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8 December 2014

Elizabeth Wahl and Len van Schalkwyk
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Ashburton
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Email: thembeni@iafrica.com

Dear Len and Beth,

UTHUNGULU DISTRICT MUNICIPALITY
VUTSHINI-NKANDLA WATER SCHEME (NORTH): PHASE 1

REQUEST FOR PROPOSAL AND COST ESTIMATE TO UNDERTAKE A HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED VUTSHINI-NKANDLA WATER SCHEME (NORTH): PHASE 1 WITHIN THE NKANDLA LOCAL MUNICIPALITY, NORTHERN KWAZULU-NATAL

Please provide ACER with a short proposal and cost estimate to undertake a Heritage Impact Assessment for the route alignments of the proposed Vutshini-Nkandla Water Scheme (North): Phase 1 within the Nkandla Local Municipality, KwaZulu-Natal.

Please take note of Appendices 1, 2 and 3 when preparing your proposal and estimate of cost as this is what must be covered in the assignment. ACER requests that your cost estimate be submitted by the **12 December 2014**.

It is imperative that the specialist study is completed as soon as possible (from a design and planning perspective). Should you require any further information regarding the proposed development, please contact me on 082 907 9738 or 035 340 2715.

Yours sincerely,

ACER (Africa) Environmental Consultants
Giles Churchill
Environmental Consultant

APPENDIX 1

1. INTRODUCTION

On behalf of the proponent, UThungulu District Municipality, ACER (Africa) Environmental Consultants (ACER) would like to commission a Heritage Impact Assessment along the route alignments for the proposed Vutshini-Nkandla Water Scheme (North): Phase 1 within the Nkandla Local Municipality, KwaZulu-Natal.

2. PROJECT DESCRIPTION

The uThungulu District Municipality is planning to construct the proposed Vutshini-Nkandla Water Scheme (North) located within the rural areas of Wards 2, 3, 8 and 10 of the Nkandla Local Municipality to the north of the settlement of Qudeni. The proposed water scheme is aimed at providing potable water to communities within this region and will require the construction of a water abstraction works on the Nsuze River as well as a water treatment works. From the water treatment works, water will be pumped through rising mains (diameter not exceeding 300 mm) to reservoirs (not exceeding 3 Ml) before being distributed through gravity mains (diameter not exceeding 200 mm) to smaller reservoirs close to the targeted communities. From these reservoirs, water will be supplied to the communities through a reticulation network with pipes not exceeding 100 mm in size. Due to the overall size of the proposed water scheme, construction has been divided into a number of phases, with Phase 1 being the most urgent to be implemented, followed by Phases 2, 3 and 4.

