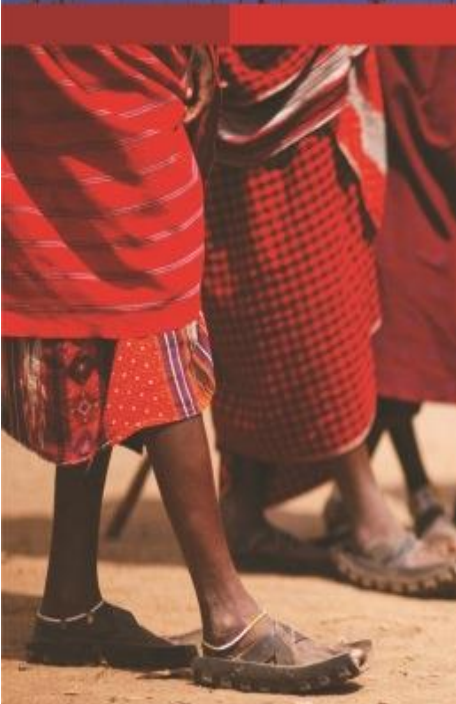




DIGBY WELLS
ENVIRONMENTAL



Goudkoppies Pipeline Basic Assessment

Notification of Intent to Develop

Project Number:

ERG3057

Prepared for:

Ergo Mining (Pty) Ltd

December 2014

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This document has been prepared by Digby Wells Environmental.

Report Type:	Notification of Intent to Develop
Project Name:	Goudkoppies Pipeline Basic Assessment
Project Code:	ERG3057

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NOTIFICATION OF INTENT TO DEVELOP

This Notification of Intent to Develop (NID) is submitted in accordance with subsections (2) and (8) of section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA).

Introduction

Digby Wells Environmental (Digby Wells) has been appointed by Ergo Mining (Pty) Ltd (hereafter Ergo) to complete an application for the Environmental Authorisation (EA) in terms National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), as amended, and the Environmental Impact Assessment Regulations, 2010. The EA will require a Basic Assessment pertaining to the *“Proposed construction of a Treated Water Pipeline from the Goudkoppies Waste Water Treatment Works (WWTW) to the Crown Complex near Diepkloof, Soweto”*.

Project Activities

The specifications of the proposed pipeline are as follows:

- 6 km in length buried at a depth of no more than 3 m;
- Welded with High Density Polyethylene (HDPE);
- Internal diameter of 500 mm; and
- Capacity of 231 litres per second.

The activities for the proposed project area summarised below.

Identified Project Activity	Description	Development as defined in NHRA	Sources of risk to heritage resources	Project Phase
GN 544, 9 (i)	The construction of facilities or infrastructure exceeding 1000 metres in length for the bulk transportation of water with an internal diameter of 0,36 metres or more. The envisaged 0.5 m diameter pipeline be constructed over a distance of approximately 6000 m.	This activity constitutes development as defined in terms of NHRA Section (s) 2(viii) (a) construction, alteration, demolition, removal or change of use of a place or a structure at a place.	No heritage resources are evident in the area; therefore there are no sources of risk to heritage.	n/a
GN 544, 11 (xi)	The construction of infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse. The pipeline will cross one or more	This activity constitutes development as defined in terms of NHRA Section (s) 2(viii) (a) construction, alteration, demolition, removal or change of use of a place or a structure at a place.	No heritage resources are evident in the area; therefore there are no sources of risk to heritage.	n/a

Identified Project Activity	Description	Development as defined in NHRA	Sources of risk to heritage resources	Project Phase
	watercourses by way of a bridging structure to carry the pipeline.			
GN 544, 18 (i)	The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from a watercourse. Certain portions of the pipeline may be buried underneath a water course.	This activity constitutes development as defined in terms of NHRA s. 2 (viii) (e) and (f) any change to the natural or existing condition or topography of land; and any removal or destruction of trees, or removal of vegetation or topsoil.	No heritage resources are evident in the area; therefore there are no sources of risk to heritage.	n/a

NHRA Section 38 Triggers

The following activities require a Heritage Impact Assessment (HIA) in terms of Section 38 of the NHRA.

NHRA Section 38 (1) Activities / Triggers			Summary description (E.g. 500 m conveyor belt, open cast pit, etc.)
<input checked="" type="checkbox"/>	a	Any linear development or barrier >300 m	Water Pipeline (6 km)
<input type="checkbox"/>	b	Any bridge or similar structure >50 m	
<input type="checkbox"/>	c	Any development or activity that will change the character of a site:	
<input type="checkbox"/>	i	≥5 000m ² in extent	
<input type="checkbox"/>	ii	Involving ≥3 existing erven/subdivisions	
<input type="checkbox"/>	iii	Involving ≥3 or more erven/divisions consolidated within past 5 years.	
<input type="checkbox"/>	d	Rezoning of a site ≥10 000m ² in extent.	
<input checked="" type="checkbox"/>	8	Other triggers, e.g.: in terms of other legislation, (i.e.: National Environment Management Act, etc.)	NEMA

Additional Impact Assessment Process

The following impact assessment processes were undertaken for the proposed project.

