Appendix A

UNIVERSITY OF KWAZULU-NATAL

This is to certify that

Tarin Kirsten Kloppers

EK SERTIFISEER DAT HIERBY DIE ORSPRONKLIKE DOKUMENT IS. SERTIFISEER VERSKYNING OF VERVANGING VAN ORSPRONKLIKE DOKUMENT AANGEBRING IS NIE.
I CERTIFY THAT THIS DOCUMENT IS A TRUE REPRODUCTION (COPY) OF THE ORIGINAL DOCUMENT. I FURTHER CERTIFY THAT NO ALTERATION OR CHANGE WAS MADE TO THE ORIGINAL DOCUMENT.
7162338-7
HANDTEKENING/SIGNATURE
MAGSNOMMER
FORCE NUMBER 718 2338-7
NAAM IN DRUKSKRIF
NAME IN PRINT

SOUTH AFRICAN POLICE SERVICE
COMMUNITY SERVICE CENTRE
2010 -11- 11
BEREA
KWAZULU-NATAL

was admitted this day
at a congregation of the University
to the degree of

Bachelor of Social Science
(Geography and Environmental Management)

having satisfied the conditions prescribed for the degree.

M W Makgoba
Vice-Chancellor

J J Meyerowitz
Registrar

J Kunnie
Acting Dean

21 April 2010

205512432

UV PROTECTED

Appendix B

CURRICULUM VITAE

TARIN KIRSTEN STRYDOM

NAME OF FIRM	:	*JEFFARES & GREEN (PTY) LTD*
NAME OF PERSON	:	*TARIN STRYDOM*
NATIONALITY	:	*SOUTH AFRICAN*
DATE OF BIRTH	:	*1986/10/16*
PROFESSION	:	*SOCIAL SCIENTIST*
QUALIFICATION	:	*BSocSc (Geog & Env Mngmt)*
POSITION IN FIRM	:	*ENVIRONMENTAL CONSULTANT*
SPECIALISATION IN	:	*SOCIAL SCIENTIST*
YEARS OF EXPERIENCE	:	*5 YEARS*
YEARS WITH FIRM	:	*4 YEARS*

SUMMARY OF EXPERIENCE

Tarin is a graduate in Geography and Environmental Management from the University of KwaZulu-Natal, Tarin completed Undergraduate Training as a Student Assistant with ARCUS GIBB, and worked as a Project Assistant for Alan Hansen and Durban University of Technology. She started with Jeffares & Green Durban office in April 2010 as a Student Assistant and became permanently employed at Terratest as an Environmental Scientist in November 2010 and was transferred to the Hilton office in March 2011. Tarin has been involved in environmental impact assessments (EIA's), basic assessment reports (BAR's), environmental management programme reports (EMPr), social statements, environmental control officer (ECO) and S24 G projects. Working as a Project Assistant and Project Leader for several projects listed below.

PROFFECIONAL AFFILIATIONS

IAIAsa

EDUCATION

2004 : **Matric** – Durban Girls High School, Durban.
2009 : **BSocSc** (Geog and Env Management) University of Kwa-Zulu Natal

SPECIFIC EXPERIENCE

Jeffares & Green (Pty) Ltd

2010 – Date : Ufafa Bulk Water Supply Scheme, Basic Assessment, client Nathoo Mbenyane Engineers, Kevin Naidoo.
: Honeydew, S24G Process, client Honeydew Dairies, Mike Fischer.
: D2069 Road Upgrade, Basic Assessment, client Madan Singh and Associates, Ridwaan Ghany.
: D2069 Road Upgrade, ECO, client Madan Singh and Associates, Ridwaan Ghany.
: Richards Bay Locomotive Turnaround, Basic Assessment, client Transnet, Johannes Bouwer.
: Bay of Plenty Pier, Basic Assessment, client eThekwini Municipality, Stefano Corbella.
: Sivananda Residential Development, Basic Assessment, client Peter Jewell.
: Wildlands Conservation Trust, Waste Licence Application, client Wildlands Conservation Trust, Urvashi Haridass.
: Imbabazane Animal Pound, Basic Assessment, client Imbabazane Local Municipality, Cymphiwe Sikhakane.
: Wilson's Cutting, Basic Assessment, client BKS, Lukas Raath.
: Mooi River Weigh Bridge EMPr, client UWP House, Ron Isaac.
: N2 Isipingo to Edwin Swales, Basic Assessment, client Vela VKE, Dawie Erasmus.
: Cato Ridge Iron Foundry, Social Statement, client DAS Steel, Suresh Mirchandani.
: Mathondwane-Zaaifontein, Basic Assessment, client Eskom, Sifiso Ntombela.
: Oslo Beach ECO, client Eskom, Nandi Mbili.
: Transnet R Berth, Basic Assessment, client Transnet, Vishern Beakam.
: Harrison Flats, Basic Assessment, client Eskom, Sindisiwe Ncwane.
: Randles Road ECO, client Ethekwini Municipality: Electricity and Architecture, Ramesh Bhoola.
: KwaNovuka Water Supply Scheme, Basic Assessment Report, client Aurecon, Essop Gogga.
: KwaNovuka Water Supply Scheme, ECO, client Aurecon, Essop Gogga.
: Umzimkhulu CBD Roads, Basic Assessment, client Umzimkhulu Local Municipality.
: Mtwalume Mining Permit, Environmental Management Plan, client A. S. Bux
: Ebony Drive, Basic Assessment, client Nokulunga Hedder.
: Trelawney, Environmental Control Officers, client Eskom, Sindisiwe Ncwane.
: Mhlatuze River Catchment Compulsory Water Use Licensing, Public Participation, client Department of Water Affairs.
: Harrison Flats, Environmental Impact Assessment, client Eskom, Sindisiwe Ncwane.
: Mpofana Bulk Water Pipeline, Environmental Impact Assessment, client Umgeni Water.
: Mandeni Cemetery Establishment, Basic Assessment, client Mandeni Municipality, Robin Sewdular.
: Lot 401, Basic Assessment Report, Environmental Management Plan, client Transnet Capital Projects, Mirriam Hafajee.
: Deccan Road Stream Canalisation Alien Invasive Programme, Environmental Management Plan, client Terratest Hilton.
: University KZN Security Fencing, Environmental Assessment and Sensitivity, UKZN, Mary Tierney.
: Rega Place, Basic Assessment, client Ethekwini Municipality, Len Jarrett.
: Mkhalwane Gravel Road, Basic Assessment, client Olwe Africa Projects.
: Luxmi Road, Basic Assessment, client Ethekwini Municipality: Roads and Infrastructure, Brian Cadle.

WORK EXPERIENCE

Durban University of Technology

2009 - 2010 : Sustainable Development Hub Establishment, Durban University of Technology, Alan Hansen.
: Kingsburgh Housing Development, Basic Assessment, Alan Hansen.

Arcus Gibb

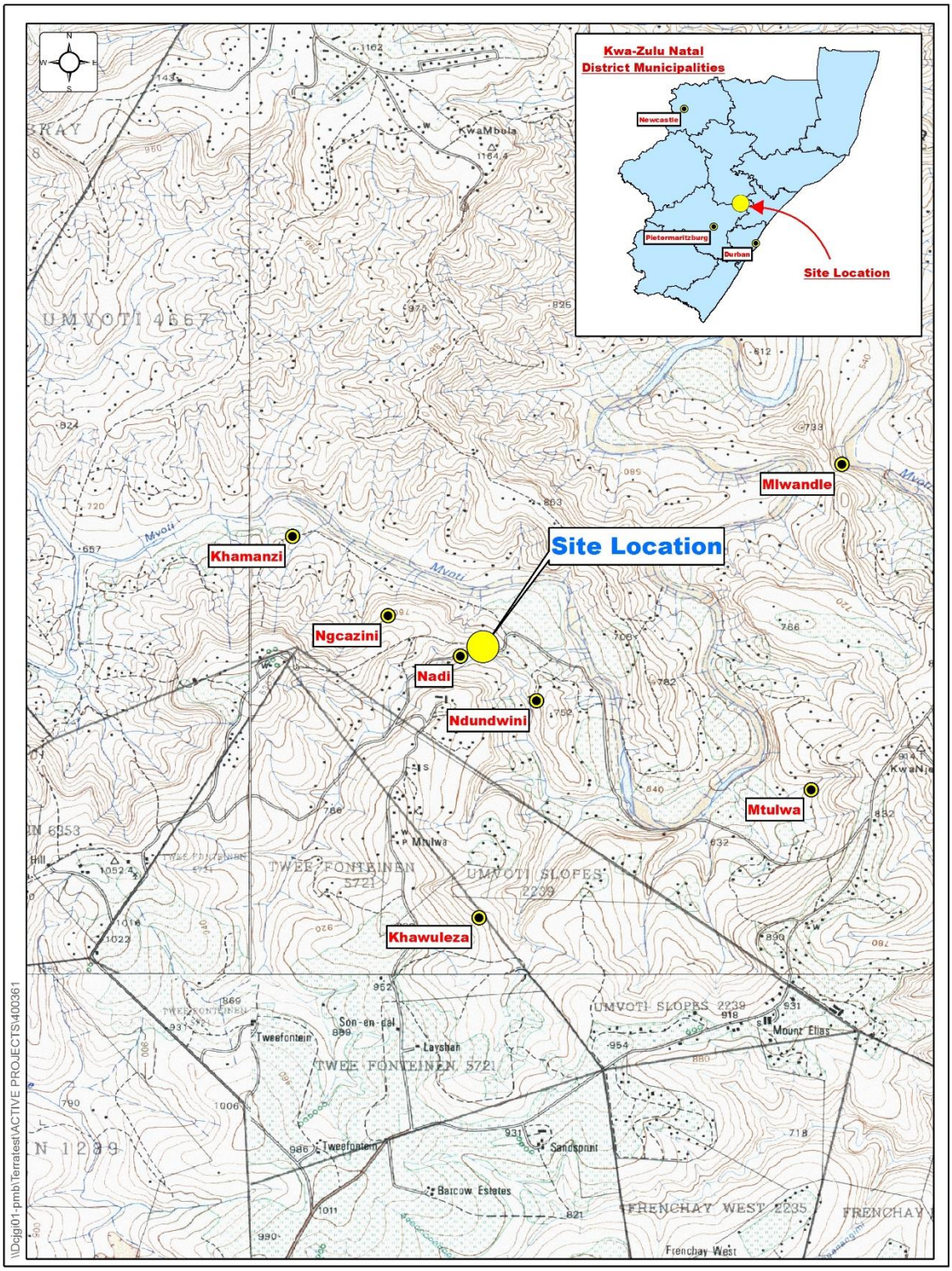
2008 : Undergraduate training with assisting with the following projects:

