

# Basic Assessment Report –

Proposed cultivation of 35ha of indigenous grassland on Newfields Farm near Underberg, KwaSani Municipality

**DAEA REF: DC43/0022/2012**

***PREPARED FOR: Scotston Family Trust***

***April 2013***



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## Executive Summary

The Applicant proposes to cultivate 35 hectares (ha) of indigenous grassland on the Farm Newfields (Portion 1 of the Farm Lot FP 198 No 8759). The town of Underberg is located approximately 12km southeast of the property and falls within the KwaSani Municipality. A farm dam is located to the west of the property, and a district road to the east. Cultivated lands border the site to the south and indigenous grasslands to the north.

The purpose of the proposed cultivation is to allow for the planting of *Eragrostis*, which would be baled and fed to the Applicant's dairy herd as fodder during the winter months. In order to achieve this, the existing grassland or 'veld' would be ploughed in the first year and planted to maize and/or radishes. Thereafter, *Eragrostis* will be planted on a permanent basis, using a no till / direct drilling method.

The Public Participation Process involved consultation with the relevant authorities, non-government organisations (NGO's), neighbouring landowners and community members. An advertisement was placed in The Mountain Echo newspaper and site notices were placed on-site and at the local Spar retailer in Underberg. Background Information Documents were distributed via post and email. A Public Meeting was not held as no interest was received by the community in this regard.

Several Specialist Studies were conducted on the site, including a Soil Survey, a Heritage Impact Assessment, a Biodiversity Assessment and a Wetland Delineation and Functional Assessment:

- The Soil Survey mapped the dominant soil forms, soil types, soil depth, colour, clay percentage and slope on site.
- The Heritage Impact Assessment found no heritage or archaeological features of significance on site.
- The Biodiversity Assessment recommended that if the proposed development were to be authorised, an 80 metre setback should be implemented between the western boundary of the proposed site and the adjacent wetlands and primary grassland. This would provide an adequate and dedicated corridor for the movement of species.

However, the Specialist also recommended, as an alternative, that the site to the south and adjacent to the proposed property be cultivated. This property has been previously cultivated and will continue to be cultivated in order to contribute to feed requirements i.e. the Applicant has already incorporated this site in his calculated feed requirements, thus as an alternative it is not feasible as it will not meet the need and desirability of the Application.

- The Wetland Delineation and Functional Assessment noted that no wetland habitat occurs within the proposed development area. However, the Specialist did note that the site forms a large catchment for two wetland systems identified in the area. As such, it is recommended that a 50 metre buffer be implemented to protect the catchment. This 50 metre buffer is to be incorporated into the 80 metre setback line as recommended by the Biodiversity Specialists. The total area therefore available to the Applicant for cultivation, based on the recommendations of the Specialist Studies, is **approximately 33 ha.**

## Basic Assessment Report

The Draft Basic Assessment Report (BAR) and Environmental Management Programme (EMPr) were circulated to IAPs for review and comment on 30 April 2013. Comments received on the Draft BAR and EMPr will be consolidated and included in the Final BAR which will be submitted to the Department of Agriculture and Environmental Affairs for a decision on Environmental Authorisation.

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## Table of Contents

SECTION A: DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER AND SPECIALISTS	7
1. NAME AND CONTACT DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)	7
2. NAMES AND EXPERTISE OF REPRESENTATIVES OF THE EAP	7
3. NAMES AND EXPERTISE OF SPECIALISTS	8
SECTION B: ACTIVITY INFORMATION	9
1. PROJECT TITLE	9
2. PROJECT DESCRIPTION	9
3. ACTIVITY DESCRIPTION	11
4. FEASIBLE AND REASONABLE ALTERNATIVES	11
5. ACTIVITY POSITION	12
6. PHYSICAL SIZE OF THE ACTIVITY	12
7. SITE ACCESS	12
8. SITE OR ROUTE PLAN	13
9. SITE PHOTOGRAPHS	13
10. FACILITY ILLUSTRATION	13
11. ACTIVITY MOTIVATION	14
12. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES	15
13. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT	15
14. WATER USE	17
15. ENERGY EFFICIENCY	17
SECTION C: SITE/ AREA/ PROPERTY DESCRIPTION	18
1. GRADIENT OF THE SITE	18
2. LOCATION IN LANDSCAPE	18
3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE	18
4. GROUND COVER	19
5. LAND USE CHARACTER OF SURROUNDING AREA	20
6. CULTURAL/ HISTORICAL FEATURES	21
SECTION D: PUBLIC PARTICIPATION	22
1. ADVERTISEMENT	22
2. CONTENT OF ADVERTISEMENTS AND NOTICES	23
3. PLACEMENT OF ADVERTISEMENTS AND NOTICES	23
4. DETERMINATION OF APPROPRIATE PROCESS	23
5. COMMENTS AND RESPONSE REPORT	23
6. PARTICIPATION BY DISTRICT, LOCAL AND TRADITIONAL AUTHORITIES	24
7. CONSULTATION WITH OTHER STAKEHOLDERS	25
SECTION E: IMPACT ASSESSMENT	27
1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES	27
2. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES	27
3. ENVIRONMENTAL IMPACT STATEMENT	44
SECTION F. RECOMMENDATION OF EAP	46
SECTION G: APPENDIXES	48



agriculture  
& environmental affairs

Department:  
Agriculture  
& Environmental Affairs  
PROVINCE OF KWAZULU-NATAL

EIA File Reference Number:  
NEAS Reference Number:  
Waste Management Licence Number:  
(if applicable)  
Date Received:

(For official use only)

DC/
KZN/EIA/

## BASIC ASSESSMENT REPORT

Submitted in terms of the Environmental Impact Assessment Regulations, 2010 promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998)

This template may be used for the following applications:

- **Environmental Authorization** subject to basic assessment for an activity that is listed in Listing Notices 1or 3, 2010 (Government Notices No. R 544 or No. R 546 dated 18 June 2010); or
- **Waste Management Licence** for an activity that is listed in terms of section 20(b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) for which a basic assessment process as stipulated in the EIA Regulations must be conducted as part of the application (refer to the schedule of waste management activities in Category A of Government Notice No. 718 dated 03 July 2009).

Kindly note that:

1. This **basic assessment report** meets the requirements of the EIA Regulations, 2010 and is meant to streamline applications. This report is the format prescribed by the KZN Department of Agriculture & Environmental Affairs. Please make sure that this is the latest version.
2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with text.
3. Where required, place a cross in the box you select.
4. An incomplete report will be returned to the applicant for revision.
5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it will result in the rejection of the application as provided for in the regulations.
6. No faxed or e-mailed reports will be accepted.
7. The report must be compiled by an independent environmental assessment practitioner ("EAP").
8. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.

## Basic Assessment Report

9. The KZN Department of Agriculture & Environmental Affairs may require that for specified types of activities in defined situations only parts of this report need to be completed.
10. The EAP must submit this basic assessment report for comment to all relevant State departments that administer a law relating to a matter affecting the environment. This provision is in accordance with Section 24 O (2) of the National Environmental Management Act 1998 (Act 107 of 1998) and such comments must be submitted within 40 days of such a request.
11. **Please note that this report must be handed in or posted to the District Office of the KZN Department of Agriculture & Environmental Affairs to which the application has been allocated (please refer to the details provided in the letter of acknowledgement for this application).**

DRAFT

## DEPARTMENTAL REFERENCE NUMBER(S)

File reference number (EIA):	DC42/0022/2012
File reference number (Waste Management Licence):	

## SECTION A: DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER AND SPECIALISTS

## 1. NAME AND CONTACT DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Name and contact details of the EAP who prepared this report:

Business name of EAP:	JEC Environmental Services		
Physical address:	Salvo Farm D245 Table Mountain 3233		
Postal address:	PO Box 239 Pietermaritzburg		
Postal code:	3200	Cell:	072 591 2277
Telephone:	(033) 940 0450	Fax:	086 219 9059
E-mail:	Liz.jec@edelnet.co.za		

## 2. NAMES AND EXPERTISE OF REPRESENTATIVES OF THE EAP

Names and details of the expertise of each representative of the EAP involved in the preparation of this report:

Name of representative of the EAP	Education qualifications	Professional affiliations	Experience at environmental assessments (yrs)
Mrs. Liz Dralle (nee Allan)	BSc. Hons Environmental Management	IAIAsa	6 years
Mrs. Janet Edmonds	B. Sc. Agric Hons. (Zoology, Wildlife Science)	IAIAsa	10 years

## Basic Assessment Report

### 3. NAMES AND EXPERTISE OF SPECIALISTS

Names and details of the expertise of each specialist that has contributed to this report:

Name of specialist	Education qualifications	Field of expertise	Section/ s contributed to in this basic assessment report	Title of specialist report/ s as attached in Appendix D
Mrs. T. Taylor	MSc. Soil Science	Soil Science	Section C-3 / Appendix D	Soil Survey at Newfields Farm, Underberg, KwaZulu-Natal
Dr. H. Grobler	PhD Zoology, MSc Wildlife Management, BSc (Hons.) in Wildlife Management. BSc Zoology and Botany	Specialist assessments (fauna) for EIA's. Wildlife management. Strategic management planning and development of private conservation areas. Large mammal population dynamics, behaviour, spatial and food requirements, monitoring, carrying capacity and management. Habitat assessments and management.	Section C-4 / Appendix D	Specialist Assessment of Vegetation & Fauna: Proposed Cultivation of Primary Grassland on the Farm Newfields, near Underberg, KwaZulu-Natal
Mr. P. le Roux	MSc. Agriculture, BSc Agriculture	Specialist assessments (flora) for EIA's. Assessment of Agricultural Potential and Land Capability for EIA's. Wildlife Management plans & optimizing productivity of wildlife on private nature reserves.	Section C-4 / Appendix D	Specialist Assessment of Vegetation & Fauna: Proposed Cultivation of Primary Grassland on the Farm Newfields, near Underberg, KwaZulu-Natal
Mr. D. McCulloch	BSc. Agriculture (Grassland Science) Pr. Sci. Nat, Ecology	Wetland Delineation and ecological assessment Wetland management Wetland rehabilitation	Section C-5 / Appendix D	Wetland Specialist Report: Newfields Agricultural Development Site
Mr. F. Prins	MA (Archaeology)	Heritage Impact Assessments	Section C-6 / Appendix D	Cultural Heritage Impact Assessment of 35ha of indigenous grasslands at Newfields Farm, near Underberg, KwaSani Municipality



## SECTION B: ACTIVITY INFORMATION

### 1. PROJECT TITLE

Describe the project title as provided on the application form for environmental authorization:

Proposed cultivation of 35ha of indigenous grassland ('veld') on Newfields Farm near Underberg, KwaSani Municipality.

