

1. INTRODUCTION

1.1 BACKGROUND TO THE STUDY

The applicant, Allied River Farming (Pty) Ltd is also the landowner, wants to develop Farm Kwikstaart 431 KQ portion 2 which the applicant just recently bought. This farm is adjacent to Allied Rivers Farming and will fit into the Irrigation part of the farm very well. The proposed development consists of 4 crop circles with sizes 55 ha; 75; 115 ha and 135 ha respectively. The applicant is a farming company who is a major supplier of crops to the local and regional economy. They specialize in crops such as Maize, Wheat and Soybeans and irrigate 1500 hectares.

The proposed development site is located on Farm Kwikstaart 431 KQ portion 2, Koedoeskop district of Thabazimbi, within the Crocodile River-west Irrigation Valley, approximately 45 km south of Thabazimbi. The site is located next to the P20/2 Koedoeskop-Northam road. The Current and Surrounding Land Use is Agriculture.

1.2 TERMS OF REFERENCE

The objective of this study is to conduct a scoping exercise. The broad terms of reference for a scoping exercise are to:

- Scope for issues that would be associated with this planned project;
- Conduct an initial investigation into biophysical and socio-economic aspects, focusing on key issues;
- Identify potential impacts;
- Advise the proponent about the potential impacts (positive and negative) of their planned development, as well as the implications for the design, construction and operational phases of the project;
- Facilitate public input on environmental and social matters.

1.3 APPLICABLE LEGISLATION AND GUIDELINES

This process has been conducted in terms of the relevant legislative requirements, namely in terms of:

National Environmental Management Act, 1998 (Act No. 107 of 1998 (NEMA).	Provincial	27 Nov 1998
Agricultural Resources Act (Act 43 of 1983)	Department of Agriculture, Forestry & Fisheries	1983
Integrated Environmental Management (IEM) (Department of Environmental Affairs: DEA, 1992). IEM is a philosophy that prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development process. The goal is to achieve a balance between development and conservation.	Department of Environmental Affairs	1992
National Heritage Resources Act, 1999 (Act no.25 of 1999)	South African Heritage Resources Agency (SAHRA).	April 1999
Environment Conservation Act 73 of 1989	Department of Environmental Affairs and Tourism	9 June 1989
National Environmental Management: Biodiversity Act 10 of 2004	Department of Environmental Affairs and Tourism	Various
Environmental Management Policy	Department of Environmental Affairs and Tourism	

The Environmental Impact Assessment regulations, 2010 (Government Notice No R 545 of June 2010) promulgated in terms of Section 24D of the National Environmental Management Act (Act No. 107 of 1998) determine the Environmental Impact Assessment (EIA) process that should be followed for certain listed activities, which may have a detrimental effect on the environment.

The proposed development includes a listed activity that may not commence without environmental authorization from the Competent Authority (LEDET) and in respect of which the investigation, assessment and communication of potential impact of activities must follow the procedure as described in the Environmental Impact Assessment Regulations, 2010.

The relevant activity is listed below:

Government Notice No. R. 545 (Listing Notice 2), Activity No. 16:

“The physical alteration of virgin soil to agriculture, or afforestation for the purposes of commercial tree, timber or wood production of 100 hectares or more”

2. ENVIRONMENTAL ASSESSMENT PRACTITIONER

2.1 DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER WHO PREPARED THE REPORT

Supervision

Dr. Veldie van Greuning - University of Pretoria / Galago Environmental

Co-ordinate and Management:

Ms. Lucinda du Plessis - Jonk Begin Environmental Services

Public Participation and Report Writing:

Ms. Lucinda du Plessis - Jonk Begin Environmental Services

2.2 EXPERTISE OF THE EAP TO CARRY OUT THE SCOPING PROCEDURES

Dr. Veldie van Greuning

Education:

- BSc. (Botany and Zoology), University of Pretoria, SA, 1961
- MSc. (Botany), University of Pretoria, SA, 1972
- DSc. (Botany), University of Pretoria, SA, 1982
- THED Teachers training college, Pretoria, 1962

Professional Honours:

- South African Council for Natural Scientific Professionals – Professional Natural Scientist (Botany)
Registration 400168/08

Reports: • Eighty EIA-reports

Conference Proceedings: • Presentation of ten papers and posters.