- Mandeni Integrated Waste Management System.
- Richards Bay Minerals, Environmental Impact Assessment.
- Island View Pipe Rack Expansion Environmental Impact Assessment.
- Sani Pass Phase 2 Upgrade, Environmental Impact Assessment.
- Port Harcort (Nigeria) Infrastructure Project.

LANGUAGES

English : *Very Good*
Afrikaans : *Very Good*

Appendix C



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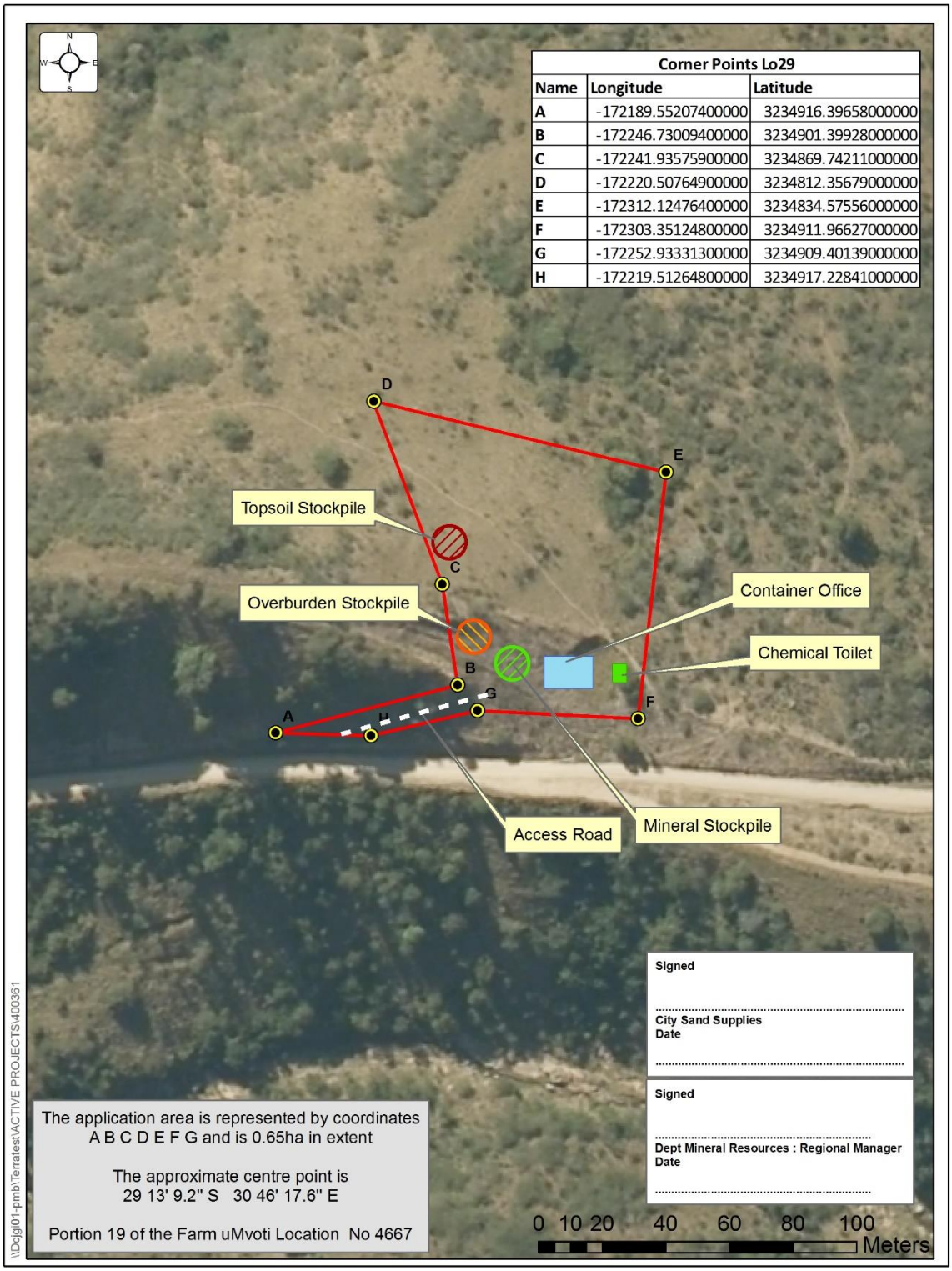
Tel: (033) 343 6789
Fax: (033) 343 6788

CITY SAND SUPPLIES
Locality Plan
0 0.5 1 2 3 4 5 Kilometers

Fig 1

Scale 1 : 50 000

Appendix D



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City Sand Supplies
Sketch Plan

Umgungundlovu District — uMshwathi Municipality

Fig 2

Scale 1 : 1 500

Appendix E

Comments & Response Report

For the

Proposed Mining of Weathered Sandstone in Fawn Leas, KwaZulu-Natal

Introduction

Terratest (Pty) Ltd (Terratest) has been appointed by City Sand Suppliers (Pty) Ltd, to undertake the Mining Permit Application and Environmental Impact Assessment (EIA) process required for the mining of weathered sandstone near Fawn Leas in KwaZulu-Natal. Chapter 6 of the EIA Regulations outlines the public participation process (PPP) to be undertaken in order to incorporate input from Interested and/or Affected Parties (IAPs) in order to enhance decision-making. The purpose of this report is to present the measures that have been taken to facilitate public participation. The report will give details of the methods used to invite the public to comment on the proposed project. The aim of the report is to foreground the most prominent issues that were raised by IAPs and stakeholders, and the responses thereto.

Public Notifications

Site Notices

Terratest produced public notices to notify IAPs about the proposed project and to invite the surrounding Masihambisane community to register as IAPs. Notice boards were fixed onto conspicuous spaces around the proposed project site during a site visit conducted on 1 September 2015. The following table presents the photos of the site notices.