### 2. PROJECT DESCRIPTION

Provide a detailed description of the project:

The project would entail the clearance of approximately 35ha of grassland ('veld') to enable the planting of a crop to provide fodder for the Applicant's dairy herd. In the first year, the site would be ploughed and planted to radishes and maize. Thereafter, *Eragrostis* would be planted on a permanent basis, using a direct drilling ('no till') method. The resultant *Eragrostis* crop would be baled and fed to the dairy herd during the winter months.

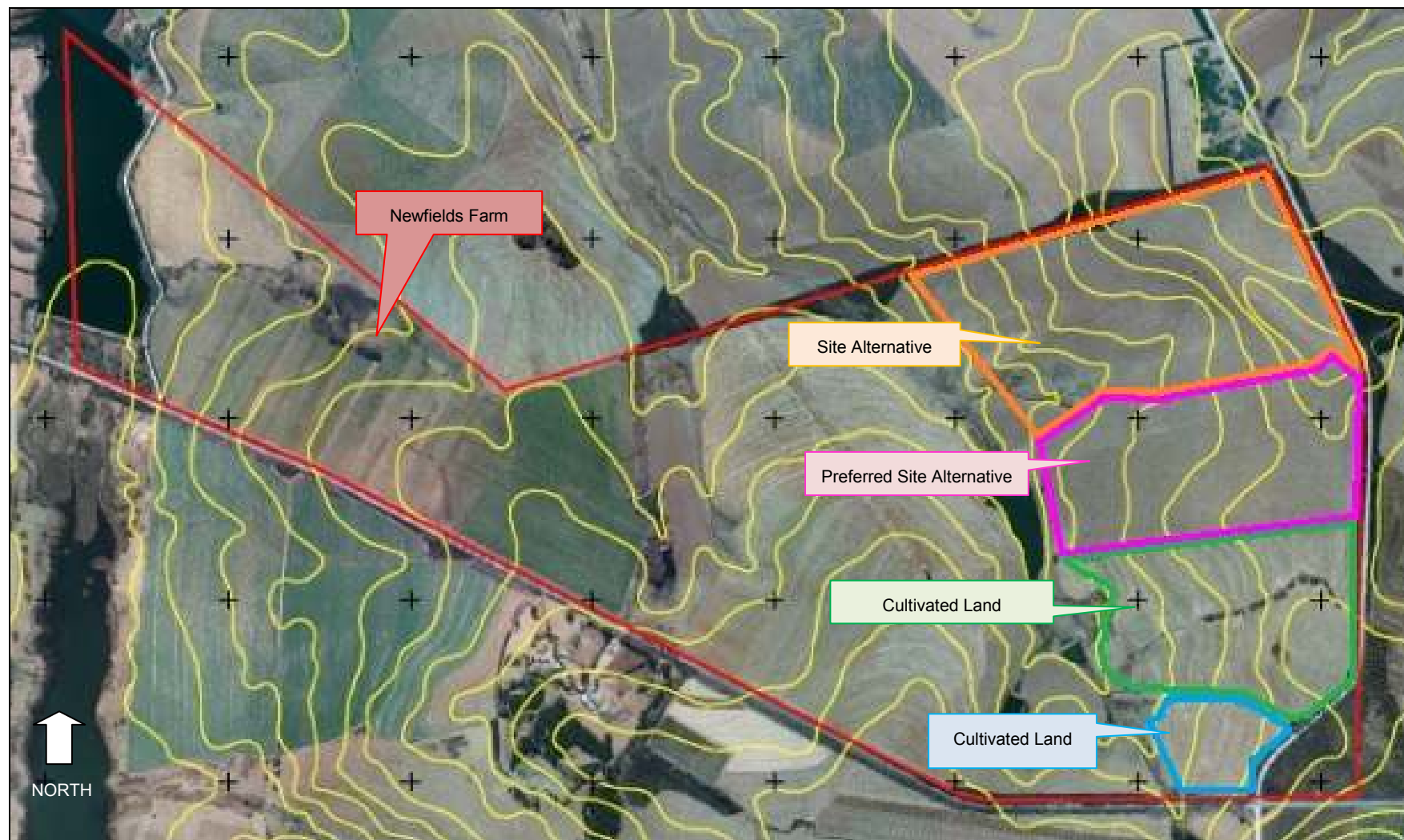
Fertiliser would be applied to the site as a top dressing on a biannual basis. No irrigation of the site will take place. Harvesting and baling would take place in late summer / autumn.

The Applicant's dairy herd is currently housed Scotston Farm, which is located approximately 17km from the site. Transporting the herd to the site to feed would incur an additional expense, not to mention create no unnecessary stress for the animals. Furthermore, the direct grazing of the veld currently does not provide enough sustenance to support the dairy herd and the veld becomes unpalatable in Winter. Therefore, the transportation of baled *Eragrostis* to the herd serves as the most suitable alternative.

The Farm Newfields, (i.e. Portion 1 of the Farm Lot FP 198 No 8759), is located approximately 12km southeast of Underberg, within the KwaSani Municipality. A farm dam is situated to the west of the property, and a district road to the east. Cultivated lands border the site to the south, and grasslands to the north.

The adjacent portion of land to the north of the proposed site has been identified as a site alternative, however it has a steeper slope and is traversed by multiple drainage lines. Furthermore, should this property be cultivated, it would create a disjunct pattern between the surrounding veld on neighbouring properties and would also isolate the proposed site from the remaining veld evident in the area (see Figure 1). All other areas on the Farm have been cultivated and have been taken into account by the Applicant in calculating the feed requirements of his dairy herd.

The Farm Newfields is already largely transformed, leaving the site identified as the only site alternative available to the Applicant. The technology alternatives include the no till method as the preferred alternative and regular tilling as the process alternative.



**FIGURE 1:** Alternative sites on the Farm Newfields.

### 3. ACTIVITY DESCRIPTION

Describe each listed activity in Listing Notice 1 (GNR 544, 18 June 2010), Listing Notice 3 (GNR 546, 18 June 2010) or Category A of GN 718, 3 July 2009 (Waste Management Activities) which is being applied for as per the project description:

In terms of the Environmental Impact Assessment (EIA) Regulations promulgated in terms of the National Environmental Management Act (NEMA), certain Listed Activities are specified for which either a Basic Assessment (GNR 544 and 546) or a Scoping and EIA (GNR 545) is required.

The following Listed Activity in Government Notice (GN) R 546 (Listing Notice 3), requiring a Basic Assessment (BA) Process will be applicable to the proposed cultivation:

- G NR 546 - Item 14: "*The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation (a) in KwaZulu-Natal (i) in all areas outside urban areas.*"

### 4. FEASIBLE AND REASONABLE ALTERNATIVES

**"alternatives"**, in relation to a proposed activity, means 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.

Describe alternatives that are considered in this report. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Sections B 5 – 15 below should be completed for each alternative.

## 5. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. List alternative sites were applicable.

	Latitude (S):			Longitude (E):		
<b>Alternative:</b>						
Alternative S1 <sup>1</sup> (preferred or only site alternative)	29°	49'	37.69"	29°	36'	43.78"
Alternative S2 (if any)	29°	49'	21.58"	29°	36'	32.72"
Alternative S3 (if any)						

## 6. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

### Alternative:

- Alternative A1<sup>2</sup> (preferred activity alternative)
- Alternative A2 (if any)
- Alternative A3 (if any)

### Size of the activity:

	35ha
	40ha
	m <sup>2</sup>

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

### Alternative:

- Alternative A1 (preferred activity alternative)
- Alternative A2 (if any)
- Alternative A3 (if any)

### Size of the site/servitude:

	35ha
	40ha
	m <sup>2</sup>

## 7. SITE ACCESS

Does ready access to the site exist?

YES	NO
N/A	

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

Although a formal access road does not exist, it will not be required for the proposed activity. Currently the site is accessed via the existing farm track on the site to the south, which the Applicant alone uses, and which falls within the Newfields Farm boundary. This farm track will be utilized for the establishment and Operational Phases of the activity to:

- i. Plant maize / radishes / *Eragrostis*, and
- ii. To harvest the relevant crop and transport it for storage / feeding.

Access would also be required for tractors to initially plough the land during the "Construction Phase".

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

<sup>1</sup> "Alternative S.." refer to site alternatives.

<sup>2</sup> "Alternative A.." refer to activity, process, technology or other alternatives.