Notable Research Contribution: • 10 Publications in scientific journals; 7 publications in popular journals.

Notable Literature Contribution: • Coauthor of five books and editing of two books.

Conference Proceedings: • Presentation of 10 papers and posters.

Ms. Lucinda du Plessis

Key qualifications:

- Key competencies and experience include botany and environmental management.

Education:

- B.Sc. (Plant Diversity and Environmental Management), University of Pretoria, SA, 2001

Professional Honours:

- South African Council for Natural Scientific Professionals - Certificated Natural Scientist, Level A Registration nr. 200244/13

3. PROJECT INFORMATION

3.1 PARTICULARS OF APPLICANT

Allied Rivers Farming (Pty) Ltd

P.O. Box 6

Koedoeskop

0361

Contact Person: Mr. Roland van Tonder

Tel: (014) 785-0600

Cell: 0833108300

E-mail: admin@alliedgroup.co.za

3.2 DESCRIPTION OF THE PROPOSED DEVELOPMENT

The proposed development entails the following:

- The clearing of 380 hectares natural vegetation for agricultural purposes to develop 4 pivots for crop production.
- New pipe lines will be extended from existing crop circles to each new crop circle for crop rotation (Fig. 4).

3.3 NEED AND DESIRABILITY OF PROPOSED DEVELOPMENT

With the rapid deteriorating water in the Crocodile River and therefore the poor quality of irrigation water, Allied Rivers Farming is forced to implement crop rotation and resting periods. With the proposed development, Allied Rivers Farming will not need to decrease the hectares they are currently planting to implement crop rotation and resting periods, and therefore will still be able to deliver the same amount of grain to the regional and national economy.

Each planting season, 380 hectares will lay barren to aid in:

1. Natural restoration processes of the soil;

2. Washing out accumulative salts in the soil;
3. Prevention of diseases in the soil and crops.

If the above is accomplished, Allied Rivers Farming will be able to deliver better quality grain to the consumer. A Water Use License is not required here as the Applicant has enough water rights to irrigate the hectares they are planting and on the new development resting periods and crop rotation will be implemented.

The local, regional as well as the national economy will benefit when the crops are harvested. Allied Rivers Farming produce about 4200 tons of wheat, 12 000 tons of maize and 5200 tons of soy beans per year. Overhead costs are getting more expensive as well, for a farm to be feasible enough it needs to expand.

3.4 DESCRIPTION OF FEASIBLE AND REASONABLE ALTERNATIVES

3.4.1 Site Alternatives:

The landowner would like to develop the whole farm; therefore site alternatives are not applicable for this project.

3.4.2 Activity Alternatives:

The option of not proceeding with the development is the only activity alternative. No other activity was considered in this application due to the assessed Need and Feasibility of the proposed development.

3.4.3 Design Alternatives:

Various layout alternatives were considered by the applicant and land surveyor. Refer to Annexure B for the preferred layout option.

3.4.4 No-go option:

The no-go option means not transforming the site for any development. This option will be discussed in more detail in the EIA Report.

4. ENVIRONMENTAL ASPECTS

4.1 LITERATURE REVIEW

Literature pertinent to this area and its immediate environs has been reviewed. The literature included:

ACOCKS, J.P.H 1953. *Veld types of South Africa*. Pretoria; Government

Avibase- Bird Checklists of the World, Limpopo Province. Birdlife International. <http://avibase.bsc-eoc.org/checklist>

BROMILOW, C. 1996. *Probleemplant van Suid- Afrika*. Briza. Pretoria.

HENDERSON, L. 2001. *Alien Weeds and Invasive Plants*. Plant Protection Research Institute Handbook
No.12.