Plate 1 Site Notice 3

Plate 2 Site Notice 2

Plate 3 Site Notice 1

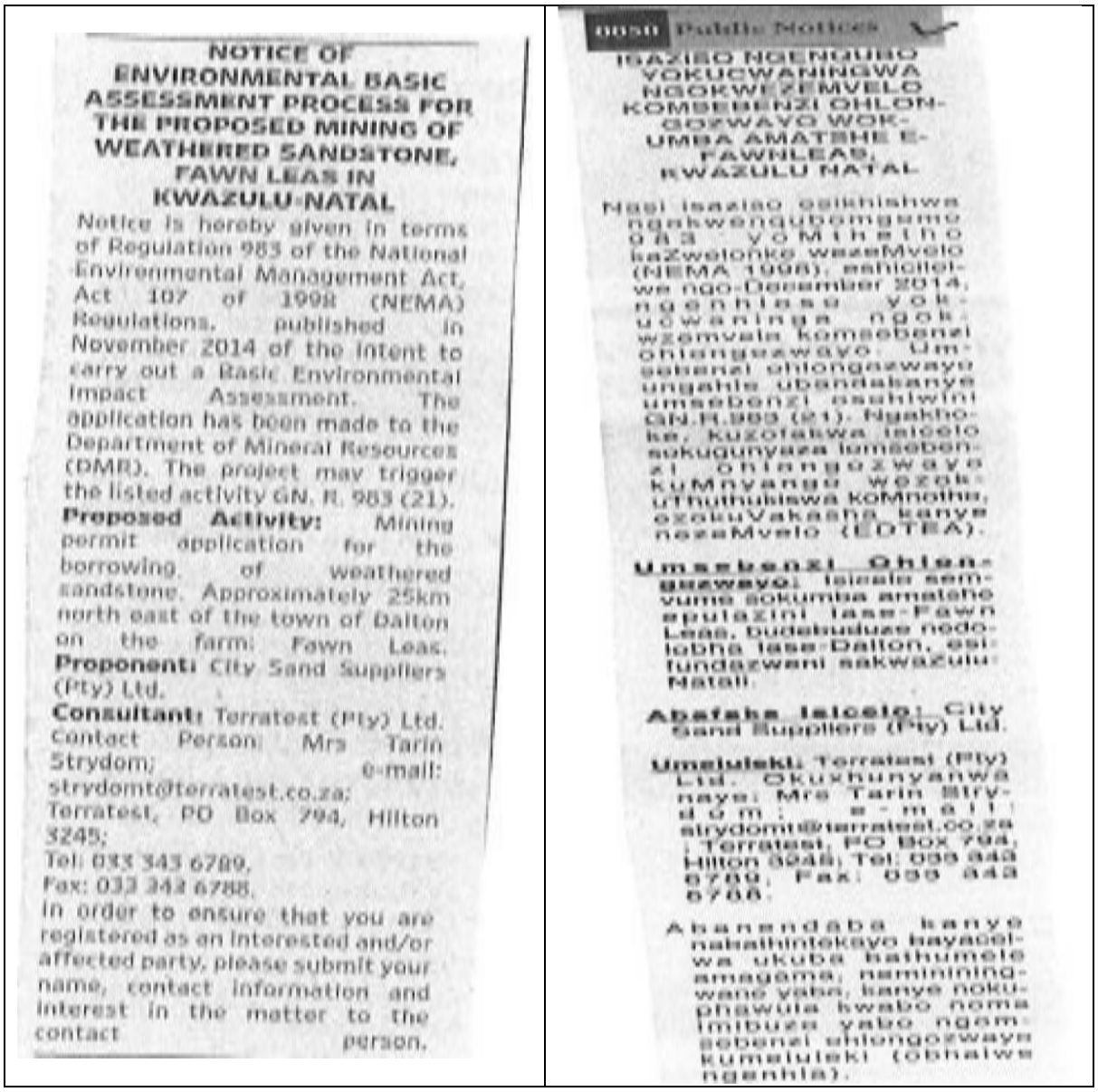
The notice boards were fixed at the following coordinates:

Table 1 Positions of Site Notice Boards

Site Notice.	South Coordinate	East Coordinate	Description
1	29°13'53.1"	30°47'14.5"	Masihambisane Traditional Council Court.
2	29°13'00.8"	30°46'23.5"	Electricity pole near cluster of households.
3	29°13'11.4"	30°46'17.4"	Road intersection near proposed project site.

Newspaper Adverts

Terratest published a newspaper advert which was placed on The Witness newspaper on 26 August 2015. The advert was translated into IsiZulu and was placed in the Ilanga newspaper on 27-29 August 2015. Copies of both adverts are attached to Table 3 below.



NOTICE OF ENVIRONMENTAL BASIC ASSESSMENT PROCESS FOR THE PROPOSED MINING OF WEATHERED SANDSTONE, FAWN LEAS IN KWAZULU-NATAL

Notice is hereby given in terms of Regulation 983 of the National Environmental Management Act, Act 107 of 1998 (NEMA) Regulations, published in November 2014 of the intent to carry out a Basic Environmental Impact Assessment. The application has been made to the Department of Mineral Resources (DMR). The project may trigger the listed activity GN. R. 983 (21).

Proposed Activity: Mining permit application for the borrowing of weathered sandstone. Approximately 25km north east of the town of Dalton on the farm: Fawn Leas.

Proponent: City Sand Suppliers (Pty) Ltd.

Consultant: Terratest (Pty) Ltd. Contact Person: Mrs Tarin Strydom; e-mail: strydomt@terratest.co.za; Terratest, PO Box 794, Hilton 3245; Tel: 033 343 6789, Fax: 033 343 6788.

In order to ensure that you are registered as an interested and/or affected party, please submit your name, contact information and interest in the matter to the contact person.

ISAZISO NGENKUBO YOKUCWANINGWA NGOKWEZEMVELO

KOMSEBENZI OHLONGOZWAYO WOKUMBA AMATSHE E-FAWNLEAS, KWAZULU NATAL

Nasi isaziso esikhishwa ngaphansi kwemigomo 983 yoMthetho kaZwelonke wezeMvelo (NEMA 1998), eshicilelwe ngo-December 2014, ngenhloso yokucwaninga ngokwezemvelo komsebenzi ohlongozwayo. Umsebenzi ohlongozwayo ungahle ubandakanye umsebenzi osuhlwini GN.R.983 (21). Ngakhoke, kuzofakwa isicelo sokugunyaza lomsebenzi ohlongozwayo kuMnyango wezokuThuthukiswa koMnotho, ezaku Vakasha kanye nezeMvelo (EDTEA).

Umsebenzi Ohlongozwayo: Isicelo semvume sokumba amatshe eputazini lase-Fawn Leas, budebuluze ndodolobha lase-Dalton, esifundazweni sakwaZulu-Natali.

Abafaka Isicelo: City Sand Suppliers (Pty) Ltd.

Umeluleki: Terratest (Pty) Ltd. Okuxhunyanwa naye: Mrs Tarin Strydom; e-mail: strydomt@terratest.co.za ; Terratest, PO Box 794, Hilton 3245; Tel: 033 343 6789, Fax: 033 343 6788.

Abanendaba kanye nabathintekayo bayacelwa ukuba bathumele amagama, nemininingwane yabo, kanye nokuphawula kwabo noma imibuzo yabo ngomsebenzi ohlongozwayo kumeluleki (obhalwe ngenhla).

Background Information Document

Terratest also produced BID document to request stakeholders and IAPs to register and comment on the proposed project. Copies of a BID were circulated to stakeholders to notify them about the proposed project and to invite them to register as IAPs. The BIDs were distributed via email and hand delivery on 28 August 2015.

Public/Community Engagement

Household Visits

During the site visit of 1 September 2015 Terratest engaged the surrounding community households to notify them about the basic environmental assessment and associated public participation process that were being conducted. Community members were encouraged to register as IAPs in order to be able to forward their comments on the proposed project and to be informed about the progress of the mining permit application and environmental assessment process. Table 4 below presents a register of community members that were engaged and their comments on the proposed project.

Name	Designation	Tel	Address	Comment	Response
Mrs Zondi	Local Resident	079 145 4466	Box 240, Dalton 3236	Where are they going to use the sandstone that will be mined from the Masihambisane community land? How will the Masihambisane community benefit from the mining?	The borrowed sandstone will be used as bedding material for the new bulk water supply pipleline being constructed by Umgeni Water. The applicant is to pay a tenure fee to the Ingonyama Trust Board for the land being used under the mining permit. In addition, the applicant has made allowance for the employment of one (1) unskilled labourer for the duration of the project.
Thulani Ndlovu	Traditional Council Chairperson	072 028 4271		Can individuals comment in their own capacity or should traditional / democratic leadership comment on behalf of the community? How will the community benefit from the project?	Individual members of the community have the right to register as IAPs and comment in their own capacity. Community leadership structures and civil organizations may also register and/or comment as stakeholders/IAPs in their own capacity.
Magayisa Ndlovu	Traditional Council Member	060 650 6620		When and how was the proposed site identified?	The site was selected because of the availability of suitable quality bedding material that is easily and economically available.

Siyabonga Ntuli	Local Resident	082 725 2986	PO Box 609, Dalton 3236		
Busokwakhe Ndlovu	Traditional Council Member	076 709 5675	PO Box 609, Dalton 3236		
Mr HP Ndlovu	Traditional Council Member	079 322 6681	Emtulwa Store		
Mr MD Ndlovu	Traditional Council Member	071 440 8617			
Funomunye Ndlovu	Traditional Council Member	072 784 3099			
Mr Zwane	Local Resident	076 488 9932		How will the sandstone mined from the Masihambisane community be used? Where will it be used?	The sandstone will be excavated using an excavator. This material will be loaded directly into a truck for transportation to the pipeline construction site. The construction site is near Dalton.

Terratest attempted to convene a meeting with the traditional authority (T/A) during the site visit on 1 September 2015. The purpose was to: determine if the T/A was aware of the proposed project; verify that the persons that signed the ITB4 form that was provided to Terratest were indeed members of the Traditional Council; inform the Chief and Headmen of the Masihambisane T/A about the proposed project, and; invite the T/A to register as an IAP. The meeting was held at the Masihambisane Traditional Council Court. Mention must be made of the fact that the T/A was not complete; the chief and some of the T/A members were not present. The meeting was therefore an informal engagement. However it was confirmed that the T/A is aware of the proposed meeting. The ITB4 form was indeed signed by the relevant persons; three of the five signatories that signed the ITB4 form on behalf of the T/A were present at the informal meeting.

Annexure 1: Public Engagement Photos

Plate 4 Engagement with Mr Ndlovu.

Plate 5 Mrs Zondi signing IAP register.

Plate 6 Engagement with Masihambisane Community Headmen at the Traditional Council Court.

Plate 7 Mr Zwane reading one of the notices that were distributed during public engagement.

Plate 8 Engagement with Mr Zondi.

