

**ENVIRONMENTAL IMPACT ASSESSMENT FOR
THE TOWNSHIP ESTABLISHMENT ON FARM
PORTION OF THE FARM CORNELIA NO. 857,
CORNELIA**

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

REF NO: EMS/15/13/04

Applicant:

MAFUBE LOCAL MUNICIPALITY
PO Box 2
Frankfort
9830

Contact Person: Mr. I. Radebe
Phone number: (058) 813 1052

Prepared by:



TABLE OF CONTENTS

ABBREVIATIONS	III
1 PROJECT DETAILS	1
1.1 INTRODUCTION.....	1
1.2 DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER	1
2 PROJECT DESCRIPTION	2
2.1 BASELINE INFORMATION.....	2
2.2 PROPOSED ACTIVITY	2
2.3 PROJECT LOCATION	3
2.4 SITE DESCRIPTION	4
2.4.1 <i>PHOTOGRAPHIC HISTORY</i>	4
3 ENVIRONMENTAL DESCRIPTION	4
3.1 PHYSICAL ENVIRONMENT	4
3.1.1 <i>TOPOGRAPHY</i>	4
3.1.2 <i>GEOLOGY AND SOILS</i>	4
3.1.3 <i>GROUND AND SURFACE WATER</i>	4
3.1.4 <i>CLIMATE</i>	5
3.1.5 <i>LAND USE</i>	5
3.2 BIOLOGICAL ENVIRONMENT	5
3.2.1 <i>FLORA</i>	5
3.2.2 <i>FAUNA</i>	5
3.3 SOCIAL ECONOMIC STRUCTURE OF THE AREA.....	5
3.3.1 <i>ECONOMIC CONTEXT</i>	6
3.3.2 <i>SOCIAL CONTEXT</i>	6
3.3.3 <i>DEVELOPMENT STRATEGIES</i>	6
3.4 AREAS OF HISTORICAL AND/OR CULTURAL IMPORTANCE	6
4 PUBLIC PARTICIPATION	7
4.1 BACKGROUND.....	7
4.2 REGISTERED ORGANS OF STATE, COMPANIES AND PRIVATE INDIVIDUALS	7
4.3 SUMMARY OF COMMENTS/ISSUES RECEIVED.....	7
4.4 COPIES OF CONSULTATION WITH IDENTIFIED I&APs.....	8
5 NEED FOR THE PROPOSED ACTIVITY	17
6 ALTERNATIVES	17
6.1 NO-GO ALTERNATIVE (DO NOTHING ALTERNATIVE)	17
6.2 SITE ALTERNATIVE	17
6.3 TECHNOLOGY ALTERNATIVE 1.....	18
7 SIGNIFICANT ASSESSMENT METHODOLOGY	18
8 SUMMARY OF FINDINGS AND RECOMMENDATIONS OF SPECIALIST	20
9 ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS	23
10 ASSESSMENT OF IDENTIFIED ENVIRONMENTAL ISSUES	25
11 ASSUMPTIONS, UNCERTAINTIES, OR GAPS IN KNOWLEDGE	32
12 EAP RECOMMENDATIONS	32
13 ENVIRONMENTAL IMPACT STATEMENT	34
14 ENVIRONMENTAL MANAGEMENT PLAN	35
15 REFERENCES	37

LIST OF FIGURES

Figure 1: Google Satellite Imagery showing Location of Proposed Site	3
Figure 2: Notification sent to Environmental Manager	9
Figure 3: Notification to the Ward Councillor	10
Figure 4: Notification sent to the Department of Water Affairs.....	12
Figure 5: Comments received from the Department of Water Affairs on the Draft Scoping Report.....	14
Figure 6: Comments from DWA on the Draft EIAR	16

LIST OF TABLES

Table 1: Erven Composition for the Proposed Development.....	2
Table 2: List of Interested and Affected Parties.....	7
Table 3: Significance Rating.....	18
Table 4: Severity Rating	19
Table 5: Extent Rating.....	19
Table 6: Frequency Rating	20
Table 7: Probability Rating	20
Table 8: Duration Rating	20
Table 9: Findings and Recommendations of Specialists	21
Table 10: Identified Environmental Issues.....	24
Table 11: Assessment of Identified Environmental Impacts	25

LIST OF PHOTOGRAPHS

Photo 1: View of the Proposed Site from the North West.....	48
Photo 2: View of the Proposed Site from the Middle of the Site (from the north, through to the east, south, west and ending north again).....	48
Photo 3: View of the Proposed Site from the Middle of the Eastern Border of the Site	48

APPENDICES

Appendix 2.1A:	Spatial Development Framework Map
Appendix 2.1B:	Motivation Report (Memorandum)
Appendix 2.1C:	Geotechnical Report
Appendix 2.1D:	Bulk Services Report
Appendix 2.2:	Layout Plan
Appendix 2.3:	Locality Map
Appendix 8:	Reports of Specialists
Appendix 14:	Draft Environmental Management Plan

ABBREVIATIONS

DEA	-	Department of Environmental Affairs
DETEA-FS	-	Department of Economic Development, Tourism and Environmental Affairs – Free State Province
DM	-	District Municipality
DMR	-	Department of Mineral Resources
DSR	-	Draft Scoping Report
DWA	-	Department of Water Affairs
ECA	-	Environmental Conservation Act of 1989
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
FSR	-	Final Scoping Report
I&AP	-	Interested and Affected Party
IAR	-	Impact Assessment Report
IDP	-	Integrated Development Plan
LM	-	Local Municipality
NEMA	-	National Environmental Management Act of 1998 as amended
S1	-	Site Alternative 1
S2	-	Site Alternative 2
SAHRA	-	South African Heritage Resources Agency
SDF`	-	Spatial Development Framework
WWTW		Waste Water Treatment Works

EXECUTIVE SUMMARY

NSVT Consultants were appointed by Pula Strategic Resource Management, the project consultant, as independent environmental assessment practitioners to undertake the EIA process for the proposed residential development of 428 erven stands in Farm Cornelia 857, Cornelia, within the Mafube Local Municipality, who is also the project applicant.

Alternatives that have been identified include layout and the number of housing units (scale), informed by the sensitivity of the site, e.g. existing wetlands. A no-go alternative was considered not feasible because if the site remains undeveloped, it will attract criminals, illegal dumping will take place and informal settlements could be established because the housing backlog won't be addressed.

A multidisciplinary approach was undertaken to achieve a development which is integrated and have minimal environmental impacts, i.e. specialists input from Archaeologist, Wetland Specialist, Electrical Geotechnical and Traffic Engineers have been incorporated during the EIA process. Although, no development should take place within 32m of the boundary of the wetland, a General Authorisation should be obtained from DWA.

Description of the environment of the proposed site is as follows:

- Area is a summer rainfall region with hot summers and cold winters.
- It is characterized by a flat to slightly undulating terrain with some slopes towards the East. An existing stream runs towards the east of the proposed site as well as the northern boundary.
- The site falls within the Volksrust (Pvo) with Ecca group which is underlain by shale with the occasional dolerite.
- During the geotechnical investigation, no ground water seepage or water table was encountered. The Vaal River runs to the west of the proposed development from the north to the south.
- The proposed site falls within the Frankfort Highveld Grassland but it does not have any species of this vegetation type. No Red Data listed plant species or protected species or sensitive ecosystems occur on site have been noted on site. The site is relatively degraded due to human impacts. A number of exotic species occur in the riparian plant community on the stream bank. The wetland is regarded as being not ecologically important or sensitive with a low biodiversity and plays an insignificant role in moderating water quality and quantity.
- No fauna species were encountered during the walkover study. There are livestock enclosures onsite and small burrowing mammals are also expected to occur
- The establishment of the township will provide new business opportunities (day-care facilities, spaza shops, etc.) and the development of new skills during the construction period. Therefore the activity will provide income over the short, medium and long term to local residents.

According to the 2012/2017 IDP review report, sanitation, roads, housing and storm water was highlighted as the main priorities. Therefore the proposed development is in line with

integrated development within the municipality because the erven composition includes education, Public Open Space, General Business sites in addition to the housing units.

During the selection process for the proposed site, the following aspects were considered, i.e. land availability, existing bulk services connections and economic constraints. Therefore after discussions with the role players, the no alternative sites were considered for the development. During layout selection, environmental parameters of the site were considered.

The following impacts were identified and evaluated during the assessment process, i.e.:

- Loss of topsoil during the construction period.
- Loss of topsoil during the operational phase due to erosion.
- Potential impact of the infrastructure on the socio-economic structure of the area (Positive Impact).
- Employment of local communities. (Positive Impact).
- Noise created by the construction.
- Potential damage or destruction to undiscovered heritage sites in the area.
- Potential impact of sensitive habitat destruction.
- Potential impact of destruction of red data plants.
- Potential impact due to the increase in traffic
- Insufficient capacity to deliver bulk services to the community, specialist appointed to obtain information regarding this.
- Potential impact on the wetlands.

From the evaluation identified impacts using the assessment methodology, the significance ratings of negative impacts were reduced to low with outlined mitigation measures and the positive impacts were accentuated. The extent with mitigation ranged between site specific and local. Adherence to the draft EMP will also ensure that impacts occurring due to the development will be reduced to a greater extent.

The Public Participation was completed as per DEAT's Guideline 4: Public Participation in support of the EIA Regulations. From the Public Participation Process undertaken, no objections were received. Copies of consultation with the Environmental Manager, Ward Councillor and Department of Water Affairs are attached. Comments received from the Department of Water Affairs have been incorporated in the EAP recommendations.

With the information provide, the EAP is of the opinion that the proposed development should be authorized provided a General Authorisation license is obtained from the Department of Water Affairs.

1 PROJECT DETAILS

1.1 INTRODUCTION

NSVT Consultants was appointed by Pula Strategic Resource Management to complete the Environmental Impact Assessment Report component of the Environmental Impact Assessment (EIA) as per the requirements of the Department of Economic Development, Tourism and Environmental Affairs for the township establishment of 428 erven and related infrastructure on a 40 hectares undeveloped land of the Remainder of Farm Cornelia No. 857, Cornelia.