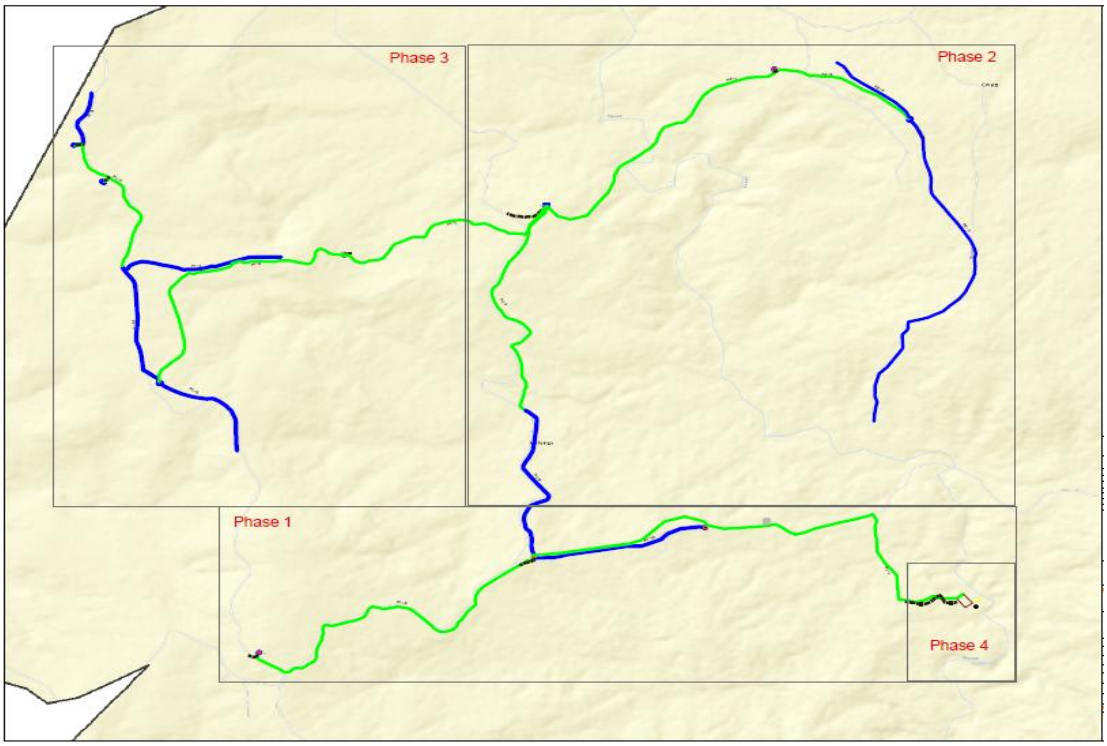

Figure 1 Proposed Vutshini-Nkandla Water Scheme (North) showing all Phases

The proposed Vutshini-Nkandla Water Scheme (North) project will include the following project components:

- Water Abstraction from the Nsuze River and the construction of a water treatment works *(This component of the water scheme is being dealt with in a separate Environmental Impact Assessment which is scheduled to commence within the next year and makes up Phase 4 of the Water Scheme)*.
- Rising Mains. From the water treatment works, water will be pumped through rising mains (diameter not exceeding 300 mm).
- Storage reservoirs and pump stations. Five storage reservoirs (not exceeding 3 Ml) will be constructed during Phases 1 and 2 of the water scheme.
- Gravity mains. From the reservoirs water will be distributed through gravity mains (diameter not exceeding 200 mm) to smaller reservoirs close to the targeted communities.
- Reticulation network. From these reservoirs, water will be supplied to the communities through a reticulation network with pipes not exceeding 100 mm in size.
- The provisions of electricity to the three pump stations (22 kV) and some of the reservoirs.

Phase 1 will consist of three separate Environmental Authorisation applications for the three proposed pipelines to be constructed during Phase 1. As such, the Heritage Impact Assessment Report must address the following three components:

Nkandla Water Scheme (North) Phase 1: Pipeline P1-1
Pipeline P1-1 of the Vutshini-Nkandla Water Scheme (North) is 8.7 km long with a working servitude of 10 m in width (See Appendix 3: Maps) and will consist of the following components:

- Rising mains. The construction of a 200 mm rising main from the proposed site of the water treatment works to the Reservoir R1-2.
- Storage reservoirs and pump stations. The construction of three storage reservoirs (not exceeding 3 Ml) namely R1-1, R1-2 and R1-3.

Vutshini-Nkandla Water Scheme (North) Phase 1: Pipeline P1-2
Pipeline P1-2 of the Vutshini-Nkandla Water Scheme (North) is 3.2 km long with a working servitude of 10 m in width (See Appendix 3: Maps) and will consist of the following components:

- Gravity mains. The construction of 90 mm gravity main from the proposed reservoir site R 1-3 to Reservoir R1-2.
- Storage reservoirs and pump stations. The construction of one storage reservoir (not exceeding 3 Ml) namely R1-3.

Nkandla Water Scheme (North) Phase 1: Pipeline P1-3
Pipeline P1-3 of the Vutshini-Nkandla Water Scheme (North) is 6.4 km long with a working servitude of 10 m in width (See Appendix 3: Maps) and will consist of the following components:

- Rising mains. The construction of a 110 mm rising main from the proposed reservoir site R 1-4 to Reservoir R1-2. (+- 6.4 km in length)
- Storage reservoirs and pump stations. The construction of one storage reservoir (not exceeding 3 Ml) namely R1-4.

3. ROUTE ALIGNMENTS

When selecting the route alignments for the proposed Vutshini-Nkandla Water Scheme (North) pipelines, the following criteria were taken into account by the engineering team to find the most practical and cost effective alignments:

- The placing of the pipelines close to and along existing roads and tracks.
- Following contours.
- Following ridge lines which will limit impacts on wetlands and sensitive environments.

In total, approximately 18 km of pipeline will be constructed for Vutshini-Nkandla Water Scheme (North): Phase 1 and will include the construction of gravity pipelines and rising mains. The topography of the supply area is characterised by very steep and hilly terrain. As far as possible, the pipelines will follow existing roadways and tracks. When this is not possible, the pipelines are to follow contours to reduce the steep drops and rises in the pipe work which result in high pressure heads within the pipes. Co-ordinates of the pipeline alignments will be submitted to you for your assignment.

4. PROPOSED WORK PLAN

In order to fast-track specialist investigations, it is proposed that all specialist assessments be completed by **30 January 2014**. Please indicate if this time frame is problematic for your specialist study.