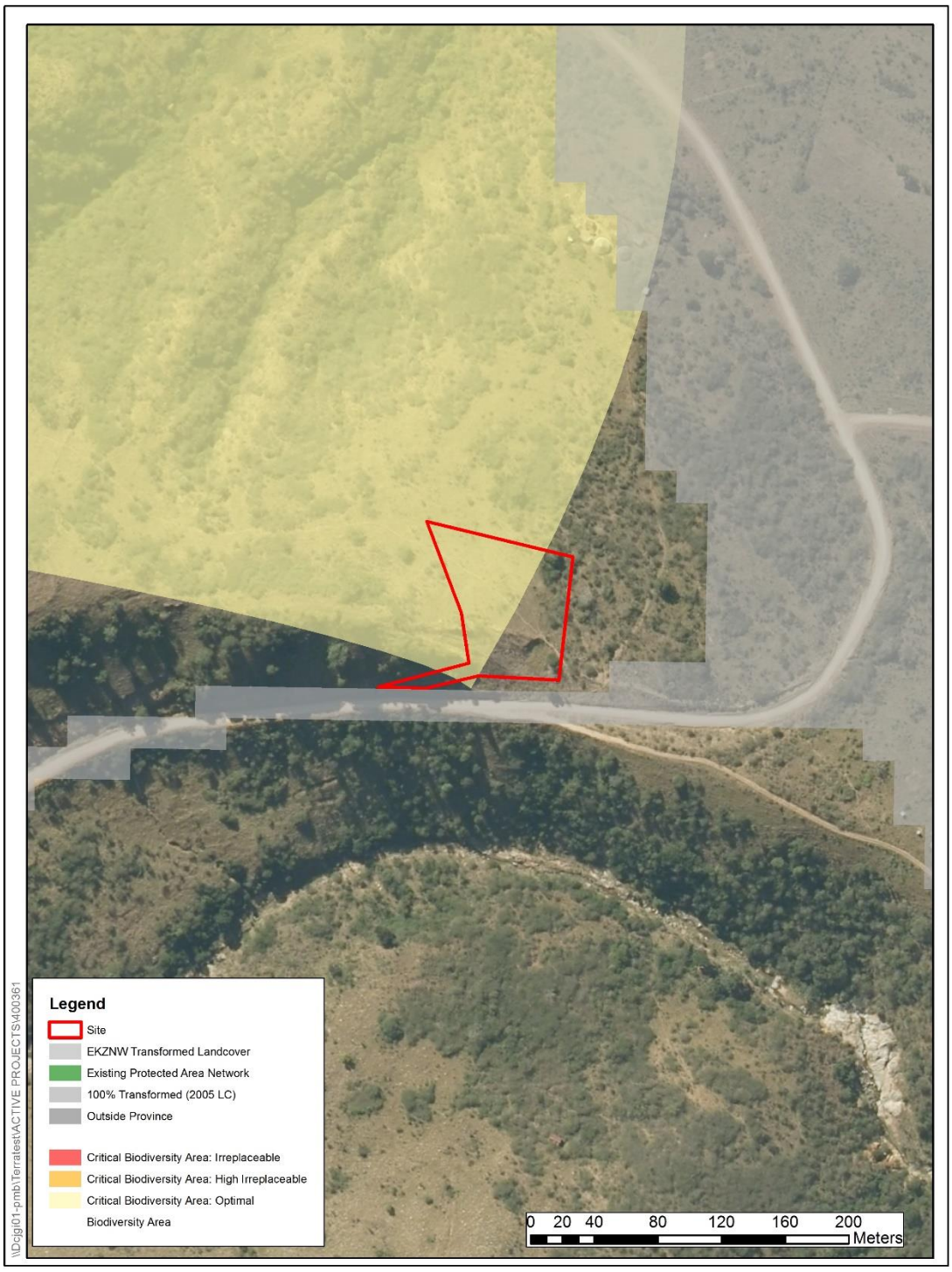
Annexure 2: Comments & Responses

Department	Contact	Address	Actions	Comments
KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA)	Ms Mavis Padayachee	Private Bag X07, Cascades 3202	**28/08/2015** BID: sent via hand delivery	
Department of Water Affairs & Sanitation	Ms Nonkululeko Tel: (031) 336 2742 Fax: (031) 305 9915 Cell: (0)83 297 0832 E-mail: mokoenan@dws.gov.za	PO Box 1018 Durban 40000	**28/08/2015** BID: sent via email	
KZN Department of Transport	Mr Sbusiso Gumbi Tel (0)33 355 8600 Fax: (0)33 355 8092 Email: sbusiso.gumbi@kzntransport.gov.za	PO Box 9043 Pietermaritzburg 3200 172Burger Street Pietermaritzburg 3201	**28/08/2015** BID:Sent via email	
Ezemvelo KZN Wildlife	Mr Andy Blackmore Tel: 033 845 1346 Fax 033 845 1499	PO BOX 13053, Cascades, 3202, Pietermaritzburg, 1 Peter Brown Drive Montrose, 3202	**28/08/2015** BID: sent via hand delivery	
Amafa Heritage	MS Weziwe Tshabalala Tel: 033 394 6543 Fax:033 342 6097 Email: archaeology@amafapmb.co.za	PO BOX 2685, Pietermaritzburg,3320 95 Long Market Street, Pietermaritzburg, 3200	**02/09/2015** BID: sent via AMAFA Online system	
Umgungundlovu District Municipality	MR Bheki Mbambo Department of Technical Service Tel: (0)33 897 6700 Fax: (0)33 342 5502 Email:	P.O Box 3235, Pietermaritzburg, 3200 242 Langalibalele Street, Pietermaritzburg	**28/08/2015** BID: sent via email.	

	bheki.mbambo@umdm.gov.za			
uMshwati Local Municipality	MS Christel Tel: (0)33 815 2249 Fax: (0)33 502 0286 Email: christelm@umshwathi.gov.za	Private Bag x 29, Wartburg, 3233 Main Street, New Hanover	**28/08/2015** BID: sent via email	
Ward councillor	MS Sbongile Mbatha Email: SMbatha-Ntuli@umshwathi.gov.za Cell no: 082 4797 396	P O Box 230 Dalton 3236	**28/08/2015** BID: sent via email	
Ingonyama Trust Board	Pravesh Manipersadh Tel: 0338469939 Fax: 0333862528 Email: praveshm@ingonyamatrust.org.za	65 Trelawney Road, Southgate, PMB, 3200	**28/08/2015** BID: sent via email	**28/08/2015** **Comment from Ingonyama Trust via email**: I have checked the coordinates and yes the Mining Site is on Ingonyama Trust land. The Ptn 19 of The Farm Umvoti Location No 4667 – FT and is along the P381. The applicant needs to apply with the DMR and the Ingonyama Trust for a lease agreement. **28/08/2015** **Comment Letter from Ingonyama Trust Board via email**: I refer to your recent application and now confirm that the Ingonyama Trust Board has no objections to the proposed application subject to the following: • That the applicant meets the requirements of the Mineral and Petroleum Resources Development Act (Act 28 of 2002) • That you enter into a Surface Lease Agreement with the

				Ingonyama Trust. Please advise us of the details of the person authorized to sign on your behalf, together with an indication of the time span of the proposed mining. • That you obtain a consent from the relevant Traditional Council. Yours faithfully Dockas Zondi
Land restitution commission	Chief director: Land Restitution Support Mr Bheki Mbili, Adv. Tel: 033 342 6955 Fax: 033 342 3409 Email: bheki.mbili@drdlr.gov.za	Private Bag x 9120 Pietermaritzburg 3200 African Life Building 1st-5th floors 200 church street Pietermaritzburg	**28/08/2015** BID sent via email.	

Appendix F



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Fax: (033) 343 6788

City Sand Supplies
Sensitive Areas
Portion 19 of the Farm uMvoti Location No 4667
Umgungundlovu District
uMshwathi Municipality

Scale
1 : 3 000

terratest
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HILTON 3245
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Fax: (033) 343 6788