1.2 DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

EAP	NSVT Consultants		
Contact Person	Lorato Tigedi <i>Pr. Sci. Nat.</i>		
Postal Address	P. O. Box 42452, Heuwelsig, 9332		
Telephone	(051) 436 1698/3	Facsimile	086 239 9133
E-mail	lorato@nsvt.co.za	Cell	082 784 8259
Qualifications	B. Sc (Natural Science) B. Sc Hons (Wildlife)	Experience	+10 years conducting Environmental Impact Assessment, Public Participation Process, compilation of Environmental Management Plans and Environmental Compliance Monitoring for various projects within the Northern Cape, North West, Free State, and Eastern Cape Provinces, and Lesotho.
Expertise/Training	Resources & Sustainability, Physical & Biological Environment and Informatics Project Management for Environmental Management Social & Economic Sustainability Use of Matrices in EIA Public Participation Training Social Impact Assessment		
		Professional Affiliate	Professional Natural Scientist 400161/09 Member of IAP2 Member of IAIAA and Chair of the FS Branch 2010/2011

2 PROJECT DESCRIPTION

2.1 BASELINE INFORMATION

Mafube Local Municipality consists of four (4) towns (Frankfort//Namahadi, Villiers/Qalabotjha, Cornelia/Ntswanatsatsi and Tweeling/Mafahlaneng), as well as a rural area consisting mainly of commercial agriculture. Cornelia is located in an area of agricultural significance and mainly provides restricted services in this regard to the surrounding rural communities and primarily accommodates farm workers migrating to these towns. The area of jurisdiction of the Mafube Local Municipality is situated in the north eastern part of the Fezile Dabi District Municipality region. The total estimated residents in the Mafube Region, is 53 722 hectares.

Cornelia/Ntswanatsatsi is situated 60km east of Frankfort, 160km east of Sasolburg and 32km south east of Villiers. The town is situated adjacent the R103 secondary road between Warden and Villiers and further located in an area of agricultural significance and mainly provides services in this regard to the surrounding rural area. Substantial future growth of the town is not foreseen.

In order to assist the Mafube Local Municipality to obtain the proposed erven, the Department of Rural Development decided to manage the process. The Department of Rural Development appointed Pula Strategic Resource Management to proceed with the planning and surveying of 428 erven in Ntswanatsatsi, Cornelia. As is indicated in the Spatial Development Framework Map of Cornelia and Ntswanatsatsi attached hereto as **Appendix 2.1A**, the identified portion of land have been earmarked for future extension and this area can also be serviced from the adjacent networks. Furthermore, the portions of land are in the ownership of the Mafube Municipality. The Mafube Council approved the proposed layout at the Council meeting in 2013.

A Memorandum compiled by *PULA* is attached hereto as **Appendix 2.1B** and Geotechnical Report compiled by *Roadlab Prehab JV Bloemfontein*, which indicate the founding conditions for the proposed development is **Appendix 2.1C**. The Bulk Services Report is contained in **Appendix 2.1D**.

2.2 PROPOSED ACTIVITY

The proposed development entails township establishment and related infrastructure of 428 erven on ± 46 hectares on the Remainder of Farm Cornelia No. 857, Cornelia. The proposed township establishment comprises of the erven composition in *Table 1* below:

TABLE 1: ERVEN COMPOSITION FOR THE PROPOSED DEVELOPMENT

ERVEN COMPOSITION				
RESIDENTIAL	GENERAL BUSINESS	EDUCATION	PUBLIC OPEN SPACE	ROAD
404	2	7	16	1

The Layout Plan of the proposed activity is attached hereto as **Appendix 2.2**.

The proposed activity is a listed activity in terms of sections 24(2) and 24D of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended and the Environmental Impact Assessment Regulations, 2010 set out in Regulation R. 545 of NEMA:

NEMA GNR 545: Listing Notice 2

Activity 15: Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more;

except where such physical alteration takes place for:

- (i) Linear development activities; or
- (ii) Agriculture or afforestation.

2.3 PROJECT LOCATION

The proposed development is situated on the property described Portion of the farm Cornelia No. 857, Free State Province. The property is currently used for Commonage (Agricultural use) area and is approximately 46.1 hectares in extent. It is bounded on the north and east side by residential development. The site is located towards the south west of Cornelia and Ntswanatsatsi. The site is located within the municipal area of the Mafube Local Municipality, more specifically in Cornelia.

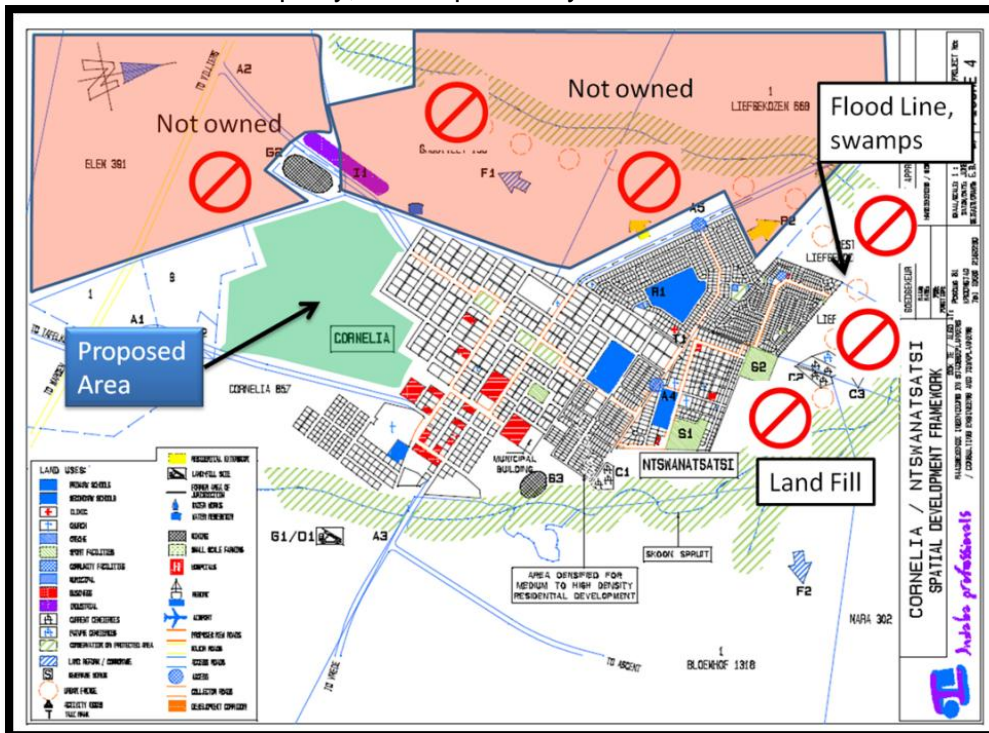


FIGURE 1: GOOGLE SATELLITE IMAGERY SHOWING LOCATION OF PROPOSED SITE

Locality Map of the proposed site is attached hereto as **Appendix 2.3**.

2.4 SITE DESCRIPTION

2.4.1 PHOTOGRAPHIC HISTORY

Photographs indicating the general situation and environment of the proposed site and its surroundings are attached hereto as **Appendix 2.4.1**.

Significance on the Photographs is as follows:

- Typical veld condition;
- Typical topography of the proposed site;
- There is a stream running on the proposed site; and
- There is a residential development adjacent the proposed site.

3 ENVIRONMENTAL DESCRIPTION

3.1 PHYSICAL ENVIRONMENT

3.1.1 TOPOGRAPHY

The area surrounding Cornelia/Ntswanatsatsi is characterized by a flat to slightly undulating and undulating terrain, with some slopes towards the east. The proposed township development is situated to the south of Cornelia and Ntswanatsatsi. The property gently slopes towards the north east. The whole Mafube Local Municipality ground falls in the Vaal River catchment's drainage region. Water will drain away from the site towards the east. (Mucina & Rutherford, 2006)

An existing streams runs towards the eastern to the northern boundary of the proposed site. Stormwater will run the gradient into already catching areas leading towards the streams on the outer edges of the proposed development.

3.1.2 GEOLOGY AND SOILS

The study area is mainly under laid by Adelaide (Pa) within the Beaufort group which forms part of the Karoo Supergroup. The Adelaide group (Pa) is underlain by mudstone and sandstone with occasional dolerite. The site fall within the Volksrust(Pvo) with Ecca group which is underlain by shale with the occasional dolerite.

Soil forms that dominate the moist bottomlands include dark brown, olive brown, yellowish brown and greyish brown silty sands, sandy clay, silty gravel and gravel were it was encountered from weathered mudstone and dolerite.

3.1.3 GROUND AND SURFACE WATER

During the geotechnical investigation, no ground water seepage or water table was encountered in any of the test pits at the time of the investigation. The Vaal River runs to the west of the proposed development from the north to the south.

There is a stream running from the north east to the north western site of the proposed development.

3.1.4 CLIMATE

The climate around Cornelia is essentially continental one with relatively warm, wet summers and cold winters. The average summer maximum is 25°C and the average winter minimum is -2°C. The annual average rainfall varies between 500mm and 700mm. Cornelia is a moderate climatic region with a Weinert N-Value between 2 and 5.

3.1.5 LAND USE

The property is currently predominantly vacant. The local community of the surrounding area is currently using the area for grazing purposes for their cattle, sheep and other animals.

3.2 BIOLOGICAL ENVIRONMENT

3.2.1 FLORA

The proposed site of development is situated in Veld type Gm 6 Frankfort Highveld Grassland (Mucina & Rutherford 2006). The area is characterized grassland dominated by *Eragrostis curvula* and *Themeda triandra*, accompanied by *E. capensis*, *E. plana*, *E. racemosa*, *Cymbopogon pospischilii*, *Elionurus muticus* and *Aristida junciformis*. (Mucina & Rutherford, 2006).

According to the specialist findings, the wetland vegetation type occurs in the Frankfort Highveld Grassland but it does not have any species of this vegetation type. The site is relatively degraded due to human impacts. A number of exotic species occur in the riparian plant community on the stream bank. The wetland is regarded as being not ecologically important or sensitive with a low biodiversity and plays an insignificant role in moderating water quality and quantity. No Red Data listed plant species or protected species or sensitive ecosystems occur on site have been noted on site.

3.2.2 FAUNA

During the walkover study, no species were encountered, however, burrows of small mammals were found on the proposed site. From the desk study conducted, it is indicated that small burrowing animals, carnivores, rodents and reptiles may occur on site. However, due to the development of the adjacent residential area, Ntswanatsatsi, the proposed site is not suitable for ungulates and large mammals to inhabit the site due to regular disturbances of a residential area, e.g. vehicular movement, kids playing, illegal dumping, etc. Mortality rate of the animal is not significant because the animals inhabiting the proposed site will relocate to the adjacent undeveloped areas. The specialist investigation also did not find any fauna in the area that is of significant value. This is due to the highly disturbed nature of the site. It is expected that some avi-fauna may be found on site, but the development impact on these are not significant.