## 8. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this report.

The site or route plans must indicate the following:

- 1.1. the scale of the plan which must be at least a scale of 1:500;
- 1.2. the property boundaries and numbers/ erf/ farm numbers of all adjoining properties of the site;
- 1.3. the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 1.4. the exact position of each element of the application as well as any other structures on the site;
- 1.5. the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 1.6. walls and fencing including details of the height and construction material;
- 1.7. servitudes indicating the purpose of the servitude;
- 1.8. sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
  - rivers, streams, drainage lines or wetlands;
  - the 1:100 year flood line (where available or where it is required by DWA);
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation including protected plant species (even if it is degraded or infested with alien species);
- 1.9. for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- 1.10. the positions from where photographs of the site were taken.

## 9. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

## 10. FACILITY ILLUSTRATION

A detailed illustration of the facility must be provided at a scale of 1:200 and attached to this report as Appendix C. The illustrations must be to scale and must represent a realistic image of the planned activity/ies.

## 11. ACTIVITY MOTIVATION

### 11.1. Socio-economic value of the activity

What is the expected capital value of the activity on completion?  
 What is the expected yearly income that will be generated by or as a result of the activity?  
 Will the activity contribute to service infrastructure?  
 Is the activity a public amenity?  
 How many new employment opportunities will be created in the development phase of the activity?  
 What is the expected value of the employment opportunities during the development phase?  
 What percentage of this will accrue to previously disadvantaged individuals?  
 How many permanent new employment opportunities will be created during the operational phase of the activity?  
 What is the expected current value of the employment opportunities during the first 10 years?  
 What percentage of this will accrue to previously disadvantaged individuals?

	R NIL
	R NIL
-	NO
-	NO
	Nil
	R 0.00
	N/A
	Nil
	R 0.00
	N/A

### 11.2. Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

The need for transforming the natural grassland ('veld') to cultivated *Eragrostis* grassland, is to provide winter feed for the Applicant's dairy herd. This is vital so that the herd does not lose condition over the winter months. It will also contribute towards food security for the herd and ultimately increase the productivity of the farm.

Indicate any benefits that the activity will have for society in general:

It will contribute towards food security as the dairy herd will receive feed during the winter months, therefore ensuring a sustainable supply of milk to consumers.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

None.

## 12. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are relevant to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline:

Administering authority:

Date:

National Environmental Management Act (Act 107 of 1998) – for its potential to cause degradation of the environment (Section 28).	Department of Environmental Affairs	1998
National Water Act (Act 36 of 1998) – for potential to cause pollution of water resources defined under the Act (Section 19).	Department of Water Affairs and Forestry	1998
Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) – for protection of agricultural resources and for control and removal of alien invasive plants.	National Department of Agriculture	1983
National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) – for protection of biodiversity.	Department of Agriculture and Environmental Affairs & Ezemvelo KZN Wildlife	2004
The National Heritage Resources Act (Act No 25 of 1999 as amended) – for the identification and preservation of items of heritage importance.	Department of Arts and Culture (Amafa KwaZulu-Natal)	1999
Guideline 4: Public Participation in support of the EIA Regulations (2005)	Department of Environmental Affairs and Tourism	2006
Guideline 7: Detailed Guide to Implementation of the Environmental Impact Assessment Regulations (2006)	Department of Environmental Affairs and Tourism	2007

## 13. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

### 13.1. Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES	NO
m <sup>3</sup>	

If yes, what estimated quantity will be produced per month?

How will the construction solid waste be disposed of? (describe)

No construction waste will be produced as the activity is for the cultivation of virgin land, therefore there are no construction related activities.

Where will the construction solid waste be disposed of? (provide details of landfill site)

N/A

Will the activity produce solid waste during its operational phase?

YES	NO
m <sup>3</sup>	

If yes, what estimated quantity will be produced per month?

How will the solid waste be disposed of? (provide details of landfill site)

N/A

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

N/A

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine the further requirements of the application.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?

YES	NO
-----	----

**If yes, contact the KZN Department of Agriculture & Environmental Affairs to obtain clarity regarding the process requirements for your application.**

Is the activity that is being applied for a solid waste handling or treatment facility?

YES	NO
-----	----

**If yes, contact the KZN Department of Agriculture & Environmental Affairs to obtain clarity regarding the process requirements for your application.**



**13.2. Liquid effluent**

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

YES	NO
-----	----

If yes, what estimated quantity will be produced per month?

m <sup>3</sup>	
----------------	--

Will the activity produce any effluent that will be treated and/or disposed of on site?

YES	NO
-----	----

**If yes, contact the KZN Department of Agriculture & Environmental Affairs to obtain clarity regarding the process requirements for your application.**

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES	NO
-----	----

If yes, provide the particulars of the facility:

Facility name:	-		
Contact person:	-		
Postal address:	-		
Postal code:	-		
Telephone:	-	Cell:	-
E-mail:	-	Fax:	-

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

-
---

**13.3. Emissions into the atmosphere**

Will the activity release emissions into the atmosphere?

YES	NO
-----	----

If yes, is it controlled by any legislation of any sphere of government?

YES	NO
-----	----

**If yes, contact the KZN Department of Agriculture & Environmental Affairs to obtain clarity regarding the process requirements for your application.**

If no, describe the emissions in terms of type and concentration:

No emissions will be released into the atmosphere as a result of the activity, other than dust during ploughing, should the conditions at this time be dry and windy.
---

**13.4. Generation of noise**

Will the activity generate noise?

YES	NO
-----	----

If yes, is it controlled by any legislation of any sphere of government?

YES	NO
-----	----

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the noise in terms of type and level:

No noise will be generated by the cultivation of virgin land that will have a detrimental impact on the surrounding environment.
--



**14. WATER USE**

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

municipal	water board	groundwater	river, stream, dam or lake	other	the activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

	litres
--	--------

Does the activity require a water use permit from the Department of Water Affairs?

YES	NO
-----	----

If YES, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this report.

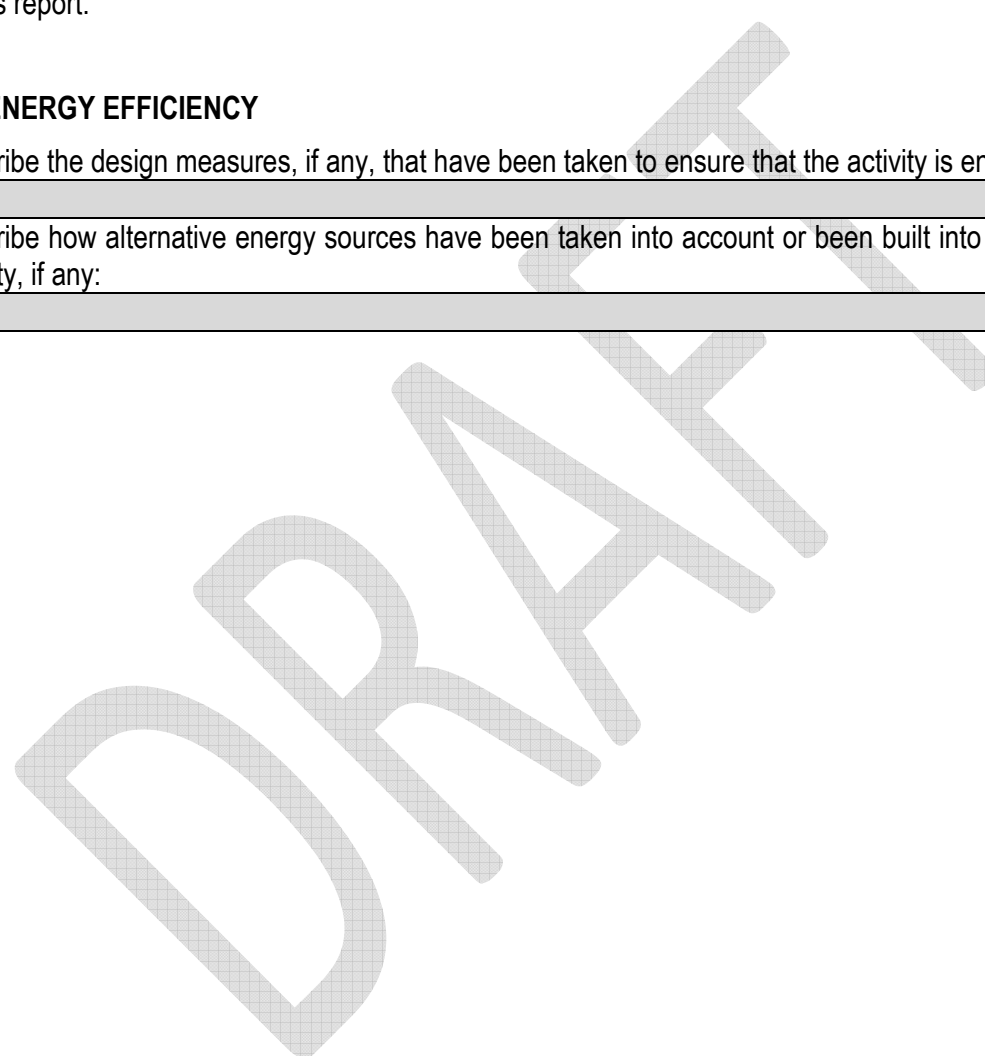
**15. ENERGY EFFICIENCY**

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

N/A
-----

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

N/A
-----



## SECTION C: SITE/ AREA/ PROPERTY DESCRIPTION

### Important notes:

- For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No.   
(e.g. A):

- Subsections 1 - 6 below must be completed for each alternative.

### 1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

#### Alternative S1:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	-------------	-------------	-------------	--------------	-------------	------------------

#### Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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#### Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	-------------	-------------	-------------	--------------	-------------	------------------

### 2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site (Please cross the appropriate box).

#### Alternative S1 (preferred site):

Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea-front
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#### Alternative S2 (if any):

Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea-front
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#### Alternative S3 (if any):

Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea-front
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### 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Has a specialist been consulted for the completion of this section?