<http://sibis.sanbi.org>

KNOBEL, J. 1999. *The magnificent natural heritage of South Africa*. Sunbird Publishing, South Africa.

MUCINA, L & RUTHERFORD, M. C (eds). 2006. *The vegetation of South Africa, Lesotho and Swaziland*.
Strelitzia

19. South Africa National Biodiversity Institute.

SANBI Red list of South African Plants. <http://redlist.sanbi.org/species>.

Threatened Species: A guide to Red Lists and Their use in Conservation. South Africa National Biodiversity
Institute (SANBI).

VAN OUDTSHOORN, F.P. 1999. *Guide to grasses of Southern Africa*. Pretoria: Briza.

VAN DER WALT, R. 2009. *Wild flowers of the Limpopo Valley, including Mapungubwe National park*.

Muzina: Business Print Centre.

VAN WYK, B & P. VAN WYK. 1997. *Field Guide to Trees of Southern Africa*. Cape Town: Struik.

4.2 INFORMATION ON THE METHODOLOGY OF SCOPING

This report addresses the biophysical as well as the socio-economic environments. Information was gathered in the following manner:

- A site visit was conducted on 26 February 2014 to determine the visual character and land uses in the area;

- Site surveys on 26 February, 22 March and 27 March 2014 to identify any plant and animal populations that could be impacted by the development;
- Discussions were held with the applicant to identify specific aspects of the development which could affect the environment;
- Interested and Affected Parties (I & Aps) were informed and consulted by notice board, information letters and newspaper advertisements to capture issues that could affect the environment;
- Making recommendations and presenting guidelines for the mitigation of impacts identified during assessment.

4.3 DESCRIPTION OF THE ENVIRONMENT

4.3.1 Biophysical Environment

The altitude ranges from 940 -980 m above sea level, terrain form is a flat undulating plane with a natural ridge just at the southwest border of the study site. Drainage takes place to the northern part of the study site.