5. USE OF EXISTING INFORMATION AND SUPPORTING DOCUMENTS

All specialists are required to apprise themselves of existing information. Upon appointment, specialists must undertake a literature review and desktop investigation to collate relevant information and assess gaps in knowledge. The following material will be provided:

- ❑ Maps and diagrams (as available – See Appendix 3 sent separately).

6. PROJECT SCHEDULE AND DELIVERABLES

The specialist report must incorporate all three of the pipelines proposed for Phase 1 of the Vutshini-Nkandla Water Scheme (North). ACER requests that the specialist report be structured as follows:

- ❑ **General introduction and project description for all three pipelines**.
- ❑ **Section A – Findings relating to Pipeline P1-1** of the Vutshini-Nkandla Water Scheme (North). This section must include an assessment of the impacts associated with this pipeline and suggested mitigation measures.
- ❑ **Section B – Findings relating to Pipeline P1-2** of the Vutshini-Nkandla Water Scheme (North). This section must include an assessment of the impacts associated with this pipeline and suggested mitigation measures.
- ❑ **Section C – Findings relating to Pipeline P1-3** of the Vutshini-Nkandla Water Scheme (North). This section must include an assessment of the impacts associated with this pipeline and suggested mitigation measures.
- ❑ **Conclusion and recommendations.**

The following deliverables are required:

- ❑ One draft and one final copy of the report – electronically (MS Word).
- ❑ A final report will be required approximately two weeks after submission of the draft report (once comments have been provided by the UThungulu District Municipality and ACER).
- ❑ Submission of the required applications to Amafa aKwaZulu-Natali **(the associated application costs for submission must be included in your cost estimate)**.

7. ON-SITE AND REPORTING PROCEDURES

Please be advised that the site falls within remote rural area and, therefore, the following health and safety rules must be adhered to:

- ❑ Beware of passing vehicles.
- ❑ Obey all road safety regulations and traffic signs.
- ❑ Be observant for snakes and stray dogs.

8. CONCLUDING REMARKS

ACER is responsible for the submission of a Basic Assessment Report to DEDTEA for purposes of environmental authorisation. This specialist study will form an integral component of this Basic Assessment and will help to ensure that the approach can be shown to meet current environmental management best practice in terms of sustainable development.

APPENDIX 2

Terms of Reference and Assessment Conventions for the Identification and Quantification of Impacts

Terms of Reference

In order to assess potential environmental impacts of construction activities associated with the proposed Vutshini-Nkandla Water Scheme (North): Phase 1, and to meet the requirements of the Environmental Impact Assessment (EIA) Regulations of 2010, a Basic Assessment must be undertaken to obtain an Environmental Authorisation (EA) for this proposed project. ACER has undertaken an initial Scoping exercise, which is to be followed by the Basic Assessment.

Arising from the preliminary investigations is the following question:

What are the potential impacts on cultural heritage resources arising from the proposed Vutshini-Nkandla Water Scheme (North): Phase 1 and associated construction activities?

Specifically, the Heritage Impact Assessment must address the following key aspects:

- The identification and assessment of potential impacts on cultural heritage resources, including historical sites arising from the construction and operation of the proposed project.
- The early identification of any red flag and fatal flaw issues or impacts.
- Information must be provided on the following:
  - Results of an overview survey of the reservoir sites and pipeline route alignments, and the identification of cultural heritage resources that may be affected by the proposed project or which may affect the proposed project during construction and operation.
  - Recommendations on site and route alternatives, and additional alternatives should they be identified, to avoid negative impacts.
  - Recommended mitigation measures for enhancing positive impacts and avoiding or minimizing negative impacts and risks (to be implemented during design, construction and operation).
- Address specific issues and concerns raised by stakeholders during the public review phase of the Basic Assessment process (an Issues and Response Report will be provided to specialists).
- Formulation of a protocol to be followed by the UThungulu District Municipality for the identification, protection or recovery of cultural heritage resources during construction and operation, including a list of all necessary permit applications, which may be required.

In compliance with Section 38 of the National Heritage Resources Act 25 of 1999 (NHRA), a Phase 1 Heritage Impact Assessment (HIA) must address the following key aspects:

- The identification and mapping of all heritage resources in the area affected.
- An assessment of the significance of such resources in terms of heritage assessment criteria set out in regulations.
- An assessment of the impact of the development on heritage resources.
- An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development.
- The results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources.
- If heritage resources will be adversely affected by the proposed development, the consideration of alternatives.
- Plans for mitigation of any adverse effects during and after completion of the proposed development.

Please note that the following is required in terms of Section 31 of GN R543 published under Section 24 of the NEMA.