YES	NO
-----	----

If YES, please complete the following:

Name of the specialist:

Mrs. T. Taylor

Qualification(s) of the specialist:

MSc. Soil Science

Postal address:

PO Box 255 Underberg

Postal code:

3257

Telephone:

(033) 701 1943

Cell:

072 610 9109

E-mail:

Terristorm.b@gmail.com

Fax:

-

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?

YES	NO
-----	----

If YES, specify and explain:

Please refer to Dr. Hans Grobler and Mr. Peter le Roux's Biodiversity Report as attached as Appendix D.

Are there any special or sensitive habitats or other natural features present on any of the alternative sites?

YES	NO
-----	----

## Basic Assessment Report

If YES, specify and explain:

Drakensberg Foothill Moist Grassland. Please refer to Dr. Hans Grobler and Mr. Peter le Roux's Biodiversity Report as attached as Appendix D.

Are any further specialist studies recommended by the specialist?

YES      NO

If YES, specify:

-

If YES, is such a report(s) attached in Appendix D?

YES      NO

Signature of specialist:

See Appendix D

Date:

February 2013

Is the site(s) located on any of the following (cross the appropriate boxes)?

	Alternative S1:		Alternative S2 (if any):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	YES	NO	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	NO	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO	YES	NO	YES	NO
Any other unstable soil or geological feature	YES	NO	YES	NO	YES	NO
An area sensitive to erosion	YES	NO	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

### 4. GROUND COVER

Has a specialist been consulted for the completion of this section?

YES      NO

If YES, please complete the following:

Name of the specialist:

Dr. Hans Grobler and Mr. Peter le Roux

Qualification(s) of the specialist:

PhD Zoology and MSc Agriculture

Postal address:

5 Spearman Rd, Hayfields, Pietermaritzburg

Postal code:

3201

Telephone:

-

Cell:

082 331 5950

E-mail:

mwpler@mweb.co.za

Fax:

-

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?

YES      NO

If YES, specify and explain:

No

Are there any special or sensitive habitats or other natural features present on any of the alternative sites?

YES      NO

If YES, specify and explain:

Drakensberg Foothill Moist Grassland. Please refer to Appendix D.

Are any further specialist studies recommended by the specialist?

YES      NO

If YES, specify:

-

If YES, is such a report(s) attached in Appendix D?

YES      NO

Signature of specialist:

See Appendix D

Date:

February 2013

## Basic Assessment Report

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition <sup>E</sup>	Natural veld with scattered aliens <sup>E</sup>	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an “E” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn’t have the necessary expertise.

### 5. LAND USE CHARACTER OF SURROUNDING AREA

Cross the land uses and/or prominent features that currently occur within a 500m radius of the site and give a description of how this influences the application or may be impacted upon by the application:

LAND USE CHARACTER			DESCRIPTION
Natural area	YES	<del>NO</del>	Indigenous grassland surrounds the site to the south and east.
Low density residential	YES	NO	
Medium density residential	YES	NO	
High density residential	YES	NO	
Informal residential	YES	NO	
Retail commercial & warehousing	YES	NO	
Light industrial	YES	NO	
Medium industrial	YES	NO	
Heavy industrial	YES	NO	
Power station	YES	NO	
Office/consulting room	YES	NO	
Military or police base/station/compound	YES	NO	
Spoil heap or slimes dam	YES	NO	
Quarry, sand or borrow pit	YES	NO	
Dam or reservoir	YES	<del>NO</del>	A farm dam is located to the east of the site, and to the south of the site.
Hospital/medical centre	YES	NO	
School/ creche	YES	NO	
Tertiary education facility	YES	NO	
Church	YES	NO	
Old age home	YES	NO	
Sewage treatment plant	YES	NO	
Train station or shunting yard	YES	NO	
Railway line	YES	NO	
Major road (4 lanes or more)	YES	NO	
Airport	YES	NO	
Harbour	YES	NO	
Sport facilities	YES	NO	
Golf course	YES	NO	
Polo fields	YES	NO	
Filling station	YES	NO	
Landfill or waste treatment site	YES	NO	

## Basic Assessment Report

LAND USE CHARACTER			DESCRIPTION
Plantation	YES	NO	
Agriculture	YES	NO	The site is surrounded by agriculture. Neighbouring farms include maize, Eragrostis and veld.
River, stream or wetland	YES	NO	Located to the east of the site.
Nature conservation area	YES	NO	
Mountain, hill or ridge	YES	NO	
Museum	YES	NO	
Historical building	YES	NO	
Protected Area	YES	NO	
Graveyard	YES	NO	
Archaeological site	YES	NO	
Other land uses (describe)	YES	NO	

### 6. CULTURAL/ HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or within 20m of the site?

YES	NO
-----	----

If YES, contact a specialist recommended by AMAFA to conduct a heritage impact assessment. The heritage impact assessment must be attached as an appendix to this report.

Briefly explain the recommendations of the specialist:

No heritage or archaeological features of significance were found on the site. Please refer to Appendix D for the Heritage Impact Assessment Report.

Will any building or structure older than 60 years be affected in any way?

YES	NO
YES	NO

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

If YES, please submit the necessary application to AMAFA and attach proof thereof to this report.

## SECTION D: PUBLIC PARTICIPATION

### 1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
  - (i) the site where the activity to which the application relates is or is to be undertaken; and
  - (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
  - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  - (v) the local and district municipality which has jurisdiction in the area;
  - (vi) any organ of state having jurisdiction in respect of any aspect of the activity (as identified in the application form for the environmental authorization of this project); and
  - (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
  - (i) one local newspaper; or
  - (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
  - (i) illiteracy;
  - (ii) disability; or
  - (iii) any other disadvantage.

## 2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—
  - (i) that an application for environmental authorization has been submitted to the KZN Department of Agriculture & Environmental Affairs in terms of the EIA Regulations, 2010;(ii)
  - (iii) a brief project description that includes the nature and location of the activity to which the application relates;
  - (iv) where further information on the application can be obtained; and
  - (iv) the manner in which and the person to whom representations in respect of the application may be made.

## 3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

## 4. DETERMINATION OF APPROPRIATE PROCESS

The EAP must ensure that the public participation process is according to that prescribed in regulation 54 of the EIA Regulations, 2010, but may deviate from the requirements of subregulation 54(2) in the manner agreed by the KZN Department of Agriculture & Environmental Affairs as appropriate for this application. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate.

Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

## 5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before this application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations (regulation 57 in the EIA Regulations, 2010) and be attached as Appendix E to this report.



## 6. PARTICIPATION BY DISTRICT, LOCAL AND TRADITIONAL AUTHORITIES

District, local and traditional authorities (where applicable) are all key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of this application and provided with an opportunity to comment.

Has any comment been received from the district municipality?

YES  NO

If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

To be included in the Final BAR

Has any comment been received from the local municipality?

YES  NO

If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

To be included in the Final BAR

Has any comment been received from a traditional authority?

YES  NO

If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

N/A



## 7. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?

YES	NO
-----	----

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

- **Mr. R. James – Underberg Farmers Association** **05/12/2012 received via fax**  
We have no objections.

- **Ms. K.P. Methula – Department of Water Affairs** **07/12/2012 received via fax post**  
The Water Quality Management Component of this Department would like the following matters to be addressed in the BAR:  
  - 1) Management of solid and hazardous waste generated on site.
  - 2) Identification of any environmentally sensitive areas and water resources such as wetlands, streams, rivers, etc. as well as possible pollution impacts and proposed mitigation measures to protect such water resources.
  - 3) Stormwater treatment and disposal i.e. wastewater management.
  - 4) Information regarding the 1:50 and 1:100 year floodlines. This must be clearly demarcated on a map.
  - 5) Wetland Delineation and Functional Assessment.
  - 6) Environmental Management Programme.

In addition the following points need to be taken into consideration:

- (a) There must be a buffer of 500 meters from the edge of the temporary wet zone of the wetland to the edge of any structural development.
- (b) Any development (structures, roads and other infrastructure) within a 500m radius of a wetland requires an authorisation in terms of Section 21 of National Water Act. Please contact this Office on (031) 336 2700 for further requirements.
- (c) The applicant may require an authorisation (e.g. licence, general authorisation, etc.) from Mr. Ward for any activity within the riparian habitat of 1: 100 floodline, whichever is the greatest distance from the watercourse. Development occurring within these areas is defined as a Section 21(c) [*impeding or diverting the flow of a water course*] and (i) [*altering the bed, banks, course or characteristics of a watercourse*] water use in terms of the National Water Act, 1998 (Act 36 of 1998). Please refer to the definition of a watercourse provided below:

A "watercourse" in terms of the National Water Act, 1998 (Act 36 of 1998) is defined as:

- (a) A river or spring;
- (b) A natural channel in which water flows regularly or intermittently;
- (c) A wetland, lake or dam into which, or from which water flows; and
- (d) Any collection of water which the Minister may, by notice, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its beds and banks.

This Department awaits a copy of the Basic Assessment Report in order to provide more detailed comments.

- **Mrs. C. Schwegman – WESSA** **11/12/2012 received via email**  
Thank you for the information and please register WESSA KZN as an IAP, in addition to WESSA Sani Branch should they have responded to the invitation to comment.

The loss of indigenous grassland and impacts on the associated fauna is a concern and WESSA will be guided by the requirements of Ezemvelo KwaZulu-Natal Wildlife in this regard. This loss will need to be looked at in terms of:

- Provincial conservation targets; and
- Compensation for the loss.

We look forward to receiving more detail on the vegetation which will be affected by the proposed cultivation.