Legislation, i.e. NEMA, MPRDA, etc.	NEMA
Consenting Authority that has/will receive information	Gauteng Department of Agriculture and Rural Development (GDARD)
Reference Number:	GAUT: 002/14-15/0190
Present phase of process at Authority, e.g. Draft Scoping Report	Basic Assessment

Identified/known heritage resources and potential impacts

The following categories of heritage resources as defined in Section 3 of the NHRA are known to occur within the proposed project area.

<input type="checkbox"/>	3(2)(a)	Places, buildings, structures and equipment of cultural significance <i>Description of resource:</i> None <i>Potential impact:</i> None
<input type="checkbox"/>	3(2)(b)	Places to which oral traditions are attached or which are associated with living heritage <i>Description of resource:</i> None <i>Potential impact:</i> None
<input type="checkbox"/>	3(2)(c)	Historical settlements and townscapes <i>Description of resource:</i> None <i>Potential impact:</i> None
<input type="checkbox"/>	3(2)(d)	Landscapes and natural features of cultural significance <i>Description of resource:</i> None <i>Potential impact:</i> None
<input type="checkbox"/>	3(2)(e)	Geological resources of scientific or cultural importance <i>Description of resource:</i> None <i>Potential impact:</i> None
<input type="checkbox"/>	3(2)(f)	Archaeology and/or palaeontology (Including archaeological sites and material, fossils, rock art, battlefields & wrecks) <i>Description of resource:</i> None <i>Potential impact:</i> None
<input type="checkbox"/>	3(2)(g)	Graves and burial grounds (e.g.: ancestral graves, graves of victims of conflict, historical graves & cemeteries) <i>Description of resource:</i> None <i>Potential impact:</i> None

<input type="checkbox"/>	3(2)(a)	Other human remains
		<i>Description of resource:</i> None
		<i>Potential impact:</i> None
<input type="checkbox"/>	3(2)(h)	Sites of significance relating to the history of slavery in South Africa
		<i>Description of resource:</i> None
		<i>Potential impact:</i> None
<input type="checkbox"/>	3(2)(i)	Movable objects
		<i>Description of resource:</i> None
		<i>Potential impact:</i> None

Recommendations

Is a Heritage Impact Assessment required?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<p>If NO, provide motivation:</p> <p>The pipeline will have limited impacts on the landscape. It will be constructed in an existing Eskom servitude and no heritage resources were identified within the proposed pipeline route.</p> <p>Based on the findings from this study, it is unlikely that any <i>in situ</i> heritage resources are to occur in the proposed pipeline route. If and where these may occur, it is suspected that they will not be <i>in situ</i> and no information potential will remain.</p> <p>It is recommended that the proposed pipeline be exempt from any additional heritage studies with the following conditions:</p> <ul style="list-style-type: none"> ■ The proposed pipeline must maintain a minimum of 50 m buffer from identified heritage resources such as the Orlando Power Station and Klipspruit Sewage Farm. ■ The Environmental Management Plan (EMP) must include Chance Finds Procedures (CFP's) that in turn should include a register of applicable permits and Heritage authorisations that may be required in the event that any heritage resources protected in terms of sections 27, 28, 29, 34, 35, 36 and 37 of the NHRA are impacted on. 		

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1 Introduction

1.1 Project Background

Digby Wells Environmental (Digby Wells) was appointed by Ergo Mining (Pty) Ltd (Ergo) to complete an application for the Environmental Authorisation (EA) in terms National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), as amended, and the Environmental Impact Assessment Regulations, 2010. The EA will require a Basic Assessment pertaining to the *“Proposed construction of a Treated Water Pipeline from the Goudkoppies Waste Water Treatment Works (WWTW) to the Crown Complex near Diepkloof, Soweto”*.

1.2 Terms of Reference

Ergo requires Digby Wells to conduct the Heritage Resource Management (HRM) Process for the Goudkoppies Project to ensure compliance with NEMA and the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA).

1.3 Scope of Work

The required HRM process was inclusive of a Notification of Intent to Develop (NID) that was informed by baseline information. The Scope of Work (SoW) included:

- Gather baseline information to provide heritage and historical context for the project area, limited to website articles, books and previously completed heritage reports conducted in the surrounding areas;
- Completing historical layering for the project area limited to a single years historical imagery (in this case 1952); and
- Collating information into a NID report including recommendations for any additional heritage studies, if deemed necessary.