City Sand Supplies

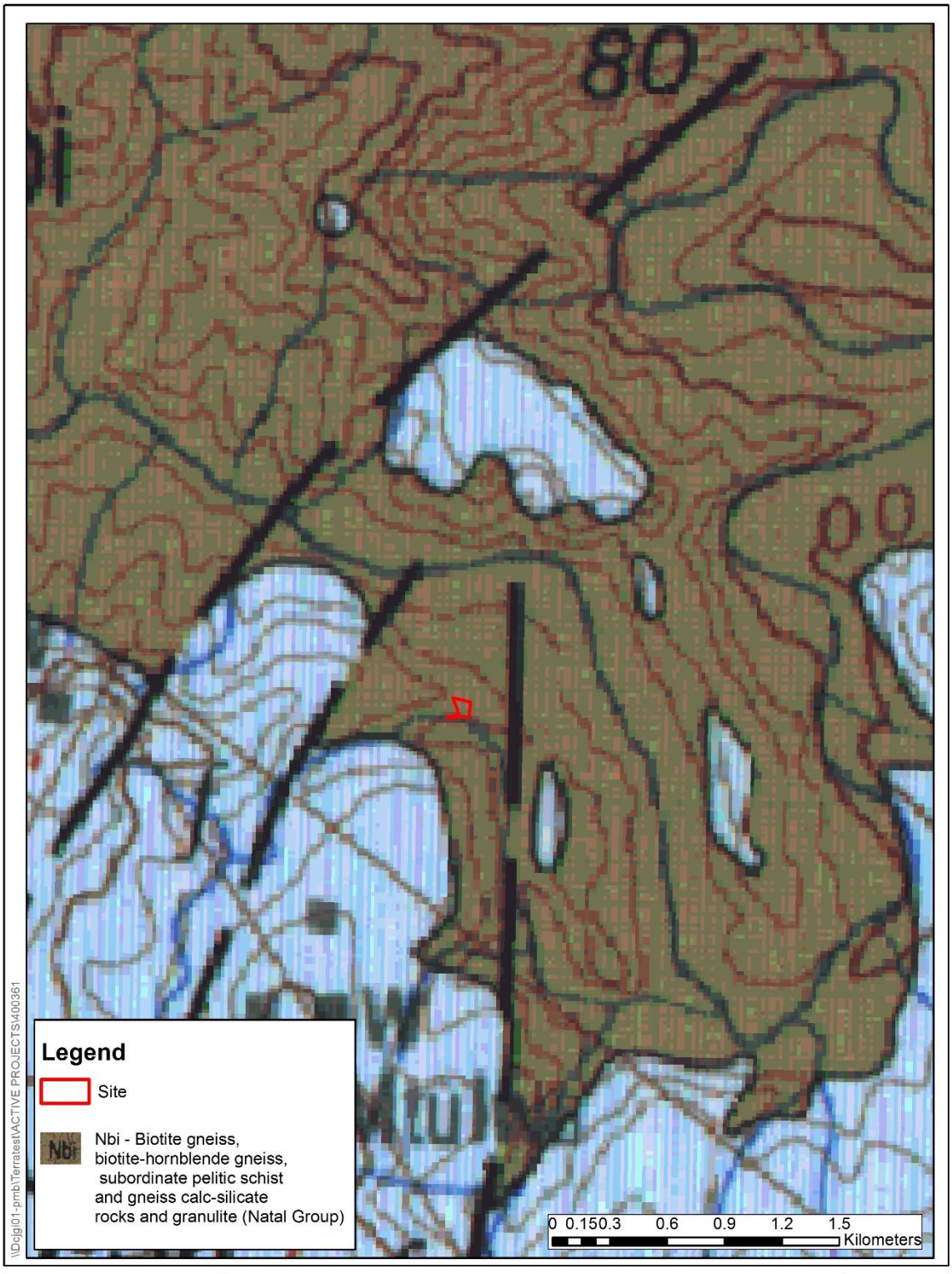
Vegetation Map

Portion 19 of the Farm uMvoti Location No 4667

Umgungundlovu District

uMshwathi Municipality

Scale
1 : 5 000



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HILTON 3245
Tel: (033) 343 6789
Fax: (033) 343 6788

City Sand Supplies

Geology Map

Portion 19 of the Farm uMvoti Location No 4667

Umgungundlovu District

uMshwathi Municipality

Scale
1 : 25 000

Appendix G

ASSESSMENT OF THE BIODIVERSITY AT THE SITE OF THE SANDSTONE QUARRY PROPOSED BY CITY SAND (PTY) LTD

1. BACKGROUND

City Sand (Pty) Ltd is proposing to undertake an operation consisting of mining of weathered sandstone at a site on the farm "Fawn Leas" situated approximately 25 km north east of Dalton, KwaZulu-Natal. In effect the operation would be the re-opening and expansion of previous mining activity at the site since it was used for the same purpose more than five years ago. However, the new activity is subject to an impact assessment process and so a survey of the biodiversity is called for.

2. STUDY PROCEDURE

The survey of the biodiversity at the site of the proposed mining operation was based on both desktop studies and a site survey.

2.1 Desktop Studies

The desktop studies consisted of interrogation of a number of conservation-related databases including the KwaZulu-Natal Conservation C Plan, the KwaZulu-Natal Wetland Map, a vegetation map and various species databases.

2.2 Site Survey

The site was visited on 1 September 2015 and the entire area and its immediate surrounds were walked over. Note was made of all plant species that could be identified through either *in situ* recognition of the species or else through photographs which were used for later identification. The only animals actually seen at the site were some birds but secondary traces such as spoor, droppings, and bird calls were also used.

3. STUDY RESULTS

3.1 Desktop Studies

The mapped vegetation for the area is SVs 3 KwaZulu-Natal Hinterland Thornveld (Mucina and Rutherford, 2006) and is described as "open Thornveld dominated by *Acacia* species on undulating plains found on upper margins of river valleys". There are no wetlands anywhere near the site and the nearest stream is a small tributary of the Mvoti River and passes some 150 m to the south but 50 m below it. The nearest nature reserve is Mvoti Vlei Nature Reserve as is situated some 20 km to the west of the site. The frog, bird, and butterfly atlases suggested no species of concern for the immediate area and there are no threatened ecosystems near the site.

3.2 Site Survey

Access to the area was easy and clear weather conditions were ideal for the purpose of undertaking a survey. It was found that, as a result of the particularly dry conditions prevailing at the time, most plants were either still senescent or were only just emerging from senescence as the new growing season started.

In most places the ground was largely bare, both as a result of the very stony conditions and because of the state of growth of the grasses. These conditions are natural and there were

no signs that grazing by cattle is having an adverse impact. Some trees (*Acacia* spp.) are being felled for firewood.

The indigenous plant species found are listed in Table 1 and the animal species in Table 2.

Table 1. List of indigenous plant species identified.

Scientific Name	Common name	Notes
INDIGENOUS SPECIES		
Acacia caffra	Common Hook Thorn	
Acacia karroo	Sweet Thorn	
Acacia natalita	Pale-bark Sweet Thorn	
Aloe maculata	Common soap aloe	
Aloe marlothii	Mountain Aloe	
Asparagus spp.	Asparagus	2 species
Chaetacanthus burchellii	Fairy stars	
Combretum cf. *molle*	Bushwillow	
Cussonia spicata	Cabbage Tree	
Dicoma cf. speciosa	Knoppiesdoringbossie	Data Defficient.
Drimia cf. elata	Satin squill	
Erythrina lysistemon	Coral tree	
Euphorbia ingens	Naboom	
Ficus sur	Broom-cluster Fig	
Gazania krebsiana	Common gazania	
Gerbera ambigua	Gerbera	
Gymnosporia buxifolia	Common Spikethorn	
Helichrysum cf. setosum	Everlasting	
Hypericum cf. lalandii	Spindly hypericum	
Hypoxis cf. acuminata	Star-flower	
Kalanchoe rotundifolia	Common kalanchoe	
Polygala hottentotta	Small purple broom	
Ozoroa paniculosa	Resin-tree	
Searsia cf. *pentheri*	Crow-berry	
Ranunculus multifidus	Common buttercup	
Ruellia cordata	Veld violet	
Senecio isatideus	Dan's cabbage	
Strychnos spinosa	Green Monkey-orange	
Thunbergia atriplicifolia	Natal primrose	
Zornia capensis	Caterpillar bean	
ALIEN SPECIES		
Ipomoea cf. alba		CARA Invader Category 1
Ipomoea purpurea		CARA Invader Category 3
Lantana camara	Lantana	CARA Invader Category 1
Passiflora foetida		

Table 1. List of animal species identified.

Scientific Name	Common name	Notes
BIRDS		
Andropadus importunus	Sombre Greenbul	
Corvus albicollis	White-necked Raven	
Estrilda astrild	Common Waxbill	
Halcyon albiventris	Brown-hooded kingfisher	
Lamprotornis nitens	Cape Glossy Starling	
Lanius ferrugineus	Southern Boubou	
Mirafra africana	Rufous-naped Lark	
Pternistis naytalensis	Natal Spurfowl	
Stephanoaetus coronatus	Crowned Eagle	
Tchagra senegalus	Black-crowned Tchagra	
Telophorus viridis	Gorgeous Bush-shrike	
Turtur chalcospilos	Emerald-spotted Wood-dove	
MAMMALS		
?	Mongoose	Droppings seen
?	Rodent	Droppings seen

4. DISCUSSION AND CONCLUSION

All of the indigenous plant and animal species which were found are common although one (*Dicoma cf. speciosa*) is listed as "Data Deficient". The reason for this listing is that the taxonomy of the genus is not clear and further work is called for. The alien weed plants were not abundant and the growths were all sparse.

On the basis of the above, it appears that the reuse and expansion of the old mine by City Sand (Pty) Ltd raises no impacts on biodiversity that could be considered to be fatal flaws which would stop the application. Despite this, there is still some call for caution in regard to the operation and the following recommendations are put forward:

- Extent of the operation. The area within which the mining operation will take place must be restricted to the co-ordinates stated in the application. This recommendation applies not only to actual mining but also to all associated activities and infrastructure including stockpiles, spoil heaps, buildings, stores, and the like.
- Site inspection and monitoring. It is recommended that the site be inspected at monthly intervals by an Environmental Control Officer (ECO) so as to ensure compliance with all conditions of the authorisation.
- Site clearing. During the site clearing process any plant products such as wood, which are of use to the local residents, must be made available to those people.
- Waste. Other than for soil and stone, no waste of any sort may be disposed of at the site.
- The site must be fully fenced so as to both contain the operation, and as a safety feature to keep unauthorised people out.
- Site maintenance. At all times the site is to be kept in a condition in which it is clean and stormwater is to be controlled so that sediment is not transported into the nearby stream. Any alien plants which appear are to be eradicated immediately. Provision is to be made for immediately cleaning up any spills of fuels or other such hydrocarbon substances and for proper disposal of the contaminated soils.