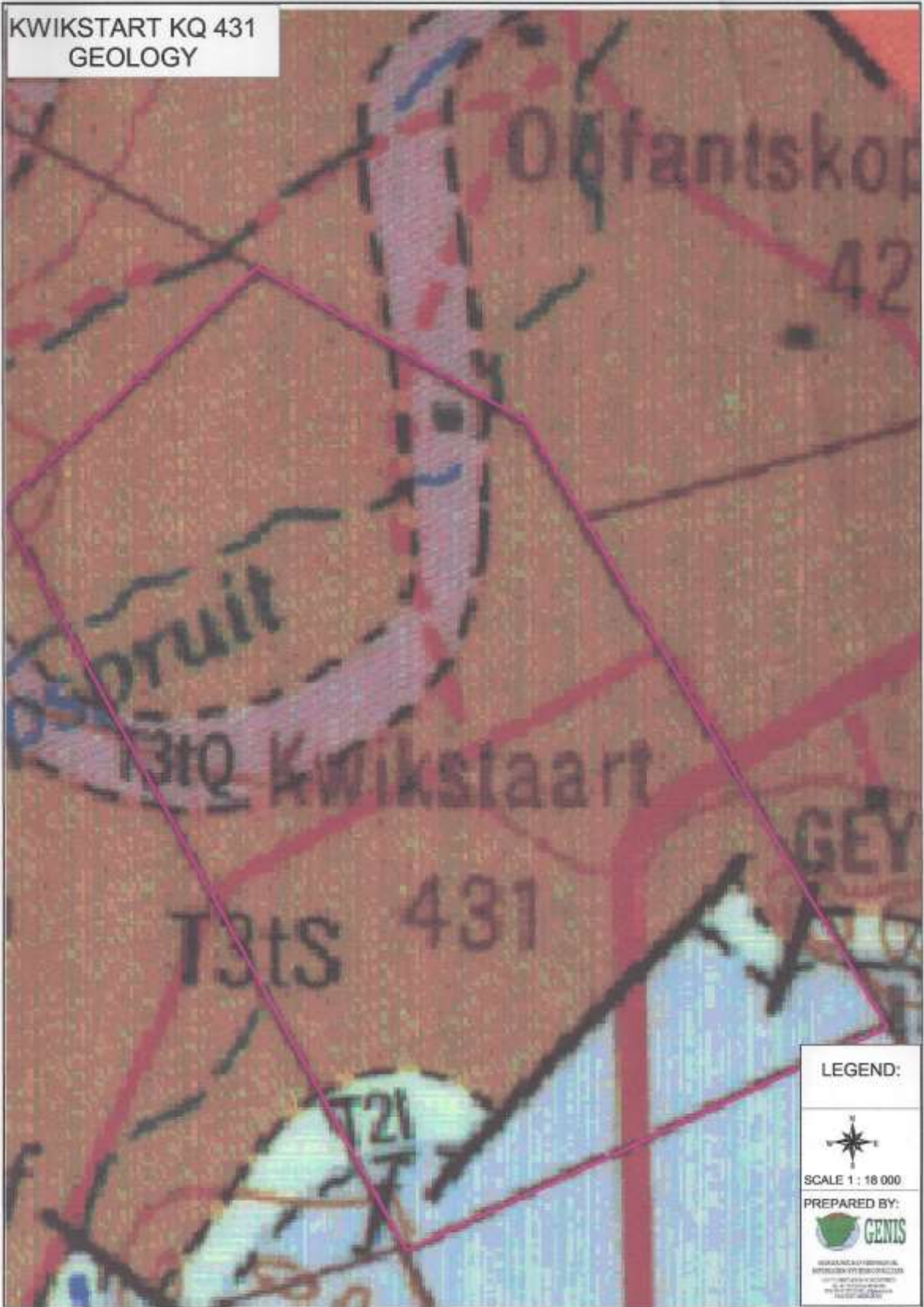
4.3.2 Climate

The climate of the area can be defined as a temperate, summer rainfall area. The rainfall ranges between 400 to 800mm per annum, with an annual average of 671 mm over the last 10 year (Weather station NCSA Koedoeskop). The Koedoeskop area is typified by warm summers and moderate winters with an average annual temperate of 21°. Annual minimum/maximum temperatures are -5.5°C and 38°C respectively, with -8.5°C as coldest recorded temperature and 45°C as highest temperature for the area. Ripe occurs in June to August. During the months of April and May, fog occurs in areas close to the Crocodile River

4.3.3 Geology

The soils of the crop circles can be described as deep rich Red Apedal Soils with underlying signs of wetness (Bloomdale soil formation) (Soil classification and Taxonomy)(Fig.5). The effective depth is about 1500cm, landslide potential is low and signs of erosion were absent. Department of Agriculture, Forestry & Fisheries did their own soil classification and analysis on 11 February 2014 (Appendix E).

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4.3.4 Vegetation

According to Mucina and Rutherford (2006) the study site occurs in the Dwaalboom Thornveld with intrusion of Sandy Bushveld. *Acacia tortilis*, *A mellifera* and *A karroo* dominate the Thornveld. *Combretum* species occurs over the whole study area. The proposed development site was used as a game camp, but all the game was moved to the adjacent game camp of Allied Rivers Farming.

An ecological survey of the site was undertaken and is included in Annexure H.

4.3.5 Fauna

An ecological survey was conducted on the Farm Kwikstaart and is included in the report; a list of any red data terrestrial animals that could possibly be found in the region will be included.

4.3.6 Socio-economic Environment

The Local Municipality is Thabazimbi under Waterberg district Municipality. The Thabazimbi area has a population density of 6.3 persons per km² (1998) and a population growth of around 5%. Major employment opportunities are created in this region through agriculture, mining, manufacturing, construction, retail, transport, financing and service delivery.

The proposed development will create numerous temporary employment as well as permanent employment opportunities.

4.3.7 Surrounding Land Use

The proposed development site falls within the Crocodile River-West Irrigation Valley, thus the surrounding land use is Agriculture (See Annexure A).