3.3 SOCIAL ECONOMIC STRUCTURE OF THE AREA

Mafube Local Municipality consists of four (4) towns (Frankfort//Namahadi, Villiers/Qalabotjha, Cornelia/Ntswanatsatsi and Tweeling/Mafahlaneng), as well as a rural area consisting mainly of commercial agriculture. Villiers, Tweeling and Cornelia are

located in an area of agricultural significance and mainly provide restricted services in this regard to the surrounding rural communities and primarily accommodate farm workers migrating to these towns. The area of jurisdiction of the Mafube Local Municipality is situated in the north eastern part of the Fezile Dabi District Municipality region. The total estimated residents in the Mafube Region, is 53 722 hectares.

3.3.1 ECONOMIC CONTEXT

Cornelia is predominantly agricultural orientated with activities such as sheep and cattle farming, maize and sunflower seed production. Cornelia mainly provides restricted services in this regard to the surrounding rural communities and primarily accommodates farm workers migrating to town. Substantial future economic growth of this town is not foreseen.

3.3.2 SOCIAL CONTEXT

The total number of farms in the region, based on the Demarcation Board (2002) data is 449 (excluding the subdivisions of agricultural land adjacent the Vaal River and Vaal Dam). Provision of housing to farm workers, and more specifically permanent ownership thereof, is a main development priority in the region. The current tendency is for most farm labourers' families to rather reside in the urban areas with only the labourers residing on the farms during the week. It would thus be accurate to indicate that an enormous migration occurred the past few years from the rural areas to the urban areas so far as the work force of the agricultural sector of the region is concerned.

The region faces an enormous task to deal with the erf and housing shortages and proper co-ordination and integration will be required to eradicate backlogs and to provide for future growth.

3.3.3 DEVELOPMENT STRATEGIES

According to the 2012/2017 IDP review report, sanitation, roads, housing and storm water was highlighted as the main priorities. The project is also in line with the Spatial Development Framework (SDF) in that one of the strategies is to improve the standards of the living conditions of the communities by improving the housing conditions of residents.

3.4 AREAS OF HISTORICAL AND/OR CULTURAL IMPORTANCE

According to Section 38 of NHRA, a Heritage/Archaeological Impact Assessment should be done for a new development exceeding 5000m². Therefore an archaeologist, Mr. Lloyd Rossouw was appointed to conduct Palaeontological and Archaeological Investigations.

The findings and recommendations are summarized in Section 8 below and the Palaeontological and Archaeological Report is contained under **Appendix 8**.

4 PUBLIC PARTICIPATION

4.1 BACKGROUND

The Public Participation was completed as per DEAT's Guideline 4: Public Participation in support of the EIA Regulations. The objective of the process is to provide the local community and potential interested and affected parties with adequate information and give them an opportunity to raise their issues and concerns. Methods used to inform the various IAPs of the project included, direct contact, an on-site notice, pamphlets, posters, and press advertising in the local newspaper.

4.2 REGISTERED ORGANS OF STATE, COMPANIES AND PRIVATE INDIVIDUALS

TABLE 2: LIST OF INTERESTED AND AFFECTED PARTIES

NAME OF DEPARTMENT/ INDIVIDUALS	CONTACT PERSON	MEANS OF CONTACT	RESPONSE YES/NO
Mafube Local Municipality- Environmental Manager	Ms Londeka Phetha	Email	No
Ward 1 Councillor	Councillor Sigasa	Email	No
Free State, Department of Water Affairs	Motheo George	Email	No
Gauteng, Department of Water Affairs	Alexia Hlengani	Postal/Courier	Yes

4.3 SUMMARY OF COMMENTS/ISSUES RECEIVED

During the public participation process comments were received from the Department of Water Affairs they are summarized below:

Department of Water Affairs comments:


- Should any of the proposed activity be locate within regulated areas as stipulated in GA 1199 as listed below water use authorization must be obtained for section 21(c) and(i) water use before any construction may commerce:
 - If any activity is located within 1:100 year flood line;
 - Be located within 500 m radius from boundary of wetland.
- Storm water must be managed on site both during construction and after construction.
- All constructions activities must remain within construction boundaries of the proposed site.
- Pollution of ground water and surface water must be prevented.
- Any pollution incident occurred should be reported to the department within 24 hours.
- Storm water contaminated on site must be contained separate from clean water.
- Applicant should ensure that this activity complies with all applicable legislations.

- A General Authorisation should be obtained from the Department of Water Affairs prior to commencement of construction activities.

4.4 COPIES OF CONSULTATION WITH IDENTIFIED I&APs

Notification sent to the identified I&APs and comments received from the DEA are shown in *Figures* below.

Notification sent to Mafube Local Municipality-Environmental Manager



P.O. Box 42452, Heuwelsig, 9332 | 54 Kenneth Kaunda Road, Bayswater, 9301
Tel: (051) 436 1896/3 | Fax: 086 239 9133 | Cell: 082 784 8259
Email: lonko@nsvt.co.za / emnetha@nsvt.co.za | Website: www.nsvt.co.za

Date: 2013-06-26

MAFUBE LOCAL MUNICIPALITY
P.O. Box 2
FRANKFORT
9830

Attention: Ms. Londeka Phetha

RE: NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS-MAFUBE LOCAL MUNICIPALITY TOWNSHIP ESTABLISHMENTS

Notice is hereby given that an Application for authorization in terms of the National Environmental Management Act (No. 107 of 1996) and the Environmental Impact Assessment Regulations (2010) was submitted to the competent authority. The notice is given in terms of section 54(3) (a) (b) under R543.

Mafube local Municipality proposes development of four residential areas and associated amenities at Frankfort, Comella, Villiers and Tweeling. The proposed activities require an application subject to a Scoping and Environmental Impact Assessment (EIA), therefore the application forms for environmental authorization has been submitted to the Department of Economic Development, Tourism and Environmental Affairs (DETEA). The project description indicating the site location, number of erven, property size and DETEA reference number are tabulated below.

Table 1: Project Description

TOWN	SITE LOCATION	NO. OF ERVEN	PROPERTY SIZE (HA)	DETEA REFERENCE NUMBER
Comella	Cornella Portion 668 of Liefgekozen Farm	700	65	EMS/15/13/04
Frankfort	Portion 75 of Ayr	500	52	EMS/15/13/06
Tweeling	Portion 1032 of Tweeling Townlands	400	57.08	EMS/15/13/07
Villiers	Portion 492 of Villiers	400	22	EMS/15/13/05

Activity Number: Activity 15 as listed under R545 of NEMA, 2010: The alteration/transformation of a vacant space for residential area with the total area of more than 20 hectares.

Name of Client: Mafube Local Municipality

Environmental Consultant: *NSVT Consultants* was appointed as the Independent Environmental Consultant by Mafube Local Municipality, to undertake the Environmental Impact Assessment for the above mention proposed projects.

Contact Person/Details: Lorato Tgedi or Jano Louw (Environmental Assessment Practitioner)
PO Box 42452, Heuwelsig, Bloemfontein, 9332
Tel: (051) 436 1693, Fax: (086) 549 7674
Email: lorato@nsvt.co.za or jano@nsvt.co.za

All interested and affected parties are invited to register with *NSVT Consultants* (contact details below) within 14 days of the issuing of this notice.

Please contact the consultant for further information.

Kind Regards,



Lorato Tgedi
Public Participation Practitioner




ENVIRONMENTAL MANAGEMENT BEYOND TODAY'S HORIZON

Vol No: 4320258272 | Reg. No: CK 2011/006951/03 | Sole Member LC Tgedi

FIGURE 2: NOTIFICATION SENT TO ENVIRONMENTAL MANAGER

Notification to Ward Councillor



P.O. Box 42452, Heuwelsig, 9332 | 54 Kenneth Kaunda Road, Baywater, 9301
Tel: (051) 436 1696/3 | Fax: 086 239 9133 | Cell: 082 794 8259
Email: lorato@nsvt.co.za / emrtha@nsvt.co.za | Website: www.nsvt.co.za

Date: 2013-06-26

**MAFUBE LOCAL MUNICIPALITY
SPEAKER'S OFFICE
CORNELIA WARD 1**

Attention: Councillor JE Sigasa

**RE: NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS-CORNELIA
RESIDENTIAL DEVELOPMENT**

Notice is hereby given that an Application for authorization in terms of the National Environmental Management Act (No. 107 of 1998) and the Environmental Impact Assessment Regulations (2010) was submitted to the competent authority. The notice is given in terms of section 54(3) (a) (b) under R543.

Mafube local Municipality proposes development of a residential area and associated amenities at Cornelia. The proposed activity require an application subject to a Scoping and Environmental Impact Assessment (EIA), therefore the application forms for environmental authorization has been submitted to the Department of Economic Development, Tourism and Environmental Affairs (DETEA). The project description indicating the site location, number of erven, property size and DETEA reference number are tabulated below.

Table 1: Project Description

TOWN	SITE LOCATION	NO. OF ERVEN	PROPERTY SIZE (HA)	DETEA REFERENCE NUMBER
Cornelia	Portion 668 of Liefgekozen	700	65	EMS/15/13/04

Activity Number: Activity 15 as listed under R545 of NEMA, 2010: The alteration/transformation of a vacant space for residential area with the total area of more than 20 hectares.

Name of Client: Mafube Local Municipality

Environmental Consultant: *NSVT Consultants* was appointed as the Independent Environmental Consultant by Mafube Local Municipality, to undertake the Environmental Impact Assessment for the above mention proposed projects.

Contact Person/Details: Lorato Tigidl or Jano Louw (Environmental Assessment Practitioner)
PO Box 42452, Heuwelsig, Bloemfontein, 9332
Tel: (051) 436 1693, Fax: (086) 549 7674
Email: lorato@nsvt.co.za or jano@nsvt.co.za

ENVIRONMENTAL MANAGEMENT BEYOND TODAY'S HORIZON

Val No: 4320295272 | Reg. No: CK 2011/006951/03 | Sole Member LC Tigidl

FIGURE 3: NOTIFICATION TO THE WARD COUNCILLOR

Notification sent to the Department of Water Affairs



P.O. Box 42452, Heuwelsig, 9332 | 54 Kenneth Kaunda Road, Bayswater, 9301

Tel: (051) 436 1696/3 | Fax: 086 239 9133 | Cell: 082 794 8259

Email: lorato@nsvt.co.za / emretha@nsvt.co.za | Website: www.nsvt.co.za

Date: 2013-06-26

DEPARTMENT OF WATER AFFAIRS
P.O. Box 528
BLOEMFONTEIN
9300

Attention: Mr. George Motheo

RE: NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS-MAFUBE LOCAL MUNICIPALITY TOWNSHIP ESTABLISHMENTS

Notice is hereby given that an Application for authorization in terms of the National Environmental Management Act (No. 107 of 1998) and the Environmental Impact Assessment Regulations (2010) was submitted to the competent authority. The notice is given in terms of section 54(3) (a) (b) under R543.