1.4 Project Description

Ergo is a mid-tier gold producer. Ergo is a world leader in terms of reclaiming historic gold Tailings Storage Facilities throughout the Witwatersrand Mining area. Once the reclamation process has concluded, Ergo, as part of their environmental policy, endeavours to rehabilitate the reclaimed facilities in line with best practice guidelines.

One such facility undergoing rehabilitation is their Crown Tailings complex situated near Diepkloof, Soweto. This facility is irrigated on a daily basis to promote and sustain vegetation growth on the slopes of the facility to reduce erosion, dust generation and maintain slope stability. Currently, potable water from Rand Water is utilised for dust suppression and Ergo envisages utilising treated effluent from the Goudkoppies WWTW for dust suppression of the Crown Tailings complex instead. Please see <http://www.drd.co.za/our-business/ergo/pipeline> for more information.

The treated water from the Goudkoppies WWTW will pass through an additional filtration process to ensure further removal of suspended solids. This water will then be pumped to the Crown Tailings complex, from where it will be utilised for dust suppression measures.

Approval has been granted by the Department of Water and Sanitation (DWS) for the proposed use of treated water for mining related water requirements. The Gauteng Department of Agriculture and Rural Development (GDARD) recently approved the Rondebult pipeline from Elsburg Tailings Complex to Rondebult WWTW for this same requirement.

The pipeline will extend from the Goudkoppies WWTW north-eastwards up until the Crown Tailings complex. The pipeline will be buried, no more than 3 m, predominantly within an Eskom servitude. Ergo is in the process of having a wayleave agreement drafted so as to utilise their servitude. Eskom has agreed in principal.

Table 1-1: Location of the Goudkoppies Project

Province	Gauteng Province
Magisterial District / Local Authority	Soweto Magisterial District
District Municipality	City of Johannesburg
Local Municipality	City of Johannesburg Metropolitan Municipality
Nearest Town	Soweto
Property Name and Number	Diepkloof 319 IQ Mooifontein 225 IQ Goudkoppies 317 IQ
1: 50 000 Map Sheet	2627BB 2627BD

Plans depicting the study area can be found in Appendix A.

1.5 Project Activities

The proposed project will entail the installation of a water pipeline between the Goudkoppies WWTW and Crown Tailings complex. The specifications of the pipeline are as follows:

- 6 km in length buried at a depth of no more than 3 m;
- Welded with High Density Polyethylene (HDPE);
- Internal diameter of 500 mm; and
- Capacity of 231 litres per second.

The activities for the proposed project area summarised in Table 1-2 below.

Table 1-2: Project Activities for the Goudkoppies Project

Activity	NHRA Triggers	Description
GN 544, 9 (i)	Section 38 (1) a	The construction of facilities or infrastructure exceeding 1000 metres in length for the bulk transportation of water with an internal diameter of 0.36 metres or more. <i>The envisaged 0.5 m diameter pipeline be constructed over a distance of approximately 6 000 m.</i>
GN 544, 11 (xi)	Section 38 (1) a	The construction of infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse. <i>The pipeline will cross one or more watercourses by way of a bridging structure to carry the pipeline.</i>
GN 544, 18 (i)	n/a	The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from a watercourse. <i>Certain portions of the pipeline may my buried underneath a water course.</i>

1.6 Client, Consultant and Landowner Contact Details

Contact details for the Goudkoppies Project and Digby Wells' project managers, and relevant landowners are provided in Table 1-3 to Table 1-5 below.

Table 1-3: Goudkoppies project manager contact details

Company	Ergo Mining (Pty) Ltd
Contact person	Mr Greg Ovens
Tel no	(011) 470 2600
E-mail address	greg.ovens@drdgold.com
Postal address	P.O. Box 390, Maraisburg, 1700

Table 1-4: Digby Wells Project Manager contact details

Company	Digby Wells Environmental
Contact person	Mr Mellerson Pillay
Tel no	(011) 789 9495
Fax no	(011) 789 9498

E-mail address	mel.pillay@digbywells.com
Postal address	Private Bag X10046, Randburg, 2125