## Basic Assessment Report

- **Mr. R. Baca – Department of Agriculture, Forestry & Fisheries** **12/12/2012 received via email**  
With reference to the above-mentioned application, this office would like the final EIA/EMP document to address the following:
  - Current land use of surrounding properties;
  - The impact that the proposed activity will have on the surrounding properties and the relevant mitigation measures;
  - Confirm the presence or absence of any forms of wetlands or streams on site, or those that can be affected nearby, and relevant mitigation measures;
  - Information on access road if it will be constructed;
  - Soil Survey Report on dominant soil forms, soil types, soil depth, colour, clay percentage and slope for the proposed site; and
  - Submission of a copy of the Final EIA/EMP document to this office will be highly appreciated.

DRAFT

## SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

### 1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

- Grassland conservation;
- Wetland disturbance;
- Soil properties for agricultural use; and
- Construction related impacts.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached as Appendix E to this report):

See Public Participation Report attached as Appendix E.

### 2. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

#### 2.1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE

##### a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the planning and design phase:  
**Alternative S1 (preferred alternative)**

**The preferred site alternative is highlighted in pink in Figure 1. This site alternative will meet the need and desirability of the project and covers an area of approximately 35ha.**

***Direct impacts:***

- Recognition of concerns raised by IAPs;
- Identify sensitive habitats / areas of concern and appoint independent and suitability qualified specialists to conduct assessments of these habitats / areas. Specialist Studies conducted for sensitive habitats / areas of concern identified on site are:
  - Biodiversity Assessment: Mr. P. le Roux & Dr. H. Grobler;
  - Wetland Delineation & Functionality Assessment: Mr. D. McCulloch;
  - Heritage Impact Assessment: Mr. F. Prins; and
  - Soil Survey: Mrs. T. Taylor.

Please see Appendix D for all Specialist Studies listed above.

***Indirect impacts:***

- None.

***Cumulative impacts:***

- None.

**Alternative S2 (if any)**

**The site alternative, highlighted in orange in Figure 1, and located directly north of the preferred alternative, will meet the need and desirability of the project. The site however, has a steeper gradient than the preferred alternative and is traversed by multiple drainage lines. This alternative covers an area of approximately 40ha.**

***Direct impacts:***

- Recognition of concerns raised by IAPs; and
- Identify sensitive habitats / areas of concern and appoint independent and suitability qualified specialists to conduct assessments of these habitats / areas. Note: No Specialist Studies have been conducted for this site given its steep gradient and multiple drainage lines.

***Indirect impacts:***

- None.

***Cumulative impacts:***

- None.

**No-go alternative (compulsory)**

**The no-go alternative would result in the site not being utilised for cultivation, hence it will remain as it is in its current state i.e. an open area of grassland ('veld').**

***Direct impacts:***

- There will be no change to the property.

***Indirect impacts:***

- Species composition will remain unchanged on the property.

***Cumulative impacts:***

- None.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative S1**

- Due measures must be taken to mitigate concerns raised by IAPs;
- Any necessary Specialist Studies must be identified in order to inform the project team, Applicant and relevant authorities of any specific conditions on the site;
- Recommendations of Specialist Studies undertaken for the site include, but are not limited to:

**Biodiversity Assessment**

- Should the cultivation of the primary grassland, identified as Drakensberg Foothill Moist Grassland and classified as Least Threatened as per the Ezemvelo KZN Wildlife's conservation targets be authorised, the recommended mitigation is to delineate an 80 metre setback between the western boundary of the preferred site and the adjacent wetlands and primary grasslands. This would reduce the area for cultivation by approximately 1.5ha, but would provide a viable ecological corridor for the movement of most flora and fauna of the adjacent wetlands and primary grasslands. The total area available for cultivation would therefore be **approximately 33ha**;
- However, the Specialist does not recommend that the primary grassland be cultivated for the following reasons:
  1. The proposed cultivation site is a good example of Drakensberg Foothill Moist Grassland with representative flora and fauna;
  2. The remaining grasslands and wetlands on the property are interconnected and should not be fragmented; and

## Basic Assessment Report

3. There is a viable connectivity between the proposed cultivation site and primary grasslands and wetland on adjacent properties.

### Wetland Delineation and Functionality Assessment

- No wetland habitat was identified within the project boundary. The site does, however, form the catchment for two wetland systems; and
- A 50 metre linear buffer should be implemented around the wetland habitat. This is due to the steep nature of the footslope adjacent to the dam. Prevention of sediment mobilisation and deposition is highlighted as an important management objective.

### Heritage Impact Assessment

- No heritage or archaeological features of significance were found on the site.

### Soil Survey

- A description of the site slope, soil form, distribution, depth, soil type and texture was documented in the Soil Survey Report.

Please refer to Appendix D for complete Specialist Study Reports.

### **Alternative S2**

- Due measures must be taken to mitigate concerns raised by IAPs;
- Any necessary Specialist Studies must be identified in order to inform the project team, Applicant and relevant authorities of any specific conditions on the site. To-date, no specialist studies have been conducted on the site as the EAP is of the opinion that the cultivation of this property will incur a much greater ecological loss and disturbance in terms of:
  - Land fragmentation;
  - Loss of interconnectivity;
  - Increased potential of soil erosion due to the increased gradient;
  - Direct impacts on existing drainage lines and therefore wetland habitat; and
  - Loss of a greater area of grassland habitat (i.e. 40ha versus 33ha – as recommended by the Biodiversity Assessment).

**b. Process, technology, layout or other alternatives**

List the impacts associated with any process, technology, layout or other alternatives that are likely to occur during the planning and design phase (please list impacts associated with each alternative separately):

**Alternative A1 (preferred alternative)**

**The preferred technology alternative is the 'no till' or direct drilling method for the planting of crops / *Eragrostis*.**

***Direct impacts:***

- None.

***Indirect impacts:***

- None.

***Cumulative impacts:***

- None.

**Alternative A2 (if any)**

**The alternative technology alternative is regular tilling of the soil for the planting of crops / *Eragrostis*.**

***Direct impacts:***

- None.

***Indirect impacts:***

- None.

***Cumulative impacts:***

- None.

**No-go alternative (compulsory)**

***Direct impacts:***

- None.

***Indirect impacts:***

- None.

***Cumulative impacts:***

- None.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative A1:**

- No mitigation necessary.

**Alternative A2:**

- No mitigation necessary.

## 2.2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE

### a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the construction phase:

#### Alternative S1 (preferred site)

**The preferred site alternative is highlighted in pink in Figure 1. This site alternative will meet the need and desirability of the project and covers an area of approximately 35ha.**

#### **Direct impacts:**

- Low potential for impacts on nearby water resources from fertiliser;
- Disturbance of the site may lead to encroachment of alien plant species on-site and to the surrounding areas;
- Dust will be evident during the ploughing activity; and
- There will be a loss of **approximately 33ha** of Drakensberg Foothill Moist Grassland, as per the recommendation of the Biodiversity Assessment where a setback line of 80 metres is proposed (see Appendix D).

#### **Indirect impacts:**

- Disturbance of fauna and flora;
- Transforming natural habitat to a niche habitat where only select species can persist;
- Soil erosion; and
- Stormwater run-off will increase during and immediately after ploughing as vegetation will not be present to decrease the velocity and erosive potential of water during a rainfall event.

#### **Cumulative impacts:**

- Proliferation of niche species;
- Contamination of water resources and soil through fuel leakages from mechanised farming equipment;
- Low potential for siltation of dam as a result of soil erosion;
- Low potential for eutrophication of water resources; and
- If not properly managed, the activity could result in environmental degradation.

#### Alternative S2 (if any)

**The site alternative, highlighted in orange in Figure 1, and located directly north of the preferred alternative, will meet the need and desirability of the project. The site however, has a steeper gradient than the preferred alternative and is traversed by multiple drainage lines. This alternative covers an area of approximately 40ha.**

#### **Direct impacts:**

- High potential for impacts on nearby water resources from fertiliser due to wetland habitat on site;
- Disturbance of the site may lead to encroachment of alien plant species on-site and to the surrounding areas;
- Dust will be evident during the ploughing activity; and
- There will be a loss of **approximately 40ha** of grassland. It is assumed, given its proximity to the preferred site, that this grassland type will also be Drakensberg Foothill Moist Grassland, however this not been confirmed as no specialist study has been conducted on this property to confirm this.

#### **Indirect impacts:**

- Disturbance of fauna and flora;
- Transforming natural habitat to a niche habitat where only select species can persist;
- Soil erosion; and
- Stormwater run-off will increase during and immediately after ploughing as vegetation will not be present to decrease the velocity and erosive potential of water during a rainfall event.

## Basic Assessment Report

### ***Cumulative impacts:***

- Proliferation of niche species;
- Contamination of water resources and soil through fuel leakages from mechanised farming equipment;
- High potential for siltation of dam as a result of soil erosion;
- High potential for eutrophication of water resources; and
- If not properly managed, the activity could result in environmental degradation.

### **No-go alternative (compulsory)**

**The no-go alternative would result in the site not being utilised for cultivation, hence it will remain as it is in its current state i.e. an open area of grassland ('veld').**

### ***Direct impacts:***

- The Applicant will have to source another means of providing adequate feed for his dairy herd. This possibly will be sourced at a greater expense when compared to onsite cultivation, thereby increasing operational costs and decreasing profit margins;
- No cultivation of the grassland will result in an intact grassland, supporting the Least Threatened veld type, Drakensberg Foothill Moist Grassland; and
- Stormwater run-off will not increase as the grassland remains undisturbed. The existing cattle track evident on site, as noted in the Wetland Delineation Report (Appendix D), will increase in size over time, due to use by animals and as a result of rainfall events.

### ***Indirect impacts:***

- The cost at which the Applicant sells the final product may have to be raised, barring any standing contracts with the bulk purchaser, due to increased costs of sourcing feed; and
- Continued functioning of the Drakensberg Foothill Moist Grassland.