- Site rehabilitation. At the end of mining activities, the site is to be rehabilitated and is to be left in a condition which will not deteriorate. Attention is to be given to the following items:
  - ✓ Alien plants.
  - ✓ Removal of all wastes other than soil and stone.
  - ✓ Stormwater management.
  - ✓ Revegetation of the area.

REFERENCES USED

BARNES, K.N. 2000. The Eskom Red Data book of birds of South Africa, Lesotho and Swaziland. Birdlife South Africa. Johannesburg.

BOON, R. 2010. Pooley's Trees of Eastern South Africa. Flora and Fauna Publications Trust. Botanic Gardens Road, Durban.

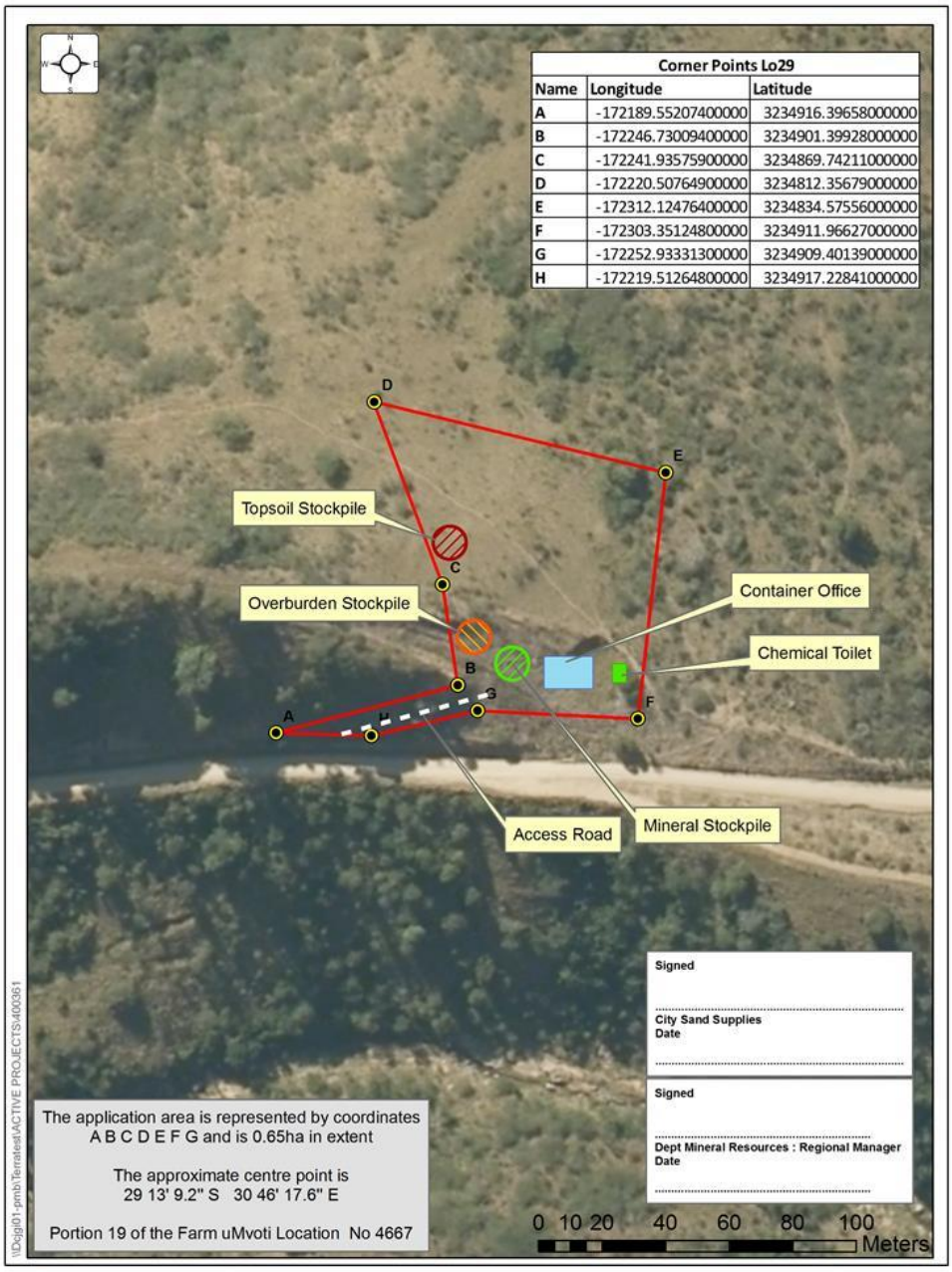
MINTER, L.R., BURGER, M., HARRISON, J.A., BRAACK, H.H., BISHOP, P.J., and KLOEPFER, D. eds. 2004. Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland. SI/MAB Series # 9. Smithsonian Institution. Washington DC.

MUCINA, L. and RUTHERFORD, M. (Eds). 2006. The vegetation of South Africa, Lesotho and Swaziland. Strelitzia 119. South African National Biodiversity Institute, Pretoria.

POOLEY, E. 1998. A field guide to wild flowers of KwaZulu-Natal and the Eastern Region. Natal Flora Publications Trust. Natal Herbarium. Durban.

SINCLAIR, I. and RYAN, P. 2009. Complete Photographic Field Guide: Birds of Southern Africa. Struik Nature. Cape Town.

Appendix H



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City Sand Supplies
Sketch Plan

Umgungundlovu District
uMshwathi Municipality

Fig 2
Scale 1 : 1 500

Appendix I

IMPACT ASSESSMENT

1. Issues Raised By Interested And Affected Parties

None to date.

2. Determination Of Identified Impact Significance

The overall significance of an impact / effect has been ascertained by attributing numerical ratings to each identified impact. The numerical scores obtained for each identified impact have been multiplied by the probability of the impact occurring before and after mitigation. High values suggest that a predicted impact / effect is more significant, whilst low values suggest that a predicted impact / effect is less significant.

The interpretation of the overall significance of impact is presented in Table 1 below.

Table 2.1: Significance scoring methodology

Scoring value	Significance
>35	**High - The impact is total / consuming / eliminating** - In the case of adverse impacts, there is no possible mitigation that could offset the impact, or mitigation is difficult, expensive, time-consuming or some combination of these. Social, cultural and economic activities of communities are disrupted to such an extent that these come to a halt. Mitigation may not be possible / practical. Consider a potential fatal flaw in the project.
25 - 35	**High - The impact is profound** - In the case of adverse impacts, there are few opportunities for mitigation that could offset the impact, or mitigation has a limited effect on the impact. Social, cultural and economic activities of communities are disrupted to such an extent that their operation is severely impeded. Mitigation may not be possible / practical. Consider a potential fatal flaw in the project.
20 – 25	**Medium - The impact is considerable / substantial** - The impact is of great importance. Failure to mitigate with the objective of reducing the impact to acceptable levels could render the entire project option or entire project proposal unacceptable. Mitigation is therefore essential.
7 – 20	**Medium - The impact is material / important to investigate** - The impact is of importance and is therefore considered to have a substantial impact. Mitigation is required to reduce the negative impacts and such impacts need to be evaluated carefully.
4 – 7	**Low - The impact is marginal / slight / minor** - The impact is of little importance, but may require limited mitigation; or it may be rendered acceptable in light of proposed mitigation.
0 – 4	**Low - The impact is unimportant / inconsequential / indiscernible** – no mitigation required, or it may be rendered acceptable in light of proposed mitigation.

The significance rating of each identified impact / effect was further reviewed by the EAP and associated specialists by applying professional judgement.

For the purposes of this assessment impact significance for each identified impact was evaluated according to the following key criteria outlined in the sub-sections below.

a. Nature of Impact

The environmental impacts of a project are those resultant changes in environmental parameters, in space and time, compared with what would have happened had the project not been undertaken. It is an appraisal of the type of effect the activity would have on the affected environmental parameter. Its description includes what is being affected, and how.

b. Spatial Extent

This addresses the physical and spatial scale of the impact. A series of standard terms and ratings used in this assessment relating to the spatial extent of an impact / effect are outlined in Table 2 below.

Table 2.2: Rating scale for the assessment of the spatial extent of a predicted effect / impact

Rating	Spatial Descriptor
7	**International** - The impacted area extends beyond national boundaries.
6	**National** - The impacted area extends beyond provincial boundaries.
5	**Ecosystem** - The impact could affect areas essentially linked to the site in terms of significantly impacting ecosystem functioning.
4	**Regional** - The impact could affect the site including the neighbouring areas, transport routes and surrounding towns etc.
3	**Landscape** - The impact could affect all areas generally visible to the naked eye, as well as those areas essentially linked to the site in terms of ecosystem functioning.
2	**Local** - The impacted area extends slightly further than the actual physical disturbance footprint and could affect the whole, or a measurable portion of adjacent areas.
1	**Site Related** - The impacted area extends only as far as the activity e.g. the footprint; the loss is considered inconsequential in terms of the spatial context of the relevant environmental or social aspect.

c. Severity / Intensity / Magnitude

This provides a qualitative assessment of the severity of a predicted impact / effect. A series of standard terms and ratings used in this assessment which relate to the magnitude of an impact / effect are outlined in Table 3 below.