Table 1-5: Landowner contact details

Farm Name	Portion	SG Code	Description	Landowner	Contact Person	Contact Details
Diepkloof 319 IQ	146	T0IQ00000000 031900146	Crown Complex	Ergo Mining(Pty) Ltd	Mr Greg Ovens	Tel: (011) 470 2600 Address: P O Box 390 Maraisburg,1700 E-mail Address: greg.ovens@drdgold.com
Mooifontein 225 IQ	115	T0IQ00000000 022500115	Crown Complex	Ergo Mining(Pty) Ltd		Tel:(011) 470 2600 Address: P O Box 390 Maraisburg,1700 E-mail Address: greg.ovens@drdgold.com
Goudkoppie 317 IQ	R/E	T0IQ00000000 031700000	Waste Water Treatment Plant (Proclamation Area S.G. No. 3806/1989)	City of Johannesburg Metropolitan Municipality	Ms Lebo Molefe Acting Unit Head for EIA	Tel:(011) 587 4212 Address:118 Jorrissen Street, 6th Floor, Traduna House, Johannesburg 2001 E-mail Address: lebomol@joburg.org.za
Registered Eskom Servitude		Registered servitude for existing power lines	Not Applicable	Eskom Holdings	Mr Wikus Snyman Land Development Manager	Tel: (011) 711 3116, Address: 204 Smit Street Braamfontein 2017 E-mail Address: wayleavejhb@eskom.co.za
Road Crossings						
Road	Description	Landowner	Contact Person	Contact Details		
M70	Soweto Highway	City of Johannesburg Metropolitan Municipality	Ms Lebo Molefe Acting Unit Head for EIA	Tel:(011) 587 4212 Address:118 Jorrissen Street, 6th Floor, Traduna House, Johannesburg 2001 E-mail Address: lebomol@joburg.org.za		
M68	Chris Hani Road	City of Johannesburg Metropolitan Municipality	Ms Lebo Molefe Acting Unit Head for EIA	Tel:(011) 587 4212 Address:118 Jorrissen Street, 6th Floor, Traduna House, Johannesburg 2001 E-mail Address: lebomol@joburg.org.za		
M79	Masopha Street	City of Johannesburg Metropolitan Municipality	Ms Lebo Molefe Acting Unit Head for EIA	Tel:(011) 587 4212 Address:118 Jorrissen Street, 6th Floor, Traduna House, Johannesburg 2001 E-mail Address: lebomol@joburg.org.za		

1.7 Expertise of Specialist

The following specialists provided input for the NID for the Goudkoppies Project:

Natasha Higgitt has obtained her BA Honours degree in Archaeology in 2010 from the University of Pretoria. She currently holds the position of Assistant Heritage Consultant: Archaeology Specialist at Digby Wells. She has more than three years' experience in

archaeological surveys and gained further generalist heritage experience since her appointment at Digby Wells in South Africa and Liberia. Natasha is a professional member of the Association of Southern African Archaeologists (ASAPA) (Member No: 335).

Justin du Piesanie obtained his Master of Science (MSc) degree in Archaeology from the University of the Witwatersrand in 2008, specialising in the Southern African Iron Age. He currently holds the position of Heritage Management Consultant: Archaeologist at Digby Wells. He has over 5 years combined experience in HRM in South Africa, gaining further generalist experience since his appointment at Digby Wells in Burkina Faso, the Democratic Republic of Congo, Liberia and Mali.

Justin is a professional member of the ASAPA (*Member No. 270*) and the International Council on Monuments and Sites (ICOMOS) South Africa (*Member No. 14274*).

The curriculum vita of the specialists is attached as Appendix B.

2 Policy and Legal Framework

The NHRA is the overarching legislation that protects heritage resources and regulates their management. The HRM process completed for the Goudkoppies Project was done in accordance with s. 38(8), where impacts on heritage are assessed in terms of other legislation – the NEMA in this instance.

These specific legislative requirements are discussed separately below.

2.1 NEMA Regulations

According to section 22 of the NEMA Regulations 543, a Basic Assessment report must contain a description of the cultural and heritage aspects within the environment that may be affected by the proposed activity.

2.2 NHRA

The HRM approach developed and implemented by Digby Wells is founded on section 38(1) and 38(2) of the NHRA. These sections of the Act require that Heritage Resources Authorities (HRA's), in this case the South African Heritage Resources Agency (SAHRA) and the Provincial Heritage Resources Authority - Gauteng (PHRA-G) be notified as early as possible of any developments that may exceed certain minimum thresholds. The heritage specialist is required to provide SAHRA and PHRA-G with sufficient information regarding the proposed development in order to determine whether a comprehensive Heritage Impact Assessment (HIA) is required. SAHRA and PHRA-G should respond within 14 days whether or not a HIA is required, and if required should state which specialist studies should be included.