Specialist reports and reports on specialised process must contain the following:

- Details of the person who prepared the report, and the expertise of that person to carry out the specialist study or specialised process (in the form of a curriculum vitae attached as an appendix to the report).
- A declaration that the person is independent.
- An introduction that presents a brief background to the study and an appreciation of the requirements stated in the specific terms of reference for the study.
- Details of the approach to the study where activities performed and methods used are presented.
- A description of any assumptions made and any uncertainties or gaps in knowledge.
- A description of the affected environment and the study area to provide a context in which potential impacts have been assessed.
- Description of proposed actions and alternatives of development and operation of the project that could affect the prevailing environment, and the risks that these actions and alternatives present.
- A description of the impacts of actions and alternatives, defined according to the criteria of Nature, Extent, Duration, Intensity, Frequency of Occurrence, Probability of Occurrence and Legal Requirements.
- Impact assessment to be defined by Significance, Status and Degree of Confidence (firstly, with no mitigation measures applied and, secondly, taking due cognisance of mitigation measures).
- A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment as well as the environment on the proposed development.
- Recommended management actions, including mitigation alternatives and monitoring recommendations.
- A description of any consultation process that was undertaken during the course of carrying out the specialist study.
- A summary and copies of any comments that were received during any consultation process.
- A clear analysis as to how each recommended mitigation action would reduce negative impacts or enhance positive ones.

Assessment Conventions

The EIA Team has adopted a set of conventions for purposes of the integrated assessment of potential impacts, and the determination of impact significance. The following list of conventions must be used by Specialists when undertaking their discipline-specific assessments.

- **Direct impacts** are impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.

- **Indirect impacts** of an activity are indirect or induced changes that may occur as a result of the activity. These types of impacts include all the potential impacts that do not **manifest** immediately when the activity is undertaken or which occur at a different place as a result of the activity.

- **Cumulative impacts** are impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.

- **Nature** – the evaluation of the nature is impact specific. Most negative impacts will remain negative, however, after mitigation, significance should reduce:
  - **Positive.**
  - **Negative.**

- **Spatial extent** – the size of the area that will be affected by the impact:
  - **Site specific.**
  - **Local** (limited to the immediate areas around the site; < 2 km from site).
  - **Regional** (would include a major portion of an area; within 30 km of site).
  - **National** or **International**.

- **Duration** – the timeframe during which the impact will be experienced:
  - **Short-term** (0-3 years or confined to the period of construction).
  - **Medium-term** (3-10 years).
  - **Long-term** (the impact will only cease after the operational life of the activity).
  - **Permanent** (beyond the anticipated lifetime of the project).

- **Intensity** – this provides an order of magnitude of whether or not the intensity (magnitude/size/frequency) of the impact would be negligible, low, medium or high):
  - **Negligible** (inconsequential or no impact).
  - **Low** (small alteration of natural systems, patterns or processes).
  - **Medium** (noticeable alteration of natural systems, patterns or processes).
  - **High** (severe alteration of natural systems, patterns or processes).

- **Frequency** – this provides a description of any repetitive, continuous or time-linked characteristics of the impact:
  - **Once Off** (Occurring any time during construction).
  - **Intermittent** (occurring from time to time, without specific periodicity).
  - **Periodic** (occurring at more or less regular intervals).
  - **Continuous** (without interruption).

- **Probability** – the likelihood of the impact occurring:
  - **Improbable** (very low likelihood that the impact will occur).
  - **Probable** (distinct possibility that the impact will occur).
  - **Highly probable** (most likely that the impact will occur).
  - **Definite** (the impact will occur).

- **Irreplaceability** – of resource loss caused by impacts:
  - **High** irreplaceability of resources (the project will destroy unique resources that cannot be replaced).
  - **Moderate** irreplaceability of resources (the project will destroy resources, which can be replaced with effort).
  - **Low** irreplaceability of resources (the project will destroy resources, which are easily replaceable).

- **Reversibility** – this describes the ability of the impacted environment to return/be returned to its pre-impacted state (in the same or different location):
  - Impacts are **non-reversible** (impact is permanent).
  - **Low** reversibility.
  - **Moderate** reversibility of impacts.
  - **High** reversibility of impacts (impact is highly reversible at end of project life).

- **Significance** – the significance of the impact on components of the affected environment (and, where relevant, with respect to potential legal infringement) is described:
  - **Low** (the impact will not have a significant influence on the environment and, thus, will not be required to be significantly accommodated in the project design).
  - **Medium** (the impact will have an adverse affect or influence on the environment, which will require modification of the project design, the implementation of mitigation measures or both).
  - **High** (the impact will have a serious affect on the environment to the extent that, regardless of mitigation measures, it could block the project from proceeding).

- **Confidence** – the degree of confidence in predictions based on available information **and** specialist knowledge:
  - **Low.**
  - **Medium.**
  - **High.**