Mafube local Municipality proposes development of four residential areas and associated amenities at Frankfort, Cornella, Villiers and Tweeling. The proposed activities require an application subject to a Scoping and Environmental Impact Assessment (EIA), therefore the application forms for environmental authorization has been submitted to the Department of Economic Development, Tourism and Environmental Affairs (DETEA). The project description indicating the site location, number of erven, property size and DETEA reference number are tabulated below.

Table 1: Project Description

TOWN	SITE LOCATION	NO. OF ERVEN	PROPERTY SIZE (HA)	DETEA REFERENCE NUMBER
Cornella	Cornella Portion 668 of Liefgekozen Farm	700	65	EMS/15/13/04
Frankfort	Portion 75 of Ayr	500	52	EMS/15/13/06
Tweeling	Portion 1032 of Tweeling Townlands	400	57.08	EMS/15/13/07
Villiers	Portion 492 of Villiers	400	22	EMS/15/13/05

Activity Number: Activity 15 as listed under R545 of NEMA, 2010: The alteration/transformation of a vacant space for residential area with the total area of more than 20 hectares.

Name of Client: Mafube Local Municipality

Environmental Consultant: *NSVT Consultants* was appointed as the Independent Environmental Consultant by Mafube Local Municipality, to undertake the Environmental Impact Assessment for the above mention proposed projects.

Contact Person/Details: Lorato Tigedi or Jano Louw (Environmental Assessment Practitioner)
PO Box 42452, Heuwelsig, Bloemfontein, 9332
Tel: (051) 436 1693, Fax: (086) 549 7674
Email: lorato@nsvt.co.za or jano@nsvt.co.za

All interested and affected parties are invited to register with *NSVT Consultants* (contact details below) within 14 days of the issuing of this notice.

Please contact the consultant for further information.

Kind Regards,



Lorato Tigedi
Public Participation Practitioner



ENVIRONMENTAL MANAGEMENT BEYOND TODAY'S HORIZON

Val No: 4320298272 | Reg. No: CK 2011/008981/23 | Sole Member LC Tigedi

FIGURE 4: NOTIFICATION SENT TO THE DEPARTMENT OF WATER AFFAIRS

Comments received from the Department of Water Affairs



water affairs

Department:
Water Affairs
REPUBLIC OF SOUTH AFRICA

OFFICE OF THE REGIONAL HEAD: GAUTENG
Bothongo Plaza East, 285 Francis Baard Street, Pretoria

☎ (012) 392 1359 ✉ P/Bag X995 ✉ Alexia Hlengani
e-mail: Hlengania@dwa.gov.za PRETORIA ☎ (012) 392 1344
0001 ☎ 16/2/7/C122/D/058

NSVT Consultants
P O Box 42452
Heuwelsig
9332

Attention Ms. Lorato Tigedi

COMMENTS: APPLICATION FOR THE PROPOSED TOWNSHIP ESTABLISHMENT ON PORTION OF THE FARM CORNELIA NO. 857, CORNELIA, FREE STATE PROVINCE, (REF: EMS/15/13/04).

Reference is made to the above-mentioned report received by this Office on 07 April 2014.

Should any of the proposed activity be located within the regulated areas as stipulated in GA 119B, as listed below. A water use authorisation must be obtained for Section 21 (c) and (l) water uses before any construction may commence:

- 1) If any activity is located within 1:100 year floodline or riparian habitat whichever is the greatest of any watercourse or drainage line or,
- 2) Be located within 500m radius from the boundary of any wetland.
- 3) It is vitally important that stormwater is managed on site both during and after construction. The development and implementation of a stormwater management plan will facilitate this.

All construction activities must remain within the boundaries of the proposed area.

All possible measures must be taken to prevent any further pollution of groundwater and surface water.

The applicant should also ensure that this activity complies with all applicable legislations including municipal by-laws and policies pertaining to health, waste management, and stormwater, water and sanitation services.

Any pollution incident occurred should be reported to the Department within 24 Hours.

Storm water contaminated on site must be contained separated from clean water

Should you have any concerns, comments or queries, do not hesitate to contact Alexia Hlangani on the above-mentioned contact details.

A.P. Hlangani
REGIONAL HEAD (Acting)
DATE: 12/05/2014

FIGURE 5: COMMENTS RECEIVED FROM THE DEPARTMENT OF WATER AFFAIRS ON THE DRAFT SCOPING REPORT



water & sanitation

Department
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

GAUTENG PROVINCIAL OFFICE

Enquiries: R. Roets
Telephone: 012 392 1352
Reference: 16/2/7/C122/D/058

By e-mail: lorato@nsvt.co.za

NSVT
P O Box 42452
Hewelsig
9332

Attention: Ms. Lorato Tigedi

COMMENT: DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR THE TOWNSHIP ESTABLISHMENT ON PORTION OF FARM CORNELIA NO. 857, CORNELIA

The Department acknowledges receipt of the abovementioned application dated 01 July 2014 (Ref: EMS/15/13/04).

This Department has reviewed the Draft Environmental Impact Assessment Report for the proposed development which comprises an integrated mixed use and a residential low cost housing subsidy scheme on a site that encompasses a total of approximately 46 ha. The bulk water supply to the development will be provided by Mafube Municipality as a water service provider.

The Department in principle does not object to the proposed development but object to any start of the construction activities before the requirement of the National Water Act, 1998 (Act 36 of 1998) water uses be complied with.

As indicated in the Wetland Assessment Report the proposed area has a seasonal stream, the stream bank areas is classified to be PES class B which indicate that it is largely natural with a few modifications that drains the area. Furthermore there are valley bottom wetlands on site. The wetland area has an ecological importance and Sensitivity (EIS) score of 2, 67 which indicate a moderate score. It was indicated in the report that no development shall take place within 32m buffer of the boundary of the wetland.

Please take note that the development is located within the regulated areas, as specified in (GA) No 1199 and will require a Water Use Licence. Please ensure that you arrange a pre-consultation meeting with the Gauteng Provincial office as soon as possible. The following information list made, but may not be limited, for a Water Use Licence Application (WULA):

- > Master layout plan indicating the development and all associated infrastructure in relation to delineated watercourses on wetland.
- > Wetland Assessment Report.

Private Bag X995, PRETORIA, 0001
285 Bothongo Plaza East Building, Francis Beard Street, PRETORIA CBD
E- mail: roetsr@dwa.gov.za

- Storm-water Management Plan.
- Wetland Rehabilitation.
- 1-100 year floodline must be indicated in terms of Section 144 of the National Water Act, 1998 (36 of 1998) (NWA).
- Method statements and design drawings for various infrastructure.
- Letter from the Municipality as proof that they will provide Sewer Service, indicating that there is capacity at Waste Water Treatment Works (WWTW) to accommodate the new development.

Please note that the applicant may not commence with any of the proposed development activities unless the applicant has received a Water Use Licence (WUL). As soon as possible the applicant must contact the Department for a pre-consultation meeting regarding the WULA application.

Please note that the onus is on the applicant to identify the water uses and prevent any source of pollution to the water courses from his undertaking and to take the appropriate measures to prevent any pollution of the environment. Failure to comply with the requirements of the National Water Act (Act 36 of 1998) as well as all other relevant legislation could lead to legal actions being instituted against the applicant.

Should there be any queries, please contact Ms LJ Nyama

Yours sincerely



Mr M Keet
ACTING PROVINCIAL HEAD: GAUTENG
Letter signed by Ms. Florah Mamabolo
Designation: Control Environmental Officer: Institutional Establishment

DATE: 04/08/2014

Private Bag X995, PRETORIA, 0001
285 Bothongo Plaza East Building, Francis Baard Street, PRETORIA CBD
E- mail: roetsr@dwa.gov.za

FIGURE 6: COMMENTS FROM DWA ON THE DRAFT EIAR

5 NEED FOR THE PROPOSED ACTIVITY

It is a given fact that one of the development priorities of today lies in the provision of housing. The Reconstruction and Development program of the Government has identified five inter-linked policy programs, whereby housing is defined as a basic need. A tremendous backlog in the provision of housing exists and has to be addressed as a matter of priority.

Development pressure in housing provision has placed enormous pressure on the development of vacant land within the urban edge, and existing transport routes.

The proposed residential development of 428 units will contribute to the improvement of the services and infrastructure for the surrounding communities, as it will provide more social services within the area.

The proposed development promotes a safe and user friendly urban environment. An open space system has been identified along the north south main access as well as linking the amenities from the eastern side with the western side.

From a strategic planning point of view it is deemed both necessary and desirable to develop parcels of land within the municipal area and urban edge of the Mafube Local Municipality, especially those that are highly accessible to necessary urban facilities and amenities.

The proposed township establishment will also create job opportunities for the local community which will improve their skills. The project will otherwise be a social and financial upliftment for the community.

6 ALTERNATIVES

In the planning process of the proposed project, consultation meeting has been held with the Local Municipality and relevant role-players to determine the most suitable area available for the establishment of a township. Economic restraints, existing infrastructure and available land were major constraints on the selection process and they influenced the site and layout of the proposed development.

6.1 NO-GO ALTERNATIVE (DO NOTHING ALTERNATIVE)

Should the proposed township establishment not take place, serious consequences can be expected, as there will be a backlog in housing, which may lead to service protests as the community's needs are not addressed. The land use could be changed due to illegal occupation and this will result in the municipality having to evict the occupiers since the settlement won't be formalised. This is therefore not a desirable alternative as the option of not establishing a township, will be detrimental to the environment.

6.2 SITE ALTERNATIVE

Due to land availability and service connections, the proposed site, Alternative 1, is the only site that has been identified for establishing a township during the consultation process with the Local Municipality. Therefore, no alternative site has been identified or considered during this study.

6.3 TECHNOLOGY ALTERNATIVE 1

Due to the type of project, no alternative technology can be considered.

7 SIGNIFICANT ASSESSMENT METHODOLOGY

The impacts were evaluated by applying the methodology as described below. The impact is defined and the significance is rated from Low to High as indicated in the table below with an explanation of the impact magnitude and a guide that reflects the extent of the proposed mitigation measures deemed necessary. Significance Rating is explained in *Table 3* below.