Table 2.3: Rating scale for the assessment of the severity / magnitude of a predicted effect / impact

Rating	Magnitude Descriptor
7	**Total / consuming / eliminating** - Function or process of the affected environment is altered to the extent that it is permanently changed.
6	**Profound / considerable / substantial** - Function or process of the affected environment is altered to the extent where it is permanently modified to a sub-optimal state.
5	**Material / important** - The affected environment is altered, but function and process continue, albeit in a modified way.

4	**Discernible / noticeable** - Function or process of the affected environment is altered to the extent where it is temporarily altered, be it in a positive or negative manner.
3	**Marginal / slight / minor** - The affected environment is altered, but natural function and process continue.
2	**Unimportant / inconsequential / indiscernible** - The impact temporarily alters the affected environment in such a way that the natural processes or functions are negligibly affected.
1	**No effect / not applicable**

d. Duration

This describes the predicted lifetime / temporal scale of the predicted impact. A series of standard terms and ratings used in this assessment are included in Table 4 below.

Table 2.2: Rating scale for the assessment of the temporal scale of a predicted effect / impact

Rating	Temporal Descriptor
7	**Long term** – Permanent or more than 15 years post decommissioning. The impact remains beyond decommissioning and cannot be negated.
3	**Medium term** – Lifespan of the project. Reversible between 5 to 15 years post decommissioning.
1	**Short term** – Quickly reversible. Less than the project lifespan. The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than any of the project phases or within 0 -5 years.

e. Irreplaceable Loss of Resources

Environmental resources cannot always be replaced; once destroyed, some may be lost forever. It may be possible to replace, compensate for or reconstruct a lost resource in some cases, but substitutions are rarely ideal. The loss of a resource may become more serious later, and the assessment must take this into account. A series of standard terms and ratings used in this assessment are included in Table 5 below.

Table 2.3: Rating scale for the assessment of loss of resources due to a predicted effect / impact

Rating	Resource Loss Descriptor
7	**Permanent** – The loss of a non-renewable / threatened resource which cannot be renewed / recovered with, or through, natural process in a time span of over 15 years, or by artificial means.
5	**Long term** – The loss of a non-renewable / threatened resource which cannot be renewed / recovered with, or through, natural process in a time span of over 15 years, but can be mitigated by other means.
4	**Loss of an 'at risk' resource** - one that is not deemed critical for biodiversity targets, planning goals, community welfare, agricultural production, or other criteria, but cumulative effects may render such loss as significant.
3	**Medium term** – The resource can be recovered within the lifespan of the project. The resource can be renewed / recovered with mitigation or will be mitigated through natural process in a span between 5 and 15 years.
2	**Loss of an 'expendable' resource** - one that is not deemed critical for biodiversity targets, planning goals, community welfare, agricultural production, or other criteria.

1	**Short-term** – Quickly recoverable. Less than the project lifespan. The resource can be renewed / recovered with mitigation or will be mitigated through natural process in a span shorter than any of the project phases, or in a time span of 0 to 5 years.

f. Reversibility / potential for rehabilitation

The distinction between reversible and irreversible impacts is a very important one and the irreversible impacts not susceptible to mitigation can constitute significant impacts in an EIA (Glasson *et al*, 1999). The potential for rehabilitation is the major determinant factor when considering the temporal scale of most predicted impacts. A series of standard terms and ratings used in this assessment are included in Table 6 below.

Table 2.4: Rating scale for the assessment of reversibility of a predicted effect / impact

Rating	Reversibility Descriptor
7	**Long term** – The impact / effect will never be returned to its benchmark state.
3	**Medium term** – The impact / effect will be returned to its benchmark state through mitigation or natural processes in a span shorter than the lifetime of the project, or in a time span between 5 and 15 years.
1	**Short term** – The impact / effect will be returned to its benchmark state through mitigation or natural processes in a span shorter than any of the phases of the project, or in a time span of 0 to 5 years.

g. Probability

The assessment of the probability / likelihood of an impact / effect has been undertaken in accordance with ratings and descriptors provided in Table 7 below.

Table 2.5: Rating scale for the assessment of the probability of a predicted effect / impact

Rating	Probability descriptor
1.0	Absolute certainty / will occur
0.9	Near certainty / very high probability
0.7 – 0.8	High probability / to be expected
0.4 - 0.6	Medium probability / strongly anticipated
0.3	Low probability / anticipated
0.2	Possibility
0.0 - 0.1	Remote possibility / unlikely

h. Mitigation

In terms of the assessment process the potential to mitigate the negative impacts is determined and rated for each identified impact and mitigation objectives that would result in a measurable reduction or enhancement of the impact are taken into account. The significance of environmental impacts has therefore been assessed taking into account any proposed mitigation measures. The significance of the impact "without mitigation" is therefore the prime determinant of the nature and degree of mitigation required.

3. Impact Identified

3.1. Impacts Identified during Construction Phase:

Direct impacts:

Soils

- Potential disturbances include compaction, physical removal and potential pollution.
- The exposed soil surfaces have the potential to erode easily if left uncovered which could lead to the loss of vegetation.
- Potential loss of stockpiled topsoil and other materials if not protected properly.

Vegetation and fauna

- Alien invasive encroachment.

Surface water

- Potential for an increase in surface runoff through vegetation clearing.
- Potential loss of soil due to increase surface runoff.

Air quality and noise pollution

- Potential dust generation from soil stripping, vehicle traffic on the access roads and motor vehicle fumes will have an impact on air quality.
- Potential increase in noise from the operation of machinery and equipment, as well as the construction vehicle traffic.
- Potential disturbance to the resident's.

Visual

- Potential for the creation of dust from the construction vehicles.
- The presence of the construction machinery on site will have a temporary visual impact.

Traffic

- Potential increase of construction vehicles entering and exiting the site.

Waste

- Accumulation of general waste.

Socio-Economic

- The construction phase is likely to have a positive impact on the area and local community as it will provide employment opportunities.
- Skills development within the communities.

Heritage

- Possibility of finding something of heritage or cultural significance during earth moving activities.

Indirect impacts:

Soils

- Insufficient stormwater control measures may result in localised high levels of soil erosion, possibly creating dongas or gullies.

Vegetation and Fauna

- Increase in alien invasive species, therefore a possible loss in biodiversity.

4. Impact Assessment

Table 4.1: below present the impact assessment findings of the project in relation to the Construction phase

Impact Assessment Table 6: below present the impact assessment findings of the project in relation to the operational phase.														
Environmental impact	Nature of project impact	Spatial extent		Severity / intensity / magnitude		Duration		Resource loss	Reversibility		Probability		Significance without mitigation	Significance with mitigation
		Without	With	Without	With	Without	With		Without	With	Without	With		
Direct Impacts														
Soil	Potential disturbances include compaction, physical removal and potential pollution.	2	1	3	2	3	1	2	3	1	0.2	0.1	2.6	0.7
	The exposed soil surfaces have the potential to erode easily if left uncovered which could lead to the loss of vegetation.	2	1	3	2	3	1	2	3	1	0.2	0.1	2.6	0.7
	Potential loss of stockpiled topsoil and other materials if not protected properly	2	1	3	2	3	1	1	1	1	0.2	0.1	2	0.6

Vegetation and fauna	Alien invasive encroachment.	2	1	3	2	3	1	1	1	1	0.2	0.1	2	0.6
Surface water	Potential for an increase in surface runoff through clearing	2	1	3	2	3	1	1	1	1	0.2	0.1	2	0.6
	Potential loss of soil due to increase surface runoff	2	1	3	2	3	1	2	3	1	0.2	0.1	2.6	0.7
Air quality and noise pollution	Potential dust generation from soil stripping, vehicle traffic on the access roads and motor vehicle fumes will have an impact on air quality.	2	1	3	2	3	1	2	3	1	0.2	0.1	2.6	0.7
	Potential increase in noise from the operation of machinery and equipment, as well as the construction vehicle traffic.	2	1	3	2	3	1	2	3	1	0.2	0.1	2.6	0.7
	Potential disturbance to the resident's.	2	1	3	2	3	1	2	3	1	0.2	0.1	2.6	0.7
Visual	Potential for the creation of dust from the construction vehicles.	2	1	3	2	3	1	1	1	1	0.2	0.1	2	0.6
	The presence of the construction machinery on site will have a temporary visual impact.	2	1	3	2	3	1	1	1	1	0.2	0.1	2	0.6

Traffic	Potential increase of construction vehicles entering and exiting the site.	2	1	3	2	3	1	1	1	1	0.2	0.1	2	0.6
Waste	Accumulation of general waste	2	1	3	2	3	1	2	3	1	0.2	0.1	2.6	0.7
Socio-Economic	The construction phase is likely to have a positive impact on the area and local community as it will provide employment opportunities	2	1	3	2	3	1	1	1	1	0.2	0.1	2	0.6
	Skills development within the communities.	2	1	3	2	3	1	1	1	1	0.2	0.1	2	0.6
Heritage	Possibility of finding something of heritage or cultural significance during earth moving activities.	2	1	3	2	3	1	2	3	1	0.2	0.1	2.6	0.7
Indirect impacts:														
Soils	Insufficient stormwater control measures may result in localised high levels of soil erosion, possibly creating dongas or gullies.	2	1	3	2	3	1	1	1	1	0.2	0.1	2	0.6
Vegetation and Fauna	Increase in alien invasive species, therefore a possible loss in biodiversity.	2	1	3	2	3	1	1	1	1	0.2	0.1	2	0.6
Overall Impact Significance													**Medium to Low**	**Low**

5. Mitigation Measures during Construction Phase

Soils

- Spread absorbent sand on areas where oil spills have occurred;
- Oil-contaminated soils are to be removed to a contained storage area and disposed of at a licensed facility;
- Soil should be stockpiled in such a way as to minimize erosion.