4.3.8 Historical, Archaeological or Cultural Sites

An Archaeological and Heritage specialist (PGS Heritage) has been appointed to assess the development site. This assessment is in Annexure H

A Palaeontological study was also conducted on the study site and the report is included in Annexure H.

4.4 DESCRIPTION OF POSSIBLE IMPACTS, ISSUES AND CUMULATIVE IMPACTS

With this kind of development, like any many other types of developments, various direct and indirect impacts on the environment occur. These impacts have to be managed in order to have the minimum environmental impact and the maximum benefit.

TABLE 1: Summery of Possible Impacts identified during Construction Phase

Aspect	Impact Significance (No mitigation)	Impact Significance (With mitigation)
Vegetation & Fauna	Moderate (-)	Low (-)
Alien Invasive species	Moderate (-)	Low (-)
Ground/Surface water quality	Low (-)	Low (-)
Heritage	Low (-)	Negligible (-)
Soil disturbance	Low (-)	Negligible (-)
Impact on Potential for alternative land-use	Negligible (-)	Negligible (-)
Visual Impact	Low (-)	Low (-)
Traffic	Negligible (-)	Negligible (-)
Negative Impact on Socio Economics	Low (-)	Low (-)
Air quality	Low (-)	Low (-)
Positive Impact on Socio Economics	Moderate (+)	Moderate (+)
Soil & Agricultural Potential	High (+)	High (+)

4.4.1 Vegetation and Fauna

The natural vegetation of 380 hectares will be cleared for agricultural purposes. An ecological assessment was conducted to assess the sensitivity of the natural vegetation and fauna present and whether there is any red data species of any kind protected or endangered. It was determined that a permit is needed from the Department Forestry. (See Annexure F). The Ecological report is included in the Final Scoping report.

4.4.2 Soil and Erosion

A site inspection was done by the Department of Agriculture on 11 February 2014 where they did a soil analysis. A Permit to cultivate virgin soil is received on the 20 March 2014 (see Annexure E).

4.4.3 Visual Impact

The significance of the visual effect of the crop circles will be affected by the following:

- Topographical characteristics of the site;
- Surrounding land use;
- Affected parties who will be able to see the crop circles from different vantage points.

The crop circles will be visible from the P20/2 road Koedoeskop-Northam. The surrounding Land use is Agriculture, as it occurs in the Crocodile River-west Irrigation Valley with many crop circles in the surrounding area.

4.4.4 Traffic

The traffic will be limited to the site only with a bulldozer and tractor with a trailer that clears the vegetation. Therefore the traffic impact will be very low.

4.5 SPECIALST STUDIES

The necessary specialised studies will be performed according to section 32 of NEMA 2010 Regulations. Specialised studies relevant to the project include:

Ecological Assessment:

A floristic and ecological study to: Assess the area for protected and endangered plant and animal species.

Ms L du Plessis & Mr Gert Cronje

Jonk Begin Environmental Services

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Cell: 083 2625270 Fax: (014) 785-0611

Area of expertise: Botany and Ecology

Archaeological/Heritage Assessments:

An Archaeological study will investigate the cultural, historical and archaeological findings and significance of the development site. The study was undertaken by:

Marko Hutten

PGS Heritage

P. O Box 32542

Totiusdal

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Tel: (012) 332 5305

Fax: 086 675 8077

Area of expertise: Archaeology and Heritage

Report is included in Annexure H

Palaeontological Assessment:

The Palaeontological survey was compiled by specialist:

Dr. JF Durand (Sci.Nat)

University of Johannesburg

francois.karst@yahoo.com

Area of expertise: Palaeontology

Report is included in Annexure H

Soil Assessment:

Soil analysis was done by the Department of Agriculture, Forestry and Fisheries to determine the suitability of the soil for cultivation purposes. A Permit was issued on the 20 March 2014 by the Department to cultivate the soil on Farm Kwikstaart 431 KQ portion2.