TABLE 3: SIGNIFICANCE RATING

Significance	Low	Low-Medium	Medium	Medium-High	High
Impact Magnitude	Impact is of very low order and therefore likely to have very little real effect. Acceptable.	Impact is of low order and therefore likely to have little real effect. Acceptable.	Impact is real, and potentially substantial in relation to other impacts. Can pose a risk to company	Impact is real and substantial in relation to other impacts. Pose a risk to the company. Unacceptable	Impact is of the highest order possible. Unacceptable. Fatal flaw.
Action Required	Maintain current management measures. Where possible improve.	Maintain current management measures. Implement monitoring and evaluate to determine Potential increase in risk. Where possible improve	Implement monitoring. Investigate mitigation measures and improve management measures to Reduce risk, where possible.	Improve management measures to reduce risk.	Implement significant mitigation measures or implement alternatives.

Following is a short description of the assessment criteria as mentioned above:

The **Nature of impact** is a broad indication of what is being affected and how.

Severity relates to the nature of the event, aspect or impact to the environment and describes how severe the aspects impact on the biophysical and socio-economic

environment. *Table 4* below explains the Severity Rating used in the assessment of identified impacts.

TABLE 4: SEVERITY RATING

Type of criteria	1	2	3	4	5
Quantitative	0-20%	21-40%	41-60%	61-80%	81-100%
Qualitative	Insignificant / Non-harmful	Small / Potentially harmful	Significant/ Harmful	Great/ Very harmful	Disastrous Extremely harmful
Social/ Community response	Acceptable / I&AP satisfied	Slightly tolerable / Possible objections	Intolerable/ Sporadic complaints	Unacceptable / Widespread complaints	Totally unacceptable / Possible legal action
Irreversibility	Very low cost to mitigate/ High potential to mitigate impacts to level of insignificance/ Easily reversible	Low cost to mitigate	Substantial cost to mitigate/ Potential to mitigate impacts/ Potential to reverse impact	High cost to mitigate	Prohibitive cost to mitigate/ Little or no mechanism to mitigate impact Irreversible
Biophysical (Air quality, water quantity and quality, waste production, fauna and flora)	Insignificant change / deterioration or disturbance	Moderate change / deterioration or disturbance	Significant change / deterioration or disturbance	Very significant change / deterioration or disturbance	Disastrous change / deterioration or disturbance

Extent refer to the spatial influence of an impact be local (extending only as far as the activity, or will be limited to the site and its immediate surroundings), regional (will have an impact on the region), national (will have an impact on a national scale) or international (impact across international borders). The Extent Rating is shown in *Table 5* below.

TABLE 5: EXTENT RATING

Rating	Description
1: Low	Immediate, fully contained area
2: Low-Medium	Surrounding area
3: Medium	Within municipal area
4: Medium-High	Within provincial area
5: High	Regional, National, International

Frequency refers to how often the specific activity, related to the event, aspect or impact, is undertaken. The Frequency Rating is shown in *Table 6* below.

TABLE 6: FREQUENCY RATING

Rating	Description
1: Low	Once a year or once/more during operation/LOM
2: Low-Medium	Once/more in 6 Months
3: Medium	Once/more a Month
4: Medium-High	Once/more a Week
5: High	Daily

Probability considers the likelihood of an impact/incident occurring over time, it is shown in *Table 7* below.

TABLE 7: PROBABILITY RATING

Rating	Description
1: Low	Almost never / almost impossible
2: Low-Medium	Very seldom / highly unlikely
3: Medium	Infrequent / unlikely / seldom
4: Medium-High	Often / regularly / likely / possible
5: High	Daily / highly likely / definitely

Duration: Duration refers to the amount of time that the environment will be affected by the event, risk or impact, if no intervention e.g. remedial action takes place. Duration Rating is explained in *Table 8* below.

TABLE 8: DURATION RATING

Rating	Description
1: Low	Almost never / almost impossible
2: Low-Medium	Very seldom / highly unlikely
3: Medium	Infrequent / unlikely / seldom
4: Medium-High	Often / regularly / likely / possible
5: High	Daily / highly likely / definitely

8 SUMMARY OF FINDINGS AND RECOMMENDATIONS OF SPECIALIST

The findings and recommendations of specialists are tabulated in *Table 9* below. The following specialist studies and specialist are proposed to be undertaken during the EIA phase:

- Wetland specialist Eco Care Consultancy
- Archaeological and Palaeontological Report Paleo Field Services
- Electrical services Report FCE Consulting Engineers
- Geotechnical study Roadlab Prehab JV (Pty) Ltd
- Traffic Impact Assessment Pula Strategic Resource Management
- Bulk Services Report Pula Strategic Resource Management

The specialists' reports are attached hereto as **Appendix 8** except for the Geotechnical and Bulk Services Report. The findings and recommendations of specialists are tabulated in *Table 9* below.

TABLE 9: FINDINGS AND RECOMMENDATIONS OF SPECIALISTS

SPECIALIST STUDIES	FINDINGS	RECOMMENDATIONS
Wetland Impact Assessment	<ul style="list-style-type: none"> ▪ The wetland vegetation type occurs in the Frankfort Highveld Grassland, but it does not have any species of this vegetation type ▪ No red data listed plant species or protected species or ecosystems occur on site have been noted on site. ▪ The site is relatively degraded. ▪ A number of exotic species occur in the riparian plant community on the stream bank. 	<ul style="list-style-type: none"> ▪ Development or construction within the wetland area such as alteration of the bed, banks, course or characteristics of a water course requires an application for a water use licence to the Department of Water Affairs. ▪ Development or construction should occur outside the buffer zone as indicated on the Wetland Delineation map. ▪ Measures to control erosion must be taken. ▪ Measures as stipulated and must be followed when the trenching through wetlands.
Palaeontological and Archaeological Report	<ul style="list-style-type: none"> ▪ The proposed development will primarily impact on the quaternary age surface deposits and dolerite bedrock ▪ Normandien formation sedimentary rocks in the area may contain fossils but no chances of finding fossils are very low. 	<ul style="list-style-type: none"> ▪ There are no major archaeological or paleontological grounds to suspend the proposed development.
Electrical Report	<ul style="list-style-type: none"> ▪ There is no spare capacity available due to the power restriction from Eskom ▪ Cornelia is supplied from the 88kV ring feeder, which have voltage constraints at this moment. ▪ The voltage constraints 	<ul style="list-style-type: none"> ▪ The existing electrical infrastructure in Cornelia is able to accommodate the current carrying capability of the proposed development but they have no spare capacity available due to the

	<p>are due to the conductor size of the feeder line which is "Mink" between Heilbron and Villiers.</p> <ul style="list-style-type: none"> ▪ No capacity is available for any developments. 	<p>power restriction from Eskom and the Eskom feeder line which has reached full capacity.</p> <ul style="list-style-type: none"> ▪ The approved 88kV network strengthening is still going to continue and includes the rebuilding of the feeder line from Villiers to Heilbron as well as converting Greenlands Substation to a Distribution Centre. Therefore after the proposed upgrading of the feeder line is completed, there will be spare capacity.
<p>Geotechnical study</p>	<ul style="list-style-type: none"> ▪ The slope is fairly steep drainage and drainage wouldn't be a concern ▪ No ground water was encountered ▪ There is a high nature of the soil that is compressible, and collapsibility ▪ There is a bit of erosion evidence near the centre of the proposed site ▪ The site and the gradient of the slope is gentle and relatively flat. 	<ul style="list-style-type: none"> ▪ Contour map should be utilised to determine the best possible design in terms of drainage. ▪ It is recommended that the transported material found in the first 800mm is saturated with water and compacted with impact roller or rammer to ensure a collapse prior to the construction of any structure. ▪ All trenches and excavations must be properly backfilled and compacted to 90% of Modified AASHTO density. ▪ No accumulation of surface water is to be permitted and the entire development must be properly drained. ▪ The site conditions seem favourable for the proposed development, subject to the aforementioned considerations.
<p>Traffic Impact assessment</p>	<ul style="list-style-type: none"> ▪ Several potholes do occur that needs to be rectified ▪ Storm run-off is moderate and have negative impact on the road surface ▪ Trips generated are very low and no effect on the existing traffic flow 	<ul style="list-style-type: none"> ▪ The proposed access points will streamline traffic flow and will ensure proper and effective traffic flow ▪ The access be designed and constructed to suit to accommodate light

	<ul style="list-style-type: none"> ▪ Light vehicles transport will be accommodated by existing road infrastructure. 	<p>vehicles</p> <ul style="list-style-type: none"> ▪ Both Van Belkum and Bruin street be upgraded by the re-surfacing and re-signaging of the intersection to allow easier traffic flow at the respective intersection ▪ General upgrading of the roads in the area required because many of the roads within the study area have been damaged by flooding.
Bulk Services Report	<ul style="list-style-type: none"> ▪ The water supply of the proposed development will be supplied from a 10 ML bulk water reservoir from the Upper Vaal water. ▪ A bulk water supply sufficient to cater for the initial phases of the development is available directly from existing Upper Vaal Water infrastructure. ▪ The average rainfall of Cornelia is 680 mm and this figure would be used in the final storm water calculation ▪ Draining of the proposed area would be 0.5-0.6 run off factor, pipeline class of 100D underneath roads and class 50-75D for the area and minimum flow speed 1m/s. 	<ul style="list-style-type: none"> ▪ The necessary Augmentation of the Upper Vaal Water network to support the proposed development. ▪ Need for outfall sewers upgrading is required to accommodate the additional flows due to existing capacity in the main sewers. ▪ Additional capacity is created at the Cornelia works to accommodate the additional flows. ▪ Development traffic can be accommodated on the existing road network ▪ Adequate provision has been made within the development layout to provide storm water attenuation to cater for 50 year flood event. Stormwater Management Plan has been prepared for the proposed development. Therefore it should be implemented by the municipality. ▪ Non-ferrous materials be used for services piping.

9 ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS

The term “environment” is used to describe the total integrated environment, which includes aspects of the natural, economic and social environment. Environmental issues identified for this project are listed in *Table 10* below. The nature and significance of these identified impacts will be addressed in the EIAR and specialist’s input will be incorporated where necessary.