Vegetation and Fauna

- All construction areas should be demarcated prior to construction to ensure that the footprint of the impacts are limited (including areas where vehicles may traverse);
- All alien invasive species within the construction and development footprint should be removed and follow up monitoring and removal programmes should be initiated once construction is complete;
- Reseed cleared areas with an indigenous seed mix to prevent soil erosion;
- Hunting and/or fishing activities on site is prohibited. This includes the setting of traps, or the killing of any animal caught in construction works;
- No animal, reptile or bird of any sort found on site may be killed. This specifically includes snakes or other animals considered potentially dangerous discovered on site. If such an animal is discovered on site an appropriately skilled person should be summoned to remove the animal from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members.
- Environmental training must be conducted by the responsible ECO.
- The removal and replanting of indigenous vegetation must be conducted under the supervision of the ECO and biodiversity specialist, the Municipality can provide alternate replanting sites should it be needed.

Waste Management and Pollution Prevention

- Demarcated areas where waste can be securely contained and stored on a temporary basis during the construction phase should be established. When adequate volumes (not more than 1 month) have accumulated all waste is to be removed from site and disposed of at a licensed facility;
- Litter must be removed from all construction areas prior to construction commencement.
- Waste is not to be buried on site;
- Storage of waste volumes must not exceed those stipulated in NEM:WA, schedule 1.
- All waste must be recycled where possible or disposed of at a registered landfill, proof of which must be provided.
- All hazardous materials including paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the environment;
- Spill-sorb or similar type product must be used to absorb hydrocarbon spills in the event that such spills should occur;

Surface Water

- Care must be taken to ensure that in removing vegetation adequate erosion control measures are implemented;
- A stormwater management plan, including sufficient erosion-control measures, must be compiled in consultation with a suitably qualified environmental practitioner / control officer during the detailed design phase prior to the commencement of construction.

Air Quality

- Heavy vehicles and machinery should be serviced regularly to minimise exhaust fume pollution;
- Soil stockpiles will be located in areas to limit the erosive effects of the wind, which will limit dust;
- Removal of vegetation will be avoided until such time as soil stripping is required, which will limit dust.
- Limit vehicle speeds on unpaved roads to 20 km/h to limit the amount of dust generated;
- Haulage distances should be at a minimum;
- Water should be sprayed onto gravel roads when required;
- Environmental friendly soil stabilisers may be used as additional measures to control dust on gravel roads and construction areas;
- All equipment should be kept in good working order;
- Equipment should be operated within its specifications and capacity and should not be overloaded;
- All machinery/plant should be serviced and lubricated regularly to ensure a good working order;
- Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS Code 0103:1983, so that it will not produce excessive or undesirable noise when it is released;
- All the Contractors' equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice and the South African National Standard (SANS) Code 0103:1983, for construction plant noise generation;
- The entire Contractors' vehicles shall be fitted with effective exhaust silencers and shall comply with Road Traffic Act (Act 29 of 1989) when any such vehicle is operated on a public road.

Traffic

- Provide sufficient area for the storage of heavy vehicles within the construction site;
- Ensure that all road diversions and closures are considered as part of the development footprint and do not add any unnecessary roads;
- Ensure that vehicle traffic which may obstruct traffic flow is scheduled outside of peak travelling time;
- Ensure that heavy / large load traffic is appropriately routed and appropriate safety precautions are taken to prohibit road collisions and traffic incidences; and
- Ensure that vehicle operators are suitably licensed, have had appropriate environmental and safety induction, are aware of specific site procedures, and are well rested and cognisant when operating heavy or unsafe vehicles / machinery.

- Ensure that public consultation has taken place, informing residents of alternative routes prior to the commencement of construction activities.

Heritage Impact

- In the event of a cultural or heritage artefact being found all work must stop until the matter is resolved. AMAFA is to be contacted immediately and direction from the AMAFA representative must be taken and adhered to.

6. Significance

The impact significance exercise indicates that the majority of the construction impacts are rated as medium to low. Furthermore the impacts are considered to be mitigated through standard management practices. There are no permanent and irreversible impacts which result in a loss of resource. Nor is there an immitigable impact on sensitive environments.

7. Environmental Impact Statement

Assuming all phases of the project adhere to the conditions stated in the EMPr, it is believed that the impacts associated with the proposed construction will have insignificant adverse, long term environmental impact on the surrounding environment.

Positive impacts associated with the construction include;

- Economic growth and development;
- Job creation; and

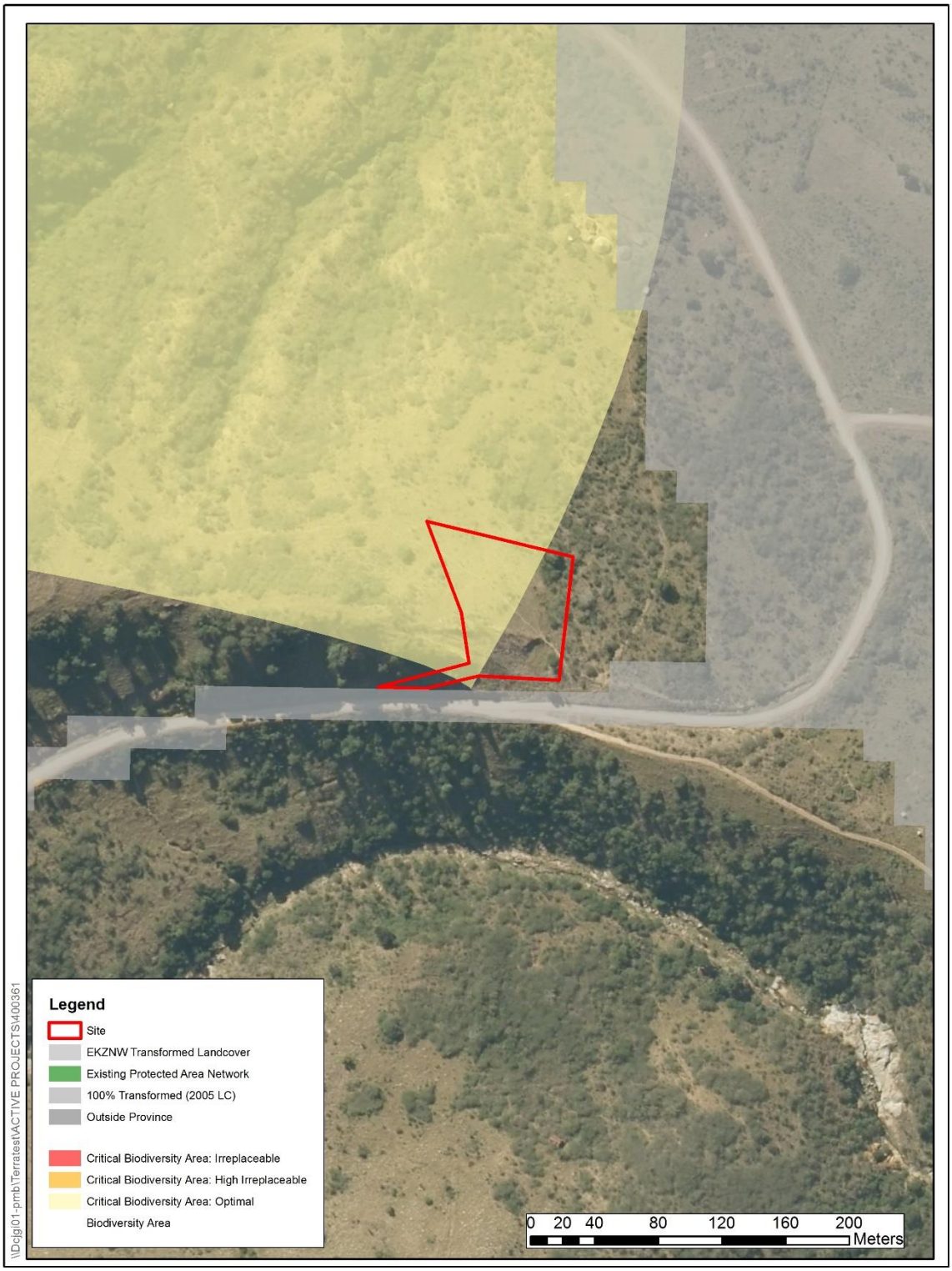
It is perceived that these impacts will be short term and have limited benefits.

It must be ensured that the post-construction rehabilitation leaves the surrounding environments in an as good, if not better, state.

After the construction phase of the project, the contractors must ensure that all hazardous materials are removed from the site and that rehabilitation of land is undertaken according to the requirements of the EMPr.

Any alien infestation that is removed during construction rehabilitation must be maintained.

Appendix J



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