  |   |                             |  |                |
|----|--|---|-----------------------------|--|----------------|
| 1  | <b>Name:</b>   | Piet-Louis Grundling  |                             |  |                |
| 2  | <b>Position:</b>   | Deputy Director<br>Legal, Authorisation and Compliance Inspectorate |                             |  |                |
| 3  | <b>Company/ Consortium</b>   | Department of Environment, Forestry and Fisheries                   |                             |  |                |
| 4  | <b>Nationality:</b>  | RSA   |                             |  |                |
| 5  | <b>Date of Birth:</b>  | 1966/05/30  |                             |  |                |
| 6  | <b>Education:</b>  | <b>Name of Institution</b>  | <b>Degree Obtained</b>      | <b>Dates</b>                                 |                |
|    |  | Univ of Waterloo  | PhD Geography               | 2014   |                |
|    |  | Rand Afrikaans Univ   | MSc Geology                 | 2001   |                |
|    |  | Univ Pretoria   | BSc Honours Geology         | 1993   |                |
|    |  | Univ Pretoria   | BSc Geology & Geography     | 1991   |                |
| 7  | <b>Membership in Professional Associations</b>   | <b>Name of Association</b>  | <b>Membership Category</b>  | <b>Dates</b>                                 |                |
|    |  | International Mire Conservation Group                               | Chair<br>Main Board         | 2010 – 2016<br>2002 – present                |                |
|    |  | SA Council for Natural Scientific Professions                       | Earth Scientist             | 2006 – present                               |                |
|    |  | South African Wetland Society                                       | Chair<br>Board<br>Member    | 2013 – 2016<br>2013 – 2018<br>2018 - present |                |
|    |  | Centre for Environmental management, University of the Free State   | Research Associate          | 2011 – present                               |                |
|    |  | Southern African Association of Geomorphologists                    | Member                      | 2017 - present                               |                |
| 8  | <b>Countries of Work Experience</b>  | <b>Country</b>  | <b>Dates (from – to)</b>    |  |                |
|    |  | South Africa  | 1985 till present           |  |                |
|    |  | Lesotho   | Periods in 1999, 2000, 2003 |  |                |
|    |  | Mozambique  | Period in 1996              |  |                |
|    |  | Canada (teaching assistant part of Doctoral)                        | 2006 - 2009                 |  |                |
|    |  | Swaziland   | 2017                        |  |                |
| 10 | <b>Languages:</b>  | <b>Language</b>   | <b>Speaking</b>             | <b>Reading</b>                               | <b>Writing</b> |
|    |  | Afrikaans   | Good                        | Good   | Good           |
|    |  | English   | Good                        | Good   | Good           |
| 11 | <b>Employment Record</b>   |   |                             |  |                |
|    | <ul style="list-style-type: none"> <li>Dates (from – to): 1 September 2019 to present</li> <li>Employer: Department of Environment, Forestry and Fisheries</li> <li>Position held: Deputy Director:</li> <li>Responsibilities: Scientific Support</li> </ul>   |   |                             |  |                |
|    | <ul style="list-style-type: none"> <li>Dates (from – to): 1 March 2016 to 31 August 2019</li> <li>Employer: Department of Environmental Affairs</li> <li>Position held: Dates (from – to): Deputy Director: Programme Implementation</li> <li>Responsibilities: Coordinate programme implementation</li> </ul> |   |                             |  |                |