### ***Cumulative impacts:***

- Continued habitat use for local fauna and flora.

Indicate mitigation measures to manage the potential impacts listed above:

### **Alternative S1**

- Fertiliser application rates must be strictly adhered to;
- Where possible, avoid applying fertiliser prior to forecasted large rainfall events;
- Where possible, initial ploughing should not be done prior to forecasted heavy rainfall events so as to limit soil erosion;
- It is however recommended, that initial ploughing be conducted after the first rains when the soil moisture content is elevated, so as to prevent potential sheet run-off and/ or wind erosion / dust;
- Seed should be sown immediately after ploughing to prevent the land from lying fallow for the least amount of time;
- The site should be monitored for signs of soil erosion. Should such signs be noted, immediate remedial action should be implemented as per the EMPr (Appendix F);
- Fertiliser should not be applied until the site is well vegetated to reduce the surface run-off during rainfall events;
- Disturbance of fauna and flora difficult to mitigate against;
- The establishment of any alien plant species must be monitored and controlled so as to prevent the re-establishment thereof.



### Alternative S2

- Fertiliser application rates must be strictly adhered to;
- Where possible, avoid applying fertiliser prior to forecasted large rainfall events;
- Monitoring of water quality may be necessary should signs of eutrophication be observed;
- Where possible, initial ploughing should not be done prior to forecasted heavy rainfall events so as to limit soil erosion;
- It is however recommended, that initial ploughing be conducted after the first rains when the soil moisture content is elevated, so as to prevent potential sheet run-off and wind erosion;
- Seed should be sown immediately after ploughing to prevent the land from lying fallow for the least amount of time;
- The site should be monitored for signs of soil erosion. Should such signs be noted, immediate remedial action should be implemented as per the EMPr (Appendix F);
- Fertiliser should not be applied until the site is well vegetated to reduce the surface run-off during rainfall events.
- Disturbance of fauna and flora difficult to mitigate against;
- The establishment of any alien plant species must be monitored and controlled so as to prevent the re-establishment thereof.

### b. Process, technology, layout or other alternatives

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the construction phase (please list impacts associated with each alternative separately):

#### Alternative A1 (preferred alternative)

**The preferred technology alternative is the 'no till' or direct drilling method for the planting of crops / *Eragrostis*.**

#### ***Direct impacts:***

- The loss of natural vegetation (i.e. approximately 33ha of Drakensberg Foothill Moist Grassland) as a result of cultivation;
- The loss of natural habitat for grassland faunal species including:
  - Micro habitat for small mammals; and
  - Hunting and foraging area for birds and mammals.
- Alien vegetation encroachment from imported seed;
- Change in soil characteristics including structure as a result of ploughing machinery; and
- Potential for soil erosion to occur.

#### ***Indirect impacts:***

- Potential contamination of off-site water resources due to over application of fertilisers;
- Alien plant infestation;
- Siltation of dam as a result of soil erosion; and
- Increase in road strikes of birds and wildlife, especially slow-moving organisms such as frogs and bird nests / eggs.

#### ***Cumulative impacts:***

- Decline in number of animals utilising the land;
- Possible changes in soil characteristics due to over application of fertilisers;
- Possible changes in soil characteristics due to mechanical ploughing; and
- Disturbance of wetland habitat due to siltation.

**Alternative A2**

**The alternative technology alternative is regular tilling of the soil for the planting of crops / *Eragrostis*.**

***Direct impacts:***

- The loss of natural vegetation (i.e. approximately 40ha Drakensberg Foothill Moist Grassland) as a result of cultivation;
- The loss of natural habitat for grassland faunal species including:
  - Micro habitat for small mammals; and
  - Hunting and foraging area for birds and mammals.
- Alien vegetation encroachment from imported seed;
- Change in soil characteristics including structure as a result of ploughing machinery; and
- Potential for soil erosion to occur.

***Indirect impacts:***

- Potential contamination of off-site water resources due to over application of fertilisers;
- Alien plant infestation; and
- Increase in road strikes of birds and wildlife, especially slow-moving organisms such as frogs and bird nests / eggs.

***Cumulative impacts:***

- Decline in number of animals utilising the land;
- Possible changes in soil characteristics due to over application of fertilisers;
- Possible changes in soil characteristics due to mechanical ploughing; and
- Disturbance of wetland habitat due to siltation.

**No-go alternative (compulsory)**

***Direct impacts:***

- None.

***Indirect impacts:***

- None.

***Cumulative impacts:***

- None.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative A1:**

- Loss of habitat and natural vegetation could be offset in other areas, pending agreements with the Applicant;
- Seed should be purchased from a reputable nursery and follow-up alien vegetation control must be implemented;
- Initial ploughing should ideally be conducted after the first rains when some soil moisture is present and the potential for sheet run-off and wind erosion is limited;
- Fertiliser application rates must be strictly adhered to;
- Where possible, avoid applying fertiliser prior to forecasted large rainfall events;
- Fertiliser should be applied in smaller amounts more frequently to minimise the run-off;
- Top dressing with fertiliser should not be conducted until the site is well vegetated to reduce the surface run-off during rainfall events;
- Where possible, initial ploughing should not be done prior to forecasted heavy rainfall events so as to limit soil erosion;
- Machinery use should be limited only to the development footprint; and

## Basic Assessment Report

- Signs of soil erosion must be monitored and immediately rectified should evidence of such be found.

### Alternative A2:

- Loss of habitat and natural vegetation could be offset in other areas, pending agreements with the Applicant;
- Seed should be purchased from a reputable nursery and follow-up alien vegetation control must be implemented;
- Initial ploughing should ideally be conducted after the first rains when some soil moisture is present and the potential for sheet run-off is limited;
- Fertiliser application rates must be strictly adhered to;
- Where possible, avoid applying fertiliser prior to forecasted large rainfall events;
- Fertiliser should be applied in smaller amounts more frequently to minimise the run-off;
- Top dressing with fertiliser should not be conducted until the site is well vegetated to reduce the surface run-off during rainfall events;
- Where possible, initial ploughing should not be done prior to forecasted heavy rainfall events so as to limit soil erosion;
- Machinery use should be limited only to the development footprint; and
- Signs of soil erosion must be monitored and immediately rectified should evidence of such be found.

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## 2.3. IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

### a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the operational phase:

#### Alternative S1 (preferred alternative)

**The preferred site alternative is highlighted in pink in Figure 1. This site alternative will meet the need and desirability of the project and covers an area of approximately 35ha.**

#### **Direct impacts:**

- Low potential for impacts on nearby water resources from fertiliser and water use;
- Alien plants may invade the site if not monitored and removed on an on-going basis;
- Access to land by the Applicant which is suitable for *Eragrostis* cultivation and therefore feed production for his dairy herd;
- Decrease in amount of Drakensberg Foothill Moist Grassland in the province – classified as Least Threatened by Ezemvelo KZN Wildlife;
- Movement of fauna and flora limited as **approximately 33ha** cultivated to *Eragrostis* grassland; and
- Continuum of cultivated land as the plot of land to the south of the site is also under cultivation, thus clustering cultivated plots together.

#### **Indirect impacts:**

- Fauna and flora species will still be attracted to the site (*Eragrostis* is an indigenous species) ; and
- Transforming natural habitat to a niche habitat where only select species can persist.

#### **Cumulative impacts:**

- Proliferation of niche species; and
- Low potential for eutrophication of water resources.

#### Alternative S2 (if any)

**The site alternative, highlighted in orange in Figure 1, and located directly north of the preferred alternative, will meet the need and desirability of the project. The site however, has a steeper gradient than the preferred alternative and is traversed by multiple drainage lines. This alternative covers an area of approximately 40ha.**

#### **Direct impacts:**

- Low potential for impacts on nearby water resources from fertiliser and water use;
- Alien plants may invade the site if not monitored and removed on an on-going basis;
- Access to land by the Applicant which is suitable for *Eragrostis* cultivation and therefore feed production for his dairy herd;
- Decrease in amount of Drakensberg Foothill Moist Grassland in the province – classified as Least Threatened by Ezemvelo KZN Wildlife;
- Movement of fauna and flora limited as approximately 40ha cultivated to *Eragrostis* grassland;
- Fragmentation of land and therefore existing grasslands in the area – i.e. if this alternative is utilised and the preferred alternative remain intact as Drakensberg Foothill Moist Grassland, the potential for species connectivity through specie corridors decreases;

#### **Indirect impacts:**

- Fauna and flora species will still be attracted to the site (*Eragrostis* is an indigenous species)
- Transforming natural habitat to a niche habitat where only select species can persist;
- Increase soil erosion potential as gradient is steeper than the preferred alternative site; and
- Impact on existing drainage lines and wetland habitat through *Eragrostis* encroachment.

#### **Cumulative impacts:**

- Proliferation of niche species; and
- High potential for eutrophication of water resources.

**No-go alternative (compulsory)**

**The no-go alternative would result in the site not being utilised for cultivation, hence it will remain as it is in its current state i.e. an open area of grassland ('veld').**

**Direct impacts:**

- Continued functioning of the grassland as Drakensberg Foothill Moist Grassland.

**Indirect impacts:**

- None.