TABLE 10: IDENTIFIED ENVIRONMENTAL ISSUES

ENVIRONMENTAL ISSUES	POSSIBLE IMPACT	EXTENT OF IMPACT AFTER MITIGATION
Geology and Soils	Loss of topsoil during the construction period.	Site specific
	Loss of topsoil during the operational phase due to erosion	Site specific
Social Economic structure of the area	Potential impact of the infrastructure on the socio-economic structure of the area (Positive Impact).	Local
	Employment of local communities. (Positive Impact).	Local
	Noise created by the construction.	Site specific an surrounding area
Cultural, Historical and Archaeological and Palaeontological aspects	Potential damage or destruction to undiscovered heritage sites in the area.	Regional
Fauna & Flora	Potential impact of sensitive habitat destruction.	Local
	Potential impact of destruction of red data plants.	Regional
Traffic	Potential impact due to the increase in traffic	Site specific and surrounding area
Bulk Services	Insufficient capacity to deliver bulk services to the community, specialist appointed to obtain information regarding this.	Local
Surface water	Disturbance to the functioning of wetlands.	Local

10 ASSESSMENT OF IDENTIFIED ENVIRONMENTAL ISSUES

The environmental issues identified in Section 9 above are assessed in *Table 11* below in terms of the outlined Significance Assessment Methodology in Section 7 above.

TABLE 11: ASSESSMENT OF IDENTIFIED ENVIRONMENTAL IMPACTS

POTENTIAL ENVIRONMENTAL IMPACT	PROJECT ACTIVITY OR ISSUE	PROPOSED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION					SIGNIFICANCE
			SEVERITY	EXTENT	FREQUENCY	PROBABILITY	DURATION	
Geology and soils	Loss of topsoil during the construction period	<ul style="list-style-type: none"> ◇ Exposure of bare ground will be minimized. Topsoil stripping should be limited and it should be stored separately from subsoil, i.e. no mixing of soils. ◇ In situ material should be removed to an average depth of 1000mm. ◇ Cleared and grubbed topsoil must be stockpiled as a top layer of at least 150mm thickness on the backfilled trenches for rehabilitation purposes. ◇ Soil conservation measures such as berms, gabions and mats should be used on-site to help reduce erosion. ◇ Topsoil stockpile should be weed free, ◇ Litter should be removed from the stockpiled topsoil. 	3	1	5	4	5	Medium to High (Without Mitigation)
		Low (With Mitigation)						

Soil erosion	Loss of topsoil during the operational phase due to erosion	<ul style="list-style-type: none"> ◇ Make use of geotextiles within disturbed areas of steeper topography to avoid erosion through surface water runoff; ◇ Soil conservation measures such as berms, gabions and mats should be used on-site to help reduce erosion. ◇ Areas that were compacted during construction activities should be ripped to allow re-establishment of natural vegetation. ◇ Planting of indigenous trees on park erven should be done. ◇ The disturbed area must be rehabilitated as to adhere to municipal standards & requirements, where necessary. 	2	1	5	2	3	<div style="background-color: #ffff00; padding: 5px; text-align: center;">Medium Without mitigation</div> <div style="background-color: #00ff00; padding: 5px; text-align: center;">Low (With Mitigation)</div>
Socio-economic Environment	Potential impact of the infrastructure on the economic structure (positive impact)	<ul style="list-style-type: none"> ◇ No mitigation required because it's a positive impact 	5	3	5	5	5	High
	Employment of local communities (Positive)	<ul style="list-style-type: none"> ◇ Local labourers, especially from Ward 1 and neighbouring wards, sub-contractors (local contractors) and SMMEs should be utilized to a greater extent. ◇ Labour intensive construction methods should be adopted. ◇ Work force should include youth, women and disabled. 	4	3	5	5	5	High

	<p>Noise created by the construction activities</p>	<ul style="list-style-type: none"> ◇ Construction should be limited to normal working days and office hours from 08h00 to 17h00. ◇ Ensure that employees and staff conduct themselves in an acceptable manner while on site, both during work hours and after hours. ◇ Limit working hours of noisy equipment to daylight hours, ◇ Fit silencers to construction equipment. 	4	2	5	4	5	<p>Medium high (Without Mitigation)</p>
								<p>Low – medium (with mitigation))</p>
<p>Cultural, Historical and Archeological Aspects</p>	<p>Potential damage or destruction to undiscovered heritage sites in the area</p>	<ul style="list-style-type: none"> ◇ Should the contractors make any archaeological, geological, or newly uncovered Palaeontological significance, must be reported to the ECO/resident engineer who in turn must report it to SAHRA, FSHRA and DETEA within 24 hours. Construction work must not proceed if it will cause damage to such findings. Unauthorized persons may not remove artifacts of cultural or historical importance from the site. ◇ There are no major archaeological or Palaeontological grounds to suspend the proposed development. 	2	3	2	3	2	<p>Low-medium (Without Mitigation)</p>
								<p>Low (With Mitigation)</p>

<p>Traffic</p>	<p>Potential impact due to increase in traffic</p>	<p>Construction:</p> <ul style="list-style-type: none"> ◇ Flag men and traffic controllers should be appointed to regulate traffic flow of vehicle construction. ◇ Speed limits of construction vehicle should be limited to 40km/h and drivers should be observant at all times. ◇ Signage should be place at the entrance of the construction site indicating construction is in progress, therefore there is movement of construction vehicles transporting materials to the proposed site. <p>Operation:</p> <ul style="list-style-type: none"> ◇ Potholes on road network should be rectified. ◇ Both Van Belkum and Brain Street should be upgraded by the re-surfacing and re-signaging of intersection to allow an easier traffic flow at the respective intersections. 	3	2	4	4	5	<p>Medium without (mitigation)</p>	<p>Low (With Mitigation)</p>
<p>Fauna</p>	<p>Potential impact of sensitive habitat destruction</p>	<ul style="list-style-type: none"> ◇ Loss of habitat especially for small burrowing mammals and reptiles is inevitable because the land use will change to a residential area. ◇ The species (small 	4	3	5	5	5	<p>High (Without Mitigation)</p>	

		<p>burrowing animals) inhabiting the site currently will relocate to the adjacent undeveloped areas, when they feel threatened or disturbed, especially during construction and this will reduce possible mortality.</p>							High (with mitigation)
Flora	Potential impact of destruction of red data plants	<p>◇ No red data plants are present</p>	1	3	1	1	1	1	Low without mitigation
Bulk services	Increased demand for water, electricity, sanitation and waste management	<p>Water:</p> <p>◇ Bulk water supply to the development will be provided by Mafube Local Municipality as a water service provider from the Upper Vaal Regional Network.</p> <p>◇ Pre-planning of Upper Vaal Regional Water supply made projections for a prosper growth and water supply was upgraded far beyond the existing needs of the municipality. Therefore the increased demand for water supply will be met by the existing capacity of bulk water supply, i.e. 10MI bulk water reservoir.</p>	5	2	4	4	4	4	High (without mitigation)
		<p>Sewerage:</p> <p>◇ A full waterborne sanitation is proposed and it will connect to the existing bulk sewer pipes. Therefore the sewer load from the proposed development will be accommodated on the existing sewer reticulation network</p> <p>◇ The wwtw will have adequate capacity, provided</p>							Low-Medium (With Mitigation)

		<p>the outfall sewer are recalculated and augmented as required to accommodate the additional flows.</p> <ul style="list-style-type: none">◇ There is a tender for the upgrading of the wastewater treatment works in the pipeline. <p>Waste Management:</p> <ul style="list-style-type: none">◇ The proposed development will feed into the municipality's waste management plan, i.e. collection and disposal <p>Electricity:</p> <ul style="list-style-type: none">◇ The existing electrical infrastructure in Cornelia is able to accommodate the current carrying capability of the proposed development but they have no spare capacity available due to the power restriction from Eskom and the Eskom feeder line which has reached full capacity.◇ The approved 88kV network strengthening is still going to continue and includes the rebuilding of the feeder line from Villiers to Heilbron as well as converting Greenlands Substation to a Distribution Centre. Therefore after the proposed upgrading of the feeder line is completed, there will be spare capacity. <p>Stormwater:</p> <ul style="list-style-type: none">◇ The proposed development will be served by a conventional stormwater						
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		drainage system consisting of underground pipes in conjunction with roadways as well as open channels. Therefore accumulation of water within the developed area will be controlled.						
Surface Water	Destruction of wetland	<ul style="list-style-type: none"> ◇ No development should take place within the protective buffer zone of 32m. ◇ A general authorisation should be obtained from the DWA before commencement of construction activities. ◇ Measures to control erosion must be taken. 	4	3	5	5	5	<p style="text-align: center;">High (Without Mitigation)</p> <p style="text-align: center;">Low-medium (with mitigation)</p>

Note: 5 green is for positive impacts.

11 ASSUMPTIONS, UNCERTAINTIES, OR GAPS IN KNOWLEDGE

Assumptions:

- The scope is limited to assessing the potential impacts associated with the proposed development; therefore the effect on the surrounding environment is based on the current land use.
- All information provided by NSVT Consultants and specialists involved is deemed valid and correct at the time it was provided.
- Since during the public participation process, no indigenous local knowledge came forth, it is assumed that there are no sensitive cultural, e.g. initiation schools sites on the proposed site.
- Based on the layout, the 32 m protective buffer zone will be protected.
- The plan to upgrade the wwtw is implemented.
- The rebuilding of the feeder line from Villiers to Heilbron as well as converting Greenlands Substation to a Distribution Centre is approved by the Department of Environmental Affairs.
- The prepared Stormwater Management Plan is implemented to address surface water run-off.

Assumptions from Specialists:

- The Outline Scheme Report is based on the bulk services information received from Mafube Local Municipality.
- The biodiversity on the construction site will be destroyed.

Limitations/Gaps in Knowledge:

None

12 EAP RECOMMENDATIONS

The EAP is of the opinion that the development should be authorized because the negative impacts can be mitigated to a satisfactory level. However, the following recommendations should be considered:

1. A General Authorisation application should be lodged with the Department of Water Affairs because of the existing seasonal stream on the proposed site.
2. Loss of topsoil during construction should be avoided to a greater extent.
3. Corridors of natural vegetation should be allowed to encourage relocation of the animals to the neighbouring undeveloped areas.
4. The municipality should consider planting of grasses and trees, especially at the park erven to promote greening and to minimize soil exposure, which could result in accelerated soil erosion process.
5. No planting of trees within 5 meters of line of the water bearing services.
6. Regular routine inspection of the storm water system should be in place to ensure that they are functioning as designed.