## Curriculum Vitae (CV) for Piet-Louis Grundling

|    |  |   |
|----|--|---|
|    | <ul style="list-style-type: none"> <li>• Dates (from – to): 2010 – 28 Feb 2016</li> <li>• Employer: Ixhaphozi Enviro Services</li> <li>• Position held: Director/wetland specialist</li> <li>• Responsibilities: Coordinate project, Specialist researcher: peatlands and wetland studies, wetland rehabilitation; Wetland training through the Univ of the Free State</li> </ul>                    |   |
|    | <ul style="list-style-type: none"> <li>• Dates (from – to): 2006 - 2009</li> <li>• Employer: Univ Waterloo</li> <li>• Position held: Teaching and Research assistant (during doctoral studies)</li> <li>• Responsibilities: Wetland hydrology research, student support, evaluate assignments and exams</li> </ul>   |   |
|    | <ul style="list-style-type: none"> <li>• Dates (from – to): 2006 – 2006</li> <li>• Employer: Self employed</li> <li>• Position held: Consultant</li> <li>• Responsibilities: Technical advice to Maccaferri and South African Biodiversity Institute</li> </ul>  |   |
|    | <ul style="list-style-type: none"> <li>• Dates (from – to): 2000 - 2005</li> <li>• Employer: Working for Wetlands /South African Biodiversity Institute (SANBI)</li> <li>• Position held: National coordinator/Technical Advisor/ Provincial Coordinator</li> <li>• Responsibilities: Wetland rehabilitation: Coordinate programme/Create jobs/advise project planning and implementation</li> </ul> |   |
|    | <ul style="list-style-type: none"> <li>• Dates (from – to): 1999 - 2000</li> <li>• Employer: Wetland Consulting Services</li> <li>• Position held: Researcher</li> <li>• Responsibilities: Research: wetland and peatland projects in South Africa and lesotho</li> </ul>  |   |
|    | <ul style="list-style-type: none"> <li>• Dates (from – to): 1989 - 1999</li> <li>• Employer: Council for Geoscience</li> <li>• Position held: Researcher</li> <li>• Responsibilities: Research: peatland projects in South Africa, Mozambique and Lesotho</li> </ul>   |   |
| 12 | <p>Research Interests<br/><i>(all tasks to be performed under this assignment)</i></p>   | 13. Student involvement<br><i>(that best illustrates capability to handle the tasks assigned)</i>   |
|    | <ul style="list-style-type: none"> <li>• Wetland <ul style="list-style-type: none"> <li>○ characterization</li> <li>○ hydrology and geomorphology</li> <li>○ functioning</li> </ul> </li> <li>• Landscape and habitat restoration</li> </ul> <p>Publication list attached:</p>   | <p>Recent supervision and co-supervision</p> <ul style="list-style-type: none"> <li>• Antoinette Bootsma, Unisa: Masters in Ecology (2017)</li> <li>• Lizette Delport, UJ: Masters in Aquatic Science – wetlands (2017)</li> <li>• Samer Elshehawi, Univ Groningen: Masters in Environmental Science (2018)</li> <li>• Steven Khosa, Unisa: Higher diploma in Conservation (current)</li> <li>• Pieter Botha, Unisa, B. Tech (practical) (current)</li> </ul> <p>Thesis reviewed - Masters level (recent)</p> <ul style="list-style-type: none"> <li>• Unisa (1), Rhodes (2) and Free State (1), UP (1)</li> </ul> <p>Recent papers reviewed</p> <ul style="list-style-type: none"> <li>• South African Journal of Plant and Soil (Wetland hydrology indicators of Maluti mountains wetlands in Lesotho)</li> </ul> |

## Curriculum Vitae (CV) for Piet-Louis Grundling

|    |   |  |
|----|---|--|
|    |   | <p>Recent research projects</p> <ul style="list-style-type: none"><li>• Water Research Commission - K5/2346: South African peatlands: Ecohydrological characteristics and socio-economic value (2017).</li><li>• Sitting on various review committees of the Water Research Commission</li></ul> |
| 14 | <p><b>Certification</b></p> <p>I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience.</p> <p>Furthermore, I understand that any willful misstatement described herein may lead to my disqualification or dismissal, if engaged.</p> <p>Name of researcher:<br/>Piet-Louis Grundling<br/>Signature:</p>  <p>Date: 11 October 2019.</p> |  |
|    |   |  |



## Curriculum Vitae (CV) for Piet-Louis Grundling

### PUBLICATIONS - Piet-Louis Grundling

Cleef, A., Grundling, P. L., & Joosten, H. (2014). Special Issue: Mountain peatlands. *Mires and Peat*, 15.

Clulow, A.D., Everson, C.S., Mengistu, M.G., Jarmain, C., Jewitt, G.P.W., Price, J.S. and Grundling, P. (2012) Measurement and modelling of evaporation from a coastal wetland in Maputaland, South Africa. *Hydrology and Earth System Sciences*. [www.hydrol-earth-syst-sci-discuss.net/9/1741/2012/](http://www.hydrol-earth-syst-sci-discuss.net/9/1741/2012/) doi:10.5194/hessd-9-1741-2012. Attribution 3.0 9, 1741-1782.

Ellis L.T., Bednarek-Ochyra H., Ochyra R., Benjumea M.J., Saïs L.V., Caparrós R., Lara F., Mazimpaka V., Dulin M.V., Garilleti R., Gremmen N., Grundling P.-L., Heras P., Infante M., Huttunen S., Ignatov M.S., Korvenpää T., Lebouvier M., Lewis Smith R.I., Lin S.-H., Yang J.-D., **Linström A.**, **Plášek V.**, Rosselló J.A., Sawicki J., Van Rooy J., Smith V.R., (2013) New national and regional bryophyte records, 35. *Journal of bryology* 35: 129–139.