**Cumulative impacts:**

- None.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative S1**

- Fertiliser application rates must be strictly adhered to;
- Top dressing with fertiliser should not be conducted until the site is well vegetated to reduce the surface run-off during rainfall events;
- Where possible, avoid applying fertiliser prior to forecasted large rainfall events;
- The site is to be monitored for signs of alien encroachment and removed as per the requirements of the EMPr;
- Mechanical removal of alien vegetation is preferred to the use of chemicals, as long as the disturbance to the soils are minimised;
- Disturbance of fauna and flora difficult to mitigate against. However, *Eragrostis* is an indigenous grassland specie and will still support several fauna and flora species on site;
- An 80 metre buffer is to be instituted as per the recommendations of the Biodiversity Assessment (Appendix D) in order to maintain corridors for the movement of fauna and flora; and
- The 50 metre buffer as recommended by the Wetland Specialist (Appendix D) will be incorporated into the 80 metre buffer as noted above. Thus the total area to be cultivated on the property is **approximately 33ha.**

**Alternative S2**

- Fertiliser application rates must be strictly adhered to;
- Top dressing with fertiliser should not be conducted until the site is well vegetated to reduce the surface run-off during rainfall events;
- Where possible, avoid applying fertiliser prior to forecasted large rainfall events;
- Monitoring of water quality may be necessary should signs of eutrophication be observed;
- Initial ploughing should ideally be conducted after the first rains when some soil moisture is present and the potential for sheet run-off is limited;
- The site is to be monitored for signs of alien encroachment and removed as per the requirements of the EMPr;
- Mechanical removal of alien vegetation is preferred to the use of chemicals, as long as the disturbance to the soils are minimised;
- Disturbance of fauna and flora difficult to mitigate against. However, *Eragrostis* is an indigenous grassland specie and will still support several fauna and flora species on site; and
- The site is to be monitored for signs of alien encroachment and removed as per the requirements of the EMPr.

**b. Process, technology, layout or other alternatives**

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the operational phase (please list impacts associated with each alternative separately):

**Alternative A1 (preferred alternative)**

**The preferred technology alternative is the 'no till' or direct drilling method for the planting of crops / *Eragrostis*.**

***Direct impacts:***

- Increase in agricultural production as cattle would come out of winter in better condition;
- Alien vegetation encroachment may occur;
- Soil and fauna disturbance when harvesting *Eragrostis*;
- Change in soil characteristics including structure as a result of heavy machinery; and
- Potential disturbance to wetland habitat.

***Indirect impacts:***

- Dust impacts as a result of harvesting practices; and
- Low risk of contamination of off-site water resources if over application of fertilisers occurs.

***Cumulative impacts:***

- Decline in numbers of animals utilising the land during harvesting; and
- Ongoing management requirements.

**Alternative A2**

**The alternative technology alternative is regular tilling of the soil.**

***Direct impacts:***

- Increase in agricultural production as cattle would come out of winter in better condition;
- Alien vegetation encroachment may occur;
- Soil and vegetation disturbance when harvesting;
- Change in soil characteristics including structure as a result of machinery;
- Compaction layer, called a plough pan can be created through regular tilling, which can lead to:
  - Decreased water infiltration; and
  - Erosion of topsoil.
- Increased use of heavy machinery can result in added compaction of the soil, increasing erosion potential; and
- Excessive ploughing stimulates the breakdown of organic matter which releases carbon dioxide into the atmosphere thereby contributing to climate change.

***Indirect impacts:***

- Increased use of fuel due to increased use of machinery;
- Low risk of contamination of off-site water resources if over application of fertilisers occurs.
- Dust from regular tilling practices; and
- Seed-bank contamination: Seed dispersal via equipment imports, vehicles and workers.

***Cumulative impacts:***

- Decline in number of animals utilising the land; and
- Ongoing management requirements.

**No-go alternative (compulsory)**

***Direct impacts:***

- None.

***Indirect impacts:***

- None.

***Cumulative impacts:***

- None.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative A1**

- Care must be taken to impact the least amount of area possible when harvesting;
- Remove any alien plant species and control the re-establishment thereof;
- The EMPr must include a vegetation management plan to mitigate any potential negative impacts;
- Fertiliser rates must be closely monitored and off-site water resources tested where potential for contamination exists;
- As per the recommendations of the Wetland Delineation Report (Appendix D), a 50 meter buffer should be implemented to ensure the preservation of the habitat and catchment area; and
- As per the recommendations of the Biodiversity Assessment (Appendix D), an 80 meter should be implemented to ensure connectivity between land parcels.

**Alternative A2**

- Care must be taken to impact the least amount of area possible when harvesting;
- Remove any alien plant species and control the re-establishment thereof
- Fertiliser rates must be closely monitored and off-site water resources tested where potential for contamination exists; and
- The EMPr must include a vegetation management plan to mitigate any potential negative impacts.

## 2.4. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING OR CLOSURE PHASE

### a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the decommissioning or closure phase:

#### Alternative S1 (preferred alternative)

**The preferred site alternative is highlighted in pink in Figure 1. This site alternative will meet the need and desirability of the project and covers an area of approximately 35ha.**

##### ***Direct impacts:***

- Invasion of the area by alien plant species; and
- Elevated dust levels - Removal of plant species and soil disturbance could result in increased dust levels in the area.

##### ***Indirect impacts:***

- Alien plant infestation:
  - Seed-bank contamination: Seed dispersal via equipment imports, vehicles and workers; and
  - Soil and vegetation disturbance: Increased competition from alien plants; and
- Faunal disturbance - Potentially from the additional noise from increased vehicular movement at decommissioned site.

##### ***Cumulative impacts:***

- Additive disturbance of soil, flora and fauna during Decommissioning Phase.

#### Alternative S2

**The site alternative, highlighted in orange in Figure 1, and located directly north of the preferred alternative, will meet the need and desirability of the project. The site however, has a steeper gradient than the preferred alternative and is traversed by multiple drainage lines. This alternative covers an area of approximately 40ha.**

##### ***Direct impacts:***

- Invasion of the area by alien plant species; and
- Elevated dust levels - Removal of plant species and soil disturbance could result in increased dust levels in the area.

##### ***Indirect impacts:***

- Alien plant infestation:
  - Seed-bank contamination: Seed dispersal via equipment imports, vehicles and workers; and
  - Soil and vegetation disturbance: Increased competition from alien plants; and
- Faunal disturbance - Potentially from the additional noise from increased vehicular movement at decommissioned site.

##### ***Cumulative impacts:***

- Additive disturbance of soil, flora and fauna during Decommissioning Phase.

#### No-go alternative (compulsory)

**The no-go alternative would result in the site not being utilised for cultivation, hence it will remain as it is in its current state i.e. an open area of grassland ('veld').**

##### ***Direct impacts:***

- None.

##### ***Indirect impacts:***

- None.



**Cumulative impacts:**

- None.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative S1**

- Plant removal:
  - All exposed earth should be rehabilitated promptly with suitable vegetation to protect the soil. Necessary rehabilitation measures (e.g. burning, seeding, removing alien plants etc.) should be introduced to ensure species composition reverts to a more natural state.
- Soil erosion:
  - All exposed earth should be rehabilitated promptly with suitable vegetation to protect the soil.
- Alien plant infestation:
  - A monitoring programme should be implemented to enforce the continual eradication of alien and invasive species during the Decommissioning Phase and continually monitored after decommissioning.

**Alternative S2**

- Plant removal:
  - All exposed earth should be rehabilitated promptly with suitable vegetation to protect the soil. Necessary rehabilitation measures (e.g. burning, seeding, removing alien plants etc.) should be introduced to ensure species composition reverts to a more natural state.
- Soil erosion:
  - All exposed earth should be rehabilitated promptly with suitable vegetation to protect the soil.
- Alien plant infestation:
  - A monitoring programme should be implemented to enforce the continual eradication of alien and invasive species during the Decommissioning Phase and continually monitored after decommissioning.

**b. Process, technology, layout or other alternatives**

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the decommissioning or closure phase (please list impacts associated with each alternative separately):

**Alternative A1 (preferred alternative)**

**The preferred technology alternative is the 'no till' or direct drilling method for the planting of crops / *Eragrostis*.**

***Direct impacts:***

- Rehabilitating to pre-existing conditions;
- Preventing alien vegetation encroachment;
- Potential contamination of water and soil resources by fuel from leaking machinery.

***Indirect impacts:***

- On-going alien control; and
- Intensive management requirements.

***Cumulative impacts:***

- Alien vegetation encroachment.

**Alternative A2**

**The alternative technology alternative is regular tilling of the soil.**

***Direct impacts:***

- Rehabilitating to pre-existing conditions;
- Preventing alien vegetation encroachment; and
- Potential contamination of water and soil resources by fuel from leaking machinery.

***Indirect impacts:***

- On-going alien control; and
- Intensive management requirements.

***Cumulative impacts:***

- Alien vegetation encroachment.

**No-go alternative (compulsory)**

***Direct impacts:***

- None.

***Indirect impacts:***

- None.

***Cumulative impacts:***

- None.

## Basic Assessment Report

Indicate mitigation measures to manage the potential impacts listed above:

### Alternative A1

- An alien control rehabilitation plan must be implemented; and
- Water quality monitoring should be implemented to assess whether contamination has occurred.

### Alternative A2

- An alien control rehabilitation plan must be implemented; and
- Water quality monitoring should be implemented to assess whether contamination has occurred.

## 2.5. PROPOSED MONITORING AND AUDITING

For each phase of the project and for each alternative, please indicate how identified impacts and mitigation will be monitored and/or audited.

### Alternative S1 (preferred site)

An Environmental Management Programme (EMPr) has been compiled and is attached to this report (see Appendix F). It is recommended that external EMPr monitoring take place by an independent Environmental Control Officer (ECO) to ensure that the requirements of the EMPr are being correctly implemented.

### Alternative S2

An Environmental Management Programme (EMPr) has been compiled and is attached to this report (see Appendix F). It is recommended that external EMPr monitoring take place by an independent Environmental Control Officer (ECO) to ensure that the requirements of the EMPr are being correctly implemented.