7. Proper maintenance of roads and streets.
8. Proper management procedures and mitigation measures must be implemented as outlined in the EMP.
9. ECO should be appointed for monthly environmental compliance monitoring during the construction phase.
10. Implementation of the Stormwater Management Plan.
11. Plan to upgrade the wwtw should be put into place.
12. The following recommendations from specialists should be considered and adhered to

➤ **Recommendations from Traffic Impact Study:**

- Both Van Belkum and Brian streets should be upgraded by the re-surfacing and re-signaging of intersection to allow an easier traffic flow at the respective intersections.

➤ **Recommendation from Water Affairs**

- Storm water contaminated on site must be contained separate from clean water.
- Applicant should ensure that this activity complies with all applicable legislations
- Development/construction within the wetland area is regarded as a section 21(c) listed activity (altering the bed, banks, course or characteristics of a watercourse) and requires an application for a water use license to the Department of Water Affairs.
- Measures to control erosion must be taken.

➤ **Recommendations from the Geotechnical Report**

a) The following geotechnical considerations be considered:

- *Reinforced strip footings; or*
- *Compaction of in-situ soils below individual footings, or*
- *Soil raft; or*
- *Modified normal strip footings.*

b) No accumulation of surface water is to be permitted and the entire development must be properly drained.

c) It is recommended that the transported material found in the first 800mm is saturated with water and compacted with impact roller or rammer to ensure a collapse prior to the construction of any structure.

➤ **Recommendations from the Wetland Delineation Specialists**

a) Development/construction should only occur outside the buffer zone as indicated on the Wetland Delineation Map.

a) Measures as stipulated in Appendix A of the Wetland Assessment report must be followed when trenching through wetlands, if construction takes place and a Water Use License Application should be lodged with the Department of Water Affairs.

13 ENVIRONMENTAL IMPACT STATEMENT

It should be recognized that no development could be completed without impacting in some way on the environment; therefore, it is imperative that negative impacts are minimized to a greater extent.

During the scoping phase of the EIA process, the environmental issues that were identified were for both the construction and operation phase.

The identified impacts are summarized below:

1. Economic impact, e.g. job creation
2. Social impacts, e.g. nuisance as a result of noise generation, increased traffic volumes during construction, and improvement of the quality of life for residents, i.e. beneficiaries of the proposed residential development.
3. Biodiversity impacts, i.e. loss of potential habitat for fauna, loss of flora and disturbance to the wetlands/seasonal stream.

From the evaluation identified impacts using the assessment methodology, the significance ratings of negative impacts were reduced to low with outlined mitigation measures and the positive impacts were accentuated. The extent with mitigation ranged between site specific and local. Adherence to the draft EMP will also ensure that impacts occurring due to the development will be reduced to a greater extent.

To determine the ability of the municipality to provide basic services to the proposed development, a Motivation Report and Bulk Services Report are attached hereto and recommendations were made so as to promote sustainable development. In terms of the findings, the municipality has the ability to accommodate the proposed site for water supply and sewerage network will be adequate if the outfall sewer is upgraded and the proposed upgrading of the wwtw is implemented.

Specialists' studies that were undertaken as part of the EIA process included a geotechnical investigation to determine whether the land is suitable for human settlement and to give foundation recommendations, and a heritage impact assessment to inspect the site for any possible archaeological and historical material and Paleontological Investigation to determine the likelihood of fossil preservation in the area, per findings the proposed development should not be suspended because the site isn't archaeologically or palaeontologically vulnerable. From the wetland assessment, a stream was located on site, which should be protected. Therefore a 32m protective buffer should be in place and a Genera Authorisation should be obtained from DWA prior to commencement of construction.

Provided the identified stream is not disturbed, the proposed site is suitable for a residential development considering its topography, accessibility to basic amenities and availability of connection points to services, e.g. water, electricity. The development will enable the municipality to decrease their housing development backlog and minimize the

formation of illegal settlements on areas not considered for residential planning and to provide basic amenities, e.g. church, sport ground, and parks.

During the public participation, no objections were received.

A no-go option for this project is not feasible because the site has been earmarked for residential development and it is an extension of existing Ntswanatsatsi therefore connections to basic amenities like water and sewerage are economically feasible. The municipality needs to provide its community with proper shelter and basic services.

14 ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan (EMP) identifies possible impacts of the project on the environment and the mitigation thereof. It gives guidelines to the responsible person(s) to follow appropriate contingency plans in the case of various possible impacts, thus the copy of the EMP should be given to the contractor to ensure adherence. The Draft EMP is attached hereto as **Appendix 14** and should it be approved by DETEA, it will serve as the final EMP.

15 REFERENCES

Department of Environmental Affairs and Tourism. 2006. Guideline 4: Public Participation in support of the EIA Regulations. Pretoria

Department of Environmental Affairs, 2004. Scoping, Integrated Environmental Management, Information Series 2, DEAT. Pretoria

Department of Water Affairs. May 2011. Development of Reconciliation Strategies for all Towns in the Central Region.

Mucina, L., Rutherford, M.C. and Powrie, L.W. (eds) 2005. Vegetation Map of South Africa, Lesotho and Swaziland. 1:1000 000 scale sheet maps. South Africa Biodiversity Institute, Pretoria. ISBN 1-919976-22-1

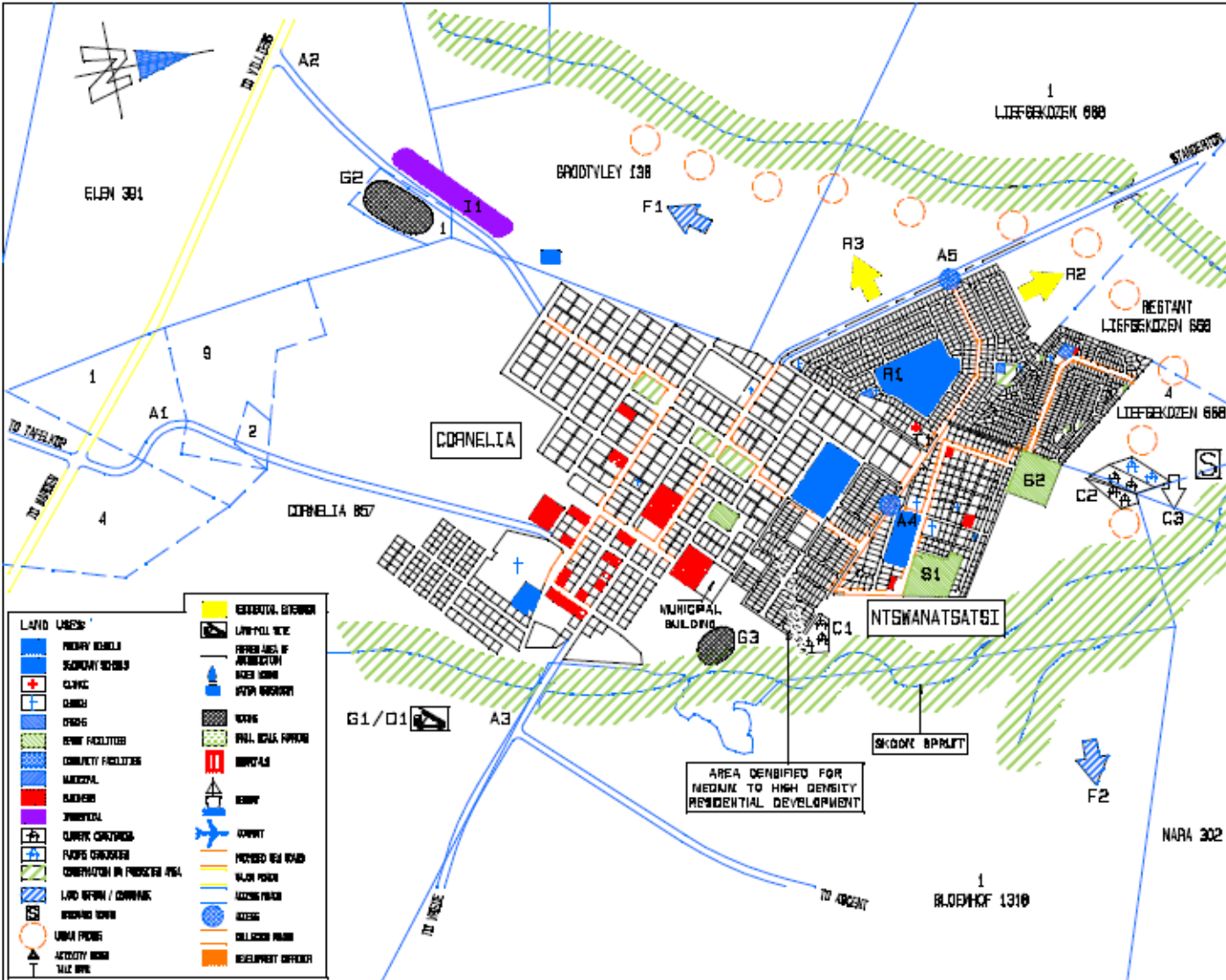
Integrated Development Plan of the Mafube Local Municipality

Spatial Development Framework of the Mafube Local Municipality

APPENDIX 2.1A

SPATIAL DEVELOPMENT FRAMEWORK MAP





- LAND USES:**
- | | |
|----------------------|---|
| PRIMARY SCHOOLS | EDUCATIONAL DISTRICT |
| SECONDARY SCHOOLS | LAWYERS' OFFICE |
| CLINIC | FUTURE AREA OF INTEREST (R1 - 100M) (S1 - 200M) |
| CHURCH | WASTE |
| OFFICE | PUBLIC WORKS OFFICE |
| SPORT FACILITIES | HOSPITAL |
| COMMUNITY FACILITIES | AIRPORT |
| MEDIUM DENSITY | AIRPORT |
| HIGH DENSITY | AIRPORT |
| INDUSTRIAL | AIRPORT |
| AIRPORT | AIRPORT |
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| AIRPORT | AIRPORT |

BEOORDEELER: OORL. SKOOLBOS / APPROVED BY CLIENT: /		DOOR / DATE:	
		AANBEVELER / KOMITEE:	
OORL. SKOOLBOS: P. SKOOLBOS / P. SKOOLBOS AANBEVELER: P. SKOOLBOS / P. SKOOLBOS		PUNAS 1: 1000000000 PUNAS 2: 1000000000 PUNAS 3: 1000000000	
PUNAS 4: 1000000000 PUNAS 5: 1000000000		PUNAS 6: 1000000000 PUNAS 7: 1000000000	
CORNELIA / NTSWANATSATSI SPATIAL DEVELOPMENT FRAMEWORK			
FIGURE 4			