3 NID methodology

3.1 Definitions

Sources of risk to heritage resources can, essentially, be divided into three broad categories, as follows:

- **Direct or primary effects** on heritage resources occur at the same time and in the same space as the activity, e.g. loss of historical fabric through demolition work.
- **Indirect, induced or secondary effects** on heritage resources occur later in time or at a different place from the causal activity, or as a result of a complex pathway, e.g. restriction of access to a heritage resource resulting in the gradual erosion of its significance, which is dependent on ritual patterns of access.
- **Cumulative effects** on heritage resources result from in-combination effects on heritage resources acting with a host of processes that are insignificant when seen in isolation, but which collectively have a significant effect.

(Winter & Bauman 2005: 36)

3.2 Definition of the Study Area

Given that no individual identified heritage resource can exist in isolation to the wider natural, social, cultural and heritage landscape, two concentric study areas were defined for the purposes of this study. Defining these 'zones of influence' had a two-fold purpose:

- First, it provided the context within which identified heritage resources need to be interpreted and understood to determine cultural significance; and
- Second, assessing the significance of impacts on heritage resources corresponding to the three impact categories listed above (An Impact Assessment was not part of the SoW of this study).

The local study area was defined as the affected local municipality. The local study area was specifically examined to provide a historical backdrop within which the proposed development will occur. The local study area is depicted in Figure 3-1.

The site-specific study area was defined as the bounded project area i.e. the farm portions, within which the development will physically intrude through the construction of project infrastructure and project-related activities. The site-specific study area is depicted in Figure 3-2.