### Alternative A1 (preferred alternative)

An Environmental Management Programme (EMPr) has been compiled and is attached to this report (see Appendix F). It is recommended that external EMPr monitoring take place by an independent Environmental Control Officer (ECO) to ensure that the requirements of the EMPr are being correctly implemented.

### Alternative A2

An Environmental Management Programme (EMPr) has been compiled and is attached to this report (see Appendix F). It is recommended that external EMPr monitoring take place by an independent Environmental Control Officer (ECO) to ensure that the requirements of the EMPr are being correctly implemented.

### 3. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

#### Alternative S1 (preferred site)

- The preferred site alternative is highlighted in pink in Figure 1. This site alternative will meet the need and desirability of the project and covers an area of approximately 35ha;
- The Biodiversity Assessment (Appendix D) identified the grassland type on site as Drakensberg Foothill Moist Grassland and noted that it should not be cultivated;
- Drakensberg Foothill Moist Grassland is classified by Ezemvelo KZN Wildlife as a "Least Concern" vegetation type in their conservation targets;
- The Biodiversity Assessment (Appendix D) recommends that should the cultivation be authorised, an 80 metre setback line be implemented, therefore decreasing the total amount of land for cultivation to **approximately 33ha**;
- The Wetland Delineation and Functional Assessment Report (Appendix D) noted that no wetlands occur within the boundaries of the site. However, it was noted that the farm dam to the west of the site acts as a catchment for two other wetlands in the area. In this regard, and due to the unusual steepness of the footslope, a 50 meter buffer is proposed to be implemented;
- The Wetland buffer (i.e. 50 meters) is to be incorporated into the recommended 80 metre buffer of the Biodiversity Assessment;
- The cultivation of this site will result in a continuum of cultivated land, as the plot of land to the south of the site is also under cultivation. As such all cultivated plots of land will be clustered together;
- Agricultural production on the farm would increase as the Applicant's dairy herd would come out of winter in better condition as a result of the baled *Eragrostis*;
- A regular and sustainable source of feed for the dairy herd will contribute towards food security for the herd and ultimately increase the productivity of the farm; and
- Should the recommendations of this report and the EMPr be implemented, the EAP is of the opinion that the potential impacts associated with the proposed activity can be largely avoided, and where these cannot be avoided altogether, mitigated against.

#### Alternative S2

- The site alternative, highlighted in orange in Figure 1, and located directly north of the preferred alternative, will meet the need and desirability of the project.
- The site has a steeper gradient than the preferred alternative and is traversed by multiple drainage lines;
- The proposed activity is to cultivate **approximately 40ha** of indigenous grassland ('veld');
- No specialist studies have been conducted on the site as it is not the preferred site due to a steep gradient and multiple drainage lines resulting in more adverse environmental impacts;
- Should this site be cultivated it will fragment the cultivated and natural land plots evident on the Newfields Farm. This will decrease the potential for species connectivity through species corridors;
- Potential for soil erosion on this site is high given the steep gradient;
- The potential for wetland habitat disturbance is high given the multiple drainage lines that traverse the site;
- Agricultural production on the farm would increase as the Applicant's dairy herd would come out of winter in better condition as a result of the baled *Eragrostis*.

#### Alternative A1 (preferred alternative)

- The preferred technology alternative is the 'no till' or direct drilling method for the planting of crops / *Eragrostis*.
- Agricultural production will increase as cattle would come out of winter in better condition due to baled *Eragrostis*;
- Alien vegetation encroachment may occur;
- Soil and vegetation disturbance will occur during harvesting as a result of machinery, but the impact will be

## Basic Assessment Report

limited due to this only occurring once or twice a year when necessary;

- The Biodiversity Assessment has provided input into the planning and size of the proposed activity such that the potential impacts can be minimised – i.e. implementation of the 80 metre setback line;
- Faunal disturbance will occur during harvesting, but it will be an infrequent, short term impact;
- Species diversity may alter due to the cultivation of a mono-culture crop i.e. *Eragrostis*, but, as *Eragrostis* is an indigenous species, it will not discourage fauna and flora from inhabiting the site;
- An EMP has been drawn up and should be implemented during all phases of the development. An ECO should be appointed to monitor and ensure compliance with the EMP during the Construction Phase;
- Should the recommendations of this report and the EMP be implemented, the EAP is of the opinion that the potential impacts associated with the proposed activity can be largely avoided, and where these cannot be avoided altogether, mitigated against;
- The EAP is of the opinion that this is the Preferred Alternative from an environmental perspective.

### Alternative A2

- The alternative technology alternative is regular tilling of the soil;
- Increase in agricultural production as cattle would come out of winter in better condition due to baled *Eragrostis*;
- Alien vegetation encroachment may occur;
- Soil and vegetation disturbance will occur during harvesting as a result of machinery – this would be a frequent event;
- Compaction layer, called a plough pan can be created through regular tilling, which can lead to:
  - Decreased water infiltration; and
  - Erosion of topsoil.
- Increased use of heavy machinery can result in added compaction of the soil, increasing erosion potential;
- Excessive ploughing stimulates the breakdown of organic matter which releases carbon dioxide into the atmosphere thereby contributing to climate change;
- Increased expense in terms of fuel usage as machinery will be utilised more frequently for ploughing;
- Increase in dust due to regular tilling;
- Seed-bank contamination: Seed dispersal via equipment imports, vehicles and workers; and
- EAP is of the opinion that this not the Preferred Technology Alternative from an environmental perspective.

### No-go alternative (compulsory)

- The site would remain as it is in its current state i.e. Drakensberg Foothill Moist Grassland;
- The site would continue to support the current fauna and flora on site; and
- Agricultural production would not increase as the Applicant's Dairy herd would not benefit from better quality winter feed.

## SECTION F. RECOMMENDATION OF EAP

Is the information contained in this report and the documentation attached hereto in the view of the EAPr sufficient to make a decision in respect of this report?

YES	NO

If "NO", please contact the KZN Department of Agriculture & Environmental Affairs regarding the further requirements for your report.

If "YES", please attach the draft EMPr as Appendix F to this report and list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

- Fertiliser application rates must be strictly adhered to;
- Top dressing with fertiliser should not be conducted until the site is well vegetated to reduce the surface run-off during rainfall events;
- Where possible, avoid applying fertiliser prior to forecasted large rainfall events;
- The Specialist Studies conducted recommend the following, should the proposed activity be granted Environmental Authorisation (please refer to Appendix D for a complete list of recommendations):

### Biodiversity Assessment

- Should the cultivation of the primary grassland, identified as Drakensberg Foothill Moist Grassland and classified as Least Threatened as per the Ezemvelo KZN Wildlife's conservation targets, be authorised, the recommended mitigation is to delineate an 80 metre setback between the western boundary of the preferred site and the adjacent wetlands and primary grasslands. This would reduce the area for cultivation by approximately 1.5ha, but would provide a viable ecological corridor for the movement of most flora and fauna of the adjacent wetlands and primary grasslands. The total area available for cultivation would therefore be approximately **33ha**;
- However, the Specialist does not recommend that the primary grassland be cultivated for the following reasons:
  - 1) The proposed cultivation site is a good example of Drakensberg Foothill Moist Grassland with representative flora and fauna;
  - 2) The remaining grasslands and wetlands on the property are interconnected and should not be fragmented; and
  - 3) There is a viable connectivity between the proposed cultivation site and primary grasslands and wetland on adjacent properties.

### Wetland Delineation and Functionality Assessment

- No wetland habitat was identified within the project boundary. The site does, however, form the catchment for two wetland systems; and
- A 50 metre linear buffer should be implemented around the wetland habitat. This is due to the steep nature of the footslope adjacent to the dam. Prevention of sediment mobilisation and deposition is highlighted as an important management objective.

### Heritage Impact Assessment

- No heritage or archaeological features of significance were found on the site.

### Soil Survey

- A description of the site slope, soil form, distribution, depth, soil type and texture was documented in the Soil Survey Report.

Please refer to Appendix D for complete reports.

## Basic Assessment Report

- Where possible, initial ploughing should not be done prior to forecasted heavy rainfall events so as to limit soil erosion;
- It is however recommended, that initial ploughing be conducted after the first rains when the soil moisture content is elevated, to as to prevent potential sheet run-off and dust / wind erosion;
- Alien plant encroachment must be monitored and prevented as outlined in the EMPr;
- Mechanical removal of alien vegetation is preferred to the use of chemicals, as long as the disturbance to the soils are minimised;
- Loss of habitat and natural vegetation could be offset in other areas, pending agreements with the Applicant;
- Seed must be purchased from a reputable nursery and follow up alien vegetation control rigorous;
- Seed should be sown immediately after ploughing to prevent the land from lying fallow for the least amount of time;
- Machinery use should be limited only to the development footprint only;
- Care must be taken to impact the least amount of area possible when harvesting;
- The EMPr must include a vegetation management plan to mitigate any potential negative impacts (see Appendix F);
- The site should be monitored for signs of soil erosion. Should such signs be noted, immediate remedial action should be implemented as per the EMPr (Appendix F);
- Disturbance of fauna and flora difficult to mitigate against. However, *Eragrostis* is an indigenous grassland species and will still support several fauna and flora species on site; and
- An independent ECO should be appointed to monitor and ensure compliance with the EMPr during the "Construction / Ploughing" Phase.

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## SECTION G: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Draft Environmental Management Programme (EMPr)

Appendix G: Other information

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Appendix A: Site plan(s)

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Appendix B: Photographs

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Appendix C: Facility illustration(s)

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Appendix D: Specialist reports

- Biodiversity Assessment
- Wetland Delineation
- Heritage Impact Assessment
- Soil Survey Report

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Appendix E: Comments and responses report

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Appendix G: Other information

N/A

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