APPENDIX 2.1 **B**

MOTIVATIONAL REPORT



APPENDIX 2.1C

GEOTECHNICAL REPORT



APPENDIX 2.1D

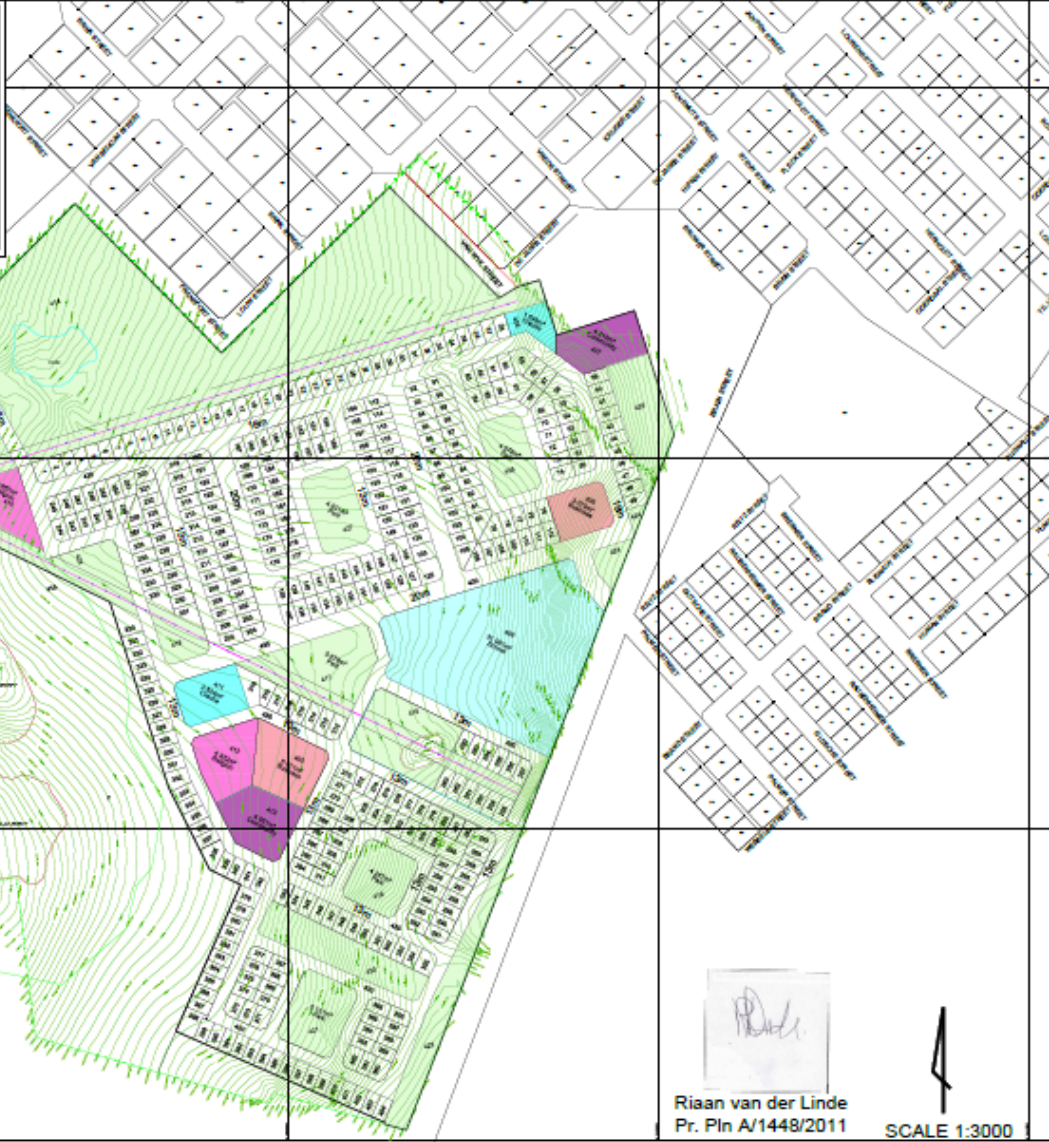
BULK SERVICES REPORT



APPENDIX 2.2

LAYOUT PLAN





Proposed Township
CORNELIA
Situatied on
The Remainder of the farm Cornelia 657

LEGEND

DESCRIPTION	REF. NO.	TOTAL	% AREA
Residential	1-404	424	32,7%
General Business	405-408	3	1,8%
Retail	407-413	7	11,8%
Public Open Space	414-420	18	38,7%
Roads	421	1	10,0%
TOTAL	424	133	100%

- NOTES**
- All areas & dimensions are approximate pending final survey.
 - All dimensions are in meters.
 - The township boundary is depicted by _____.
 - The township is situated in the municipal area of the Local Municipality of Matielie.

Plan No. 100 / 100 / 01

REVISION	DATE

CONTOURS
Contours are in accordance with the provisions of the Township Ordinance of 1963 (Ordinance 6 of 1963). Contour intervals are 0,5m.

FLOODLINES
The township boundary is not affected by the 1:100 year floodline.
Floodline: _____

Date: 12 / 01 / 2014



CONSULTANT:
Pula Strategic Resource Management(Pty)Ltd

Riaan van der Linde

Riaan van der Linde
Pr. Pln A/1448/2011

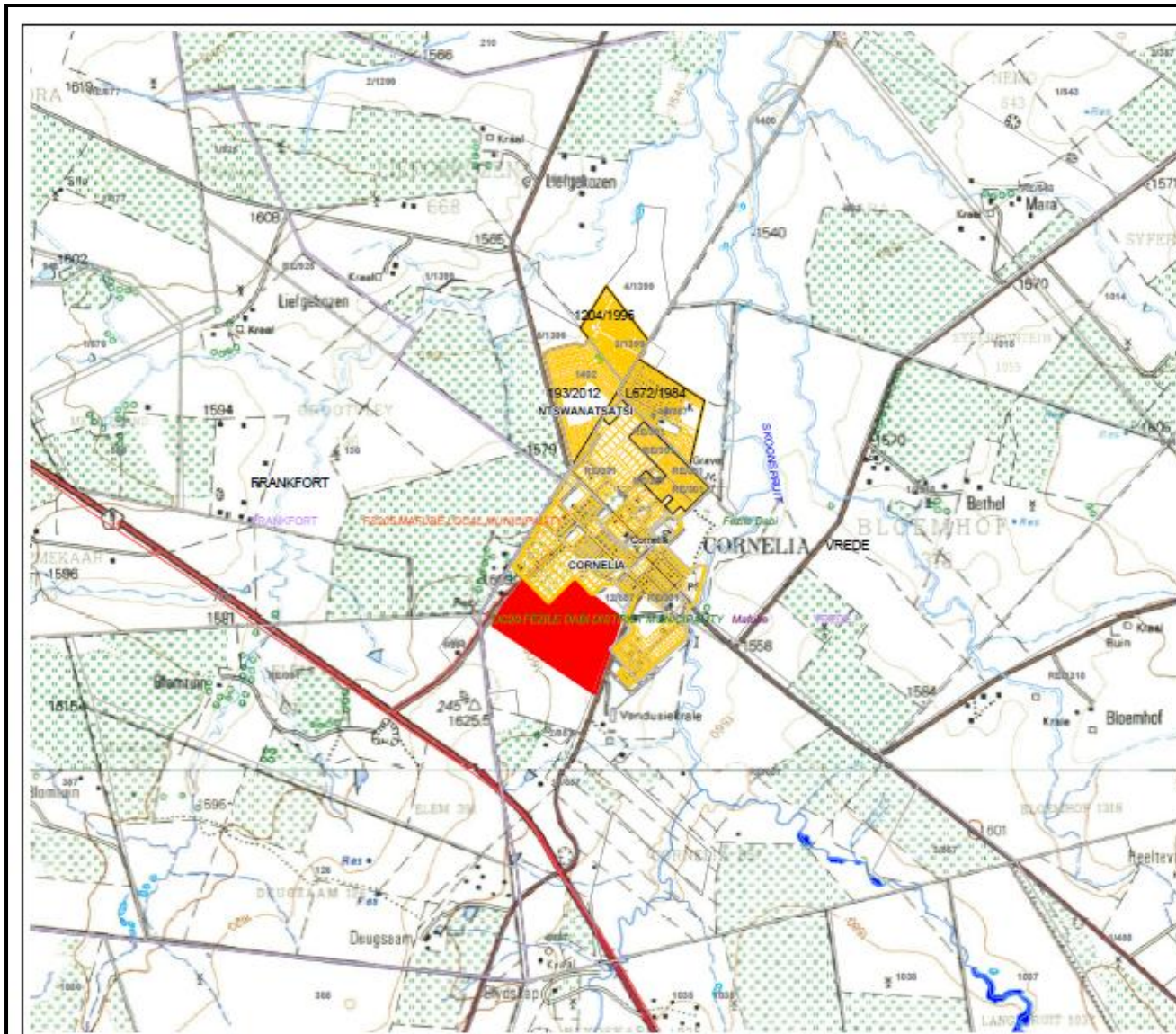


SCALE 1:3000

APPENDIX 2.3

LOCALITY MAP





**TOWNSHIP ESTABLISHMENT-
ON THE FARM CORNELIA
857, MAFUBE LM**

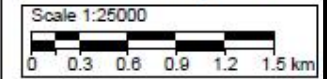
NOTES:

Legend

1:50 000 Vector

- Road
- National route
- Railway
- Standard
- Marshaling line
- Water source**
- Reservoir
- River**
- Non-perennial extent
- Flood bank
- Perennial extent
- Perennial center line (named)
- Perennial center line (unnamed)
- Non-perennial center line (lines)
- Non-perennial center line (areas)
- Inland water**
- Dam (named)
- Non-perennial pan
- Perennial pan
- Marsh vlei
- Purification plant
- Swamp
- LOCALITY

Design: L. Tigedi
 Drawn: AJ Pelser
 Approved: L Tigedi
 Date: 27 May 2014



APPENDIX 2.4.1

PHOTOGRAPHIC HISTORY





PHOTO 1: VIEW OF THE PROPOSED SITE FROM THE NORTH WEST



PHOTO 2: VIEW OF THE PROPOSED SITE FROM THE MIDDLE OF THE SITE (FROM THE NORTH, THROUGH TO THE EAST, SOUTH, WEST AND ENDING NORTH AGAIN)



PHOTO 3: VIEW OF THE PROPOSED SITE FROM THE MIDDLE OF THE EASTERN BORDER OF THE SITE

APPENDIX 8

REPORTS OF SPECIALISTS



APPENDIX 14

DRAFT ENVIRONMENTAL MANAGEMENT PLAN