Ellery, W.N., Grenfell, M., Grenfell, S., Kotze, D., McCarthy, T., Tooth, S., Grundling, P., Beckendahl, H., Le Maitre, D. and Ramsay, L. (2009b) WET-Origins – Controls on the distribution and dynamics of wetlands in South Africa. WRC Report No. TT 335/08. Water Research Commission, Pretoria, South Africa.

Faul, F., Gabriel, M., Robkopf, N., Zeitz, J., Van Huyssteen, C. W., Pretorius, M. L., & Grundling, P. L. (2016). Physical and hydrological properties of peatland substrates from different hydrogenetic wetland types on the Maputaland Coastal Plain, South Africa. *South African Journal of Plant and Soil*, 33(4), 265-278.

Gabriel, M., Toader, C., Faul, F., Robkopf, N., Grundling, P. L., van Huyssteen, C. W., & Zeitz, J. (2018). Peatland substrates in northern KwaZulu-Natal: a study of the forming environments, properties and an approach towards classification. *South African Journal of Plant and Soil*, 35(2), 149-160.

Grobler, R., Moning, E., Sliva, J., Bredenkamp, G. and Grundling, P. (2004) Subsistence farming and conservation constraints in coastal peat swamp forests of the Kosi Bay Lake system, Maputaland, South Africa. *Géocarrefour [En ligne]*, 79/4, 316-324.

Grootjans, A. P., Jansen, A. J. M., de Hullu, P. C., Joosten, H., Bootsma, A., & Grundling, P. L. (2014). In search of spring mires in Namibia: the Waterberg area revisited. *Mires and Peat*, 15, 10.

Grootjans, A. P., Grundling, P. L., Grundling, A., & Price, J (2010) Spring mires fed by hot artesian water in Kruger National Park, South Africa. *Mires and Peat*, 6, Article 07, 1–10, <http://www.mires-and-peat.net/>, ISSN 1819-754

## **Curriculum Vitae (CV) for Piet-Louis Grundling**

Bootsma, A., Elshehawi, S., Grootjans, A., Grundling, P. L., Khosa, S., Butler, M., & Schot, P. (2019). Anthropogenic disturbances of natural ecohydrological processes in the Matlabas mountain mire, South Africa. *South African Journal of Science*, 115(5-6), 1-9.

Elshehawi, S., Grundling, P., Gabriel, M., Grootjans, A. P., & Plicht, J. (2019). South African peatlands: a review of Late Pleistocene-Holocene developments using radiocarbon dating. Article 11, 1–14, <http://www.mires-and-peat.net/>, ISSN 1819-754X © 2019 International Mire Conservation Group and International Peatland Society, DOI: 10.19189/MaP.2018.KHR.329 1

Grundling, A.T., Grootjans, A.P., & Grundling, P and Price, P.S. "Peatland types and tropical swamp forests on the Maputaland Coastal Plain (South Africa)." In *The Wetland Book*, pp. 1-14. Springer, Dordrecht, 2016.

Grundling, P., 2004. The role of sea level rise in the formation of peatlands in Maputaland. In: Momade, F., Achimo, M., Haldorsen, S. (Eds.), *The Impact of Sea-level Change; Past, Present, Future*, Vol. 43. *Boletim Geológico*, pp. 42–48.

Grundling, P., Clulow, A. D., Price, J. S., & Everson, C. S. (2015). Quantifying the water balance of Mfabeni Mire (iSimangaliso Wetland Park, South Africa) to understand its importance, functioning and vulnerability. *Mires and Peat*, 16(12), 1-18.

Grundling, P., & Grootjans, A. P. (2016). Peatlands of Africa. *The Wetland Book: II: Distribution, Description and Conservation*, 1-10.

Grundling, P., Grootjans, A.P., Price, J.P. and Ellery, W.N. (2013) Development and persistence of an African mire: how the oldest South African fen has survived in a marginal climate. *Catena* (2013), 176-183 DOI information: 10.1016/j.catena.2013.06.004

Grundling P.; Grundling A.T.; Pretorius L. (2017) South African peatlands: Ecohydrological characteristics and socio-economic value. Water Research Commission Report Research Report No.2346/1/17. Pretoria, South Africa. pp147

Grundling, P. L., Linström, A., Fokkema, W., & Grootjans, A. (2015). Mires in the Maluti Mountains of Lesotho. *Mires and Peat*, Volume 15 (2014/15), Article 09, 1–11, <http://www.mires-and-peat.net/>, ISSN 1819-754X

Grundling P. and Dada R. (1999). Peatlands of South Africa. Share-Net 1999.

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## Curriculum Vitae (CV) for Piet-Louis Grundling

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