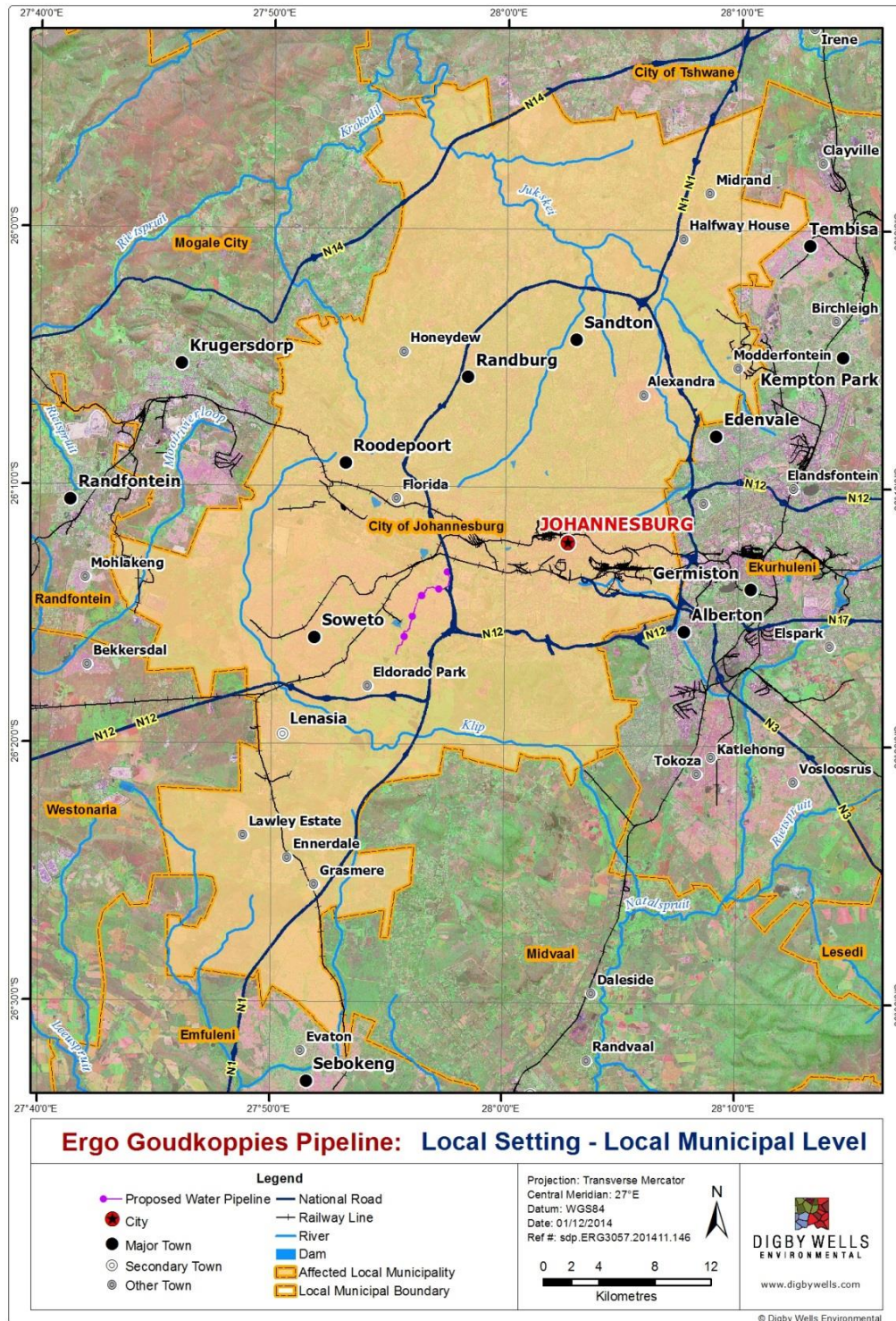


Figure 3-1: Local Study Area of the Goudkoppies Project

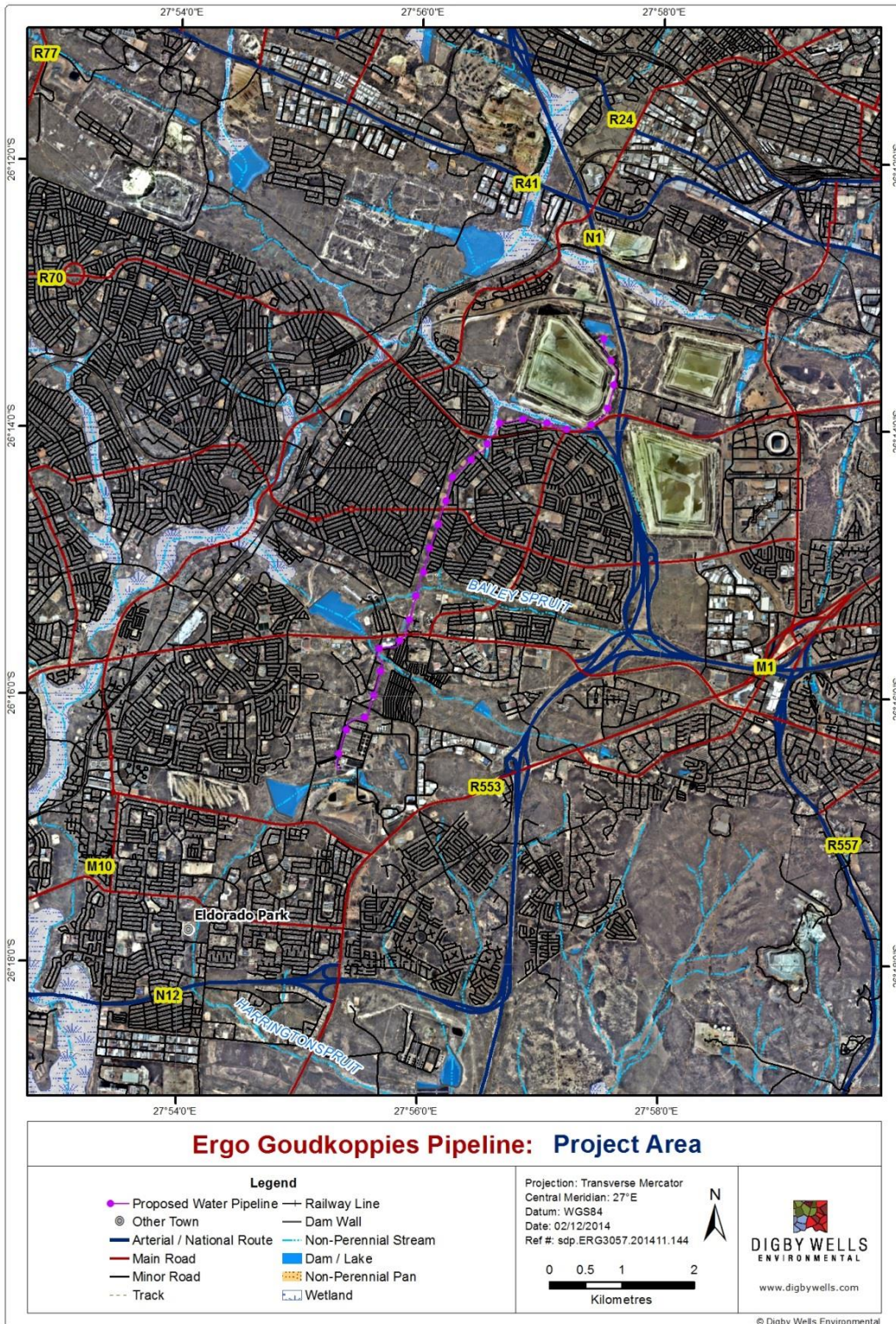


Figure 3-2: Site Specific Study Area of the Goudkoppies Project

3.3 Data Collection

3.3.1 Desktop and Text-Based Data Collection

Data collection was aimed at information gathering relating to known heritage resources within and surrounding the proposed area for development. Information was obtained through a high-level literature review of credible information sources such as previous impact assessments, books, databases and website articles. This will give context to the project area and any identified heritage resources to evaluate potential impacts to the resources. It will also allow for appropriate recommendations for exemption for further assessments.

Sources that were used to inform the findings are fully referenced under section 7 of this report, and are briefly listed in below.

Table 3-1: Relevant reviewed published sources

Author	Source type	Project/area
Huffman & Calabrese, 1997	Archaeological Survey	Diepkloof, Rivasdale and Pimville
Van Schalkwyk, 2003	Heritage Survey	Aerton
Fourie, 2007	Heritage Scoping Report	Misgund 322IQ
Brodie, 2008	Book	Johannesburg
Pato, 2008	Book	Johannesburg
Ndvhoho & Magoma, 2010	Phase HIA	Power Park, Rivasdale and Pimville
Birkholtz, 2011	HIA	Boksburg
Kusel, 2013	Phase 1 HIA	Naturena

3.4 Historical Layering

Historical layering is a process whereby diverse cartographic sources from various time periods are reviewed to identify built structures that may possibly be older than 60 years old with a project area. The rationale behind historical layering is as follows:

- Provides relative dates based on the presence/absence of visible features; and
- Identifies potential locations where heritage resources may exist within an area.

Cartographic sources referred to in this report include are listed in Table 3-2.

Table 3-2: Cartographic sources relevant to the Goudkoppies project

Aerial photographs						
Job no.	Flight plan	Photo no.	Map ref.	Area	Date	Reference
314	006	43620	2627	Johannesburg/Vereeniging	1952	1952/006
	007	44544	2628			1952/007

3.5 Site Naming

Sites that were identified in previous assessment reports are named or numbered according to the systems used in the respective reports but are prefixed with the relevant report or case number and site number, for example **1997-SAHRA-0008/Site 1**.

Where report or case numbers do not exist, the site number is prefixed with report author and site number, for example **Huffman-1997/Site 1**.

Sites identified during baseline research are prefixed by the SAHRIS case number assigned to the Goudkoppies Project followed by the map sheet number; relevant heritage resources type (i.e. Iron Age) and site number. For example: **6854/2627BD/IA/001**

This number may be shortened on any plans or maps to the relevant heritage resources type suffixed with the site number used in that report. For example: **IA/001**

3.6 Constraints and Limitations

The following restrictions and limitations were encountered:

- No site visit was undertaken by the Heritage Specialist. Photographs in the report were supplied by the Aquatic and Biophysical specialists;
- Information contained in the report is limited to desktop studies only;
- No palaeontological assessment was conducted as the project is an area of low palaeontological sensitivity and no deep excavations will occur during the construction phase.

4 Cultural Heritage Baseline Discussion

4.1 Introduction

The results from the information sources reviewed indicated that the majority of the heritage resources located within the local study area are from the historical period (Figure 3-1).

While briefly considering the palaeontological sensitivity of the local study area, the cultural heritage baseline primarily focuses on the historical period.

4.1.1 Palaeontological Baseline

The underlying geology of the Goudkoppies proposed pipeline lies over formations associated with the *Central Rand Group (Turffontein Subgroup)* and the *Ventersdorp Supergroup (Klipriviersberg Group)* (See Figure 4-1). Formations associated with the *Klipriviersberg Group* and the *Turffontein Subgroup* are considered to have low sensitivity and are not considered within this report (SAHRIS, 2014).

According to the Palaeo-Sensitivity Map (PSM) hosted on SAHRIS, the project area is considered to have a low palaeontological sensitivity as shown in Figure 4-2 below. A low palaeontological sensitivity indicates that the underlying geology is not conducive to the presence of palaeontological resources such as fossils.

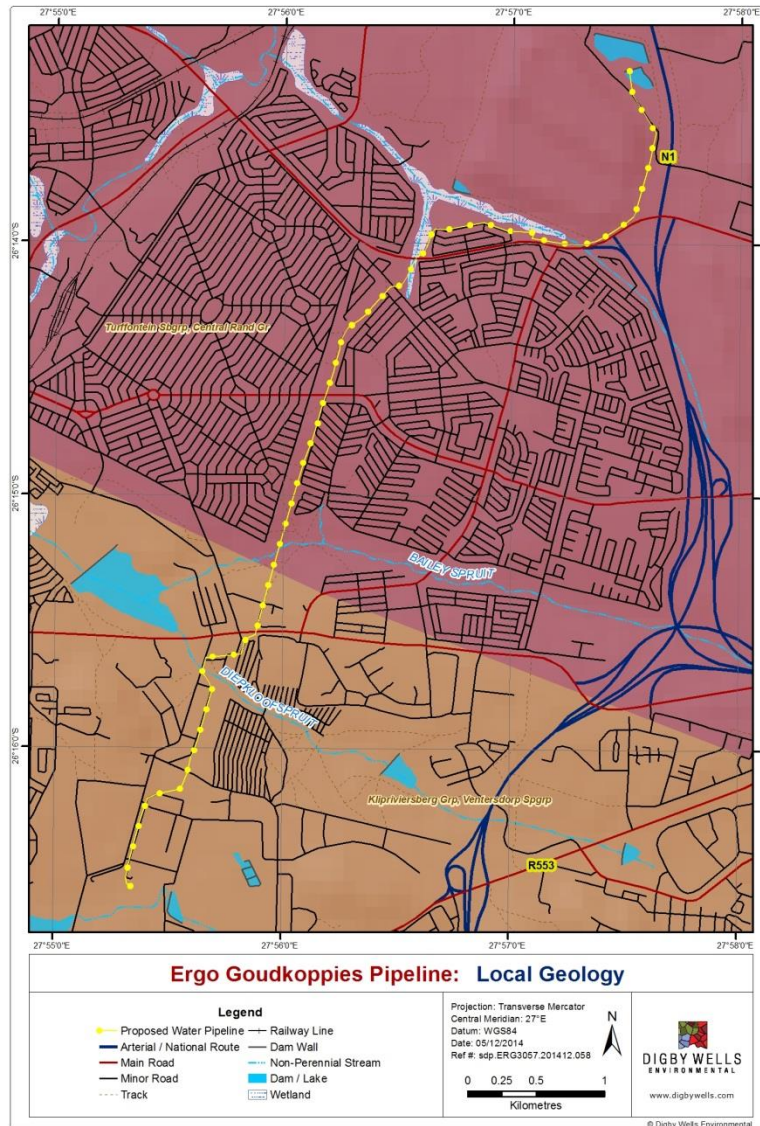


Figure 4-1: Geology of the Goudkoppies Project



Figure 4-2: PalaeoSensitivity of the Goudkoppies Project area

4.1.2 Historical and Recent Period

The project area is situated between the suburbs of Klipspruit, Orlando, Pimville and Diepkloof and the history of these areas are briefly highlighted below.

In 1886 gold was discovered by George Harrison on the farm Langlaagte. Following this discovery, prospecting rights on the portion of Langlaagte where gold was found were granted and the rapid growth of the Witwatersrand began (von Ketelhodt, 2007). Migrant labour from all over the world and the country flocked to Johannesburg in hope of work on the mines. By the mid 1890's, over 100 000 people were living in the city. Black mine workers were forced to live in large compounds where between 20 and 50 men would sleep in a room, huddled in rows. This led to the spread of many infectious diseases (Brodie, 2008).

Following an alleged outbreak of the bubonic plague in the inner city in 1904, black inhabitants were removed from Brickfields to an area next to a sewage dumping site (today known as the suburb Klipspruit) and housed in emergency housing known as *e'Tenki*. The Town Council awarded a sanitation concession that would see the construction of the Klipspruit Sewage Farm in 1908. By 1934, a section of Klipspruit was renamed Pimville after Councillor J H Pim (Pato, 2008).

To the east of Klipspruit, lies the suburb of Orlando (named after the first Chairman of the Native Affairs Commission Councillor E Orlando Leake) which was established in 1930 by the City Council. Orlando has been the site of a number of iconic moments and individuals in South Africa's history, such as the Soweto Uprising on 16 June 1976 (a peaceful turned violent protest against the Bantu Education system) and was the home of the late Nelson Rolihlahla Mandela (Pato, 2008). With the expansion of Johannesburg, came in increasing need for electricity. The Orlando Power Station was built between 1939 and 1955 (Krige, 2010) to address the cities ever growing demand for power. The spray pond of the power

station made use of the effluent from the Klipspruit Sewage Plant for the cooling process (EWISA, n.d). The power station that was built by 1955, was decommissioned in 1998 and has been in a state of neglect ever since. However the cooling towers have become a tourist attraction and media billboard, making it a landmark in the area (South African Tourism, 2014).

To the east of Orlando is the suburb of Diepkloof which was established in 1956 and was inhabited by individuals who were relocated from Johannesburg's Western Suburbs. The historical aerial imagery below (Figure 4-3) shows Diepkloof in 1952 as agricultural plots before the suburb was established. The already well established Orlando is situated to the west of the agricultural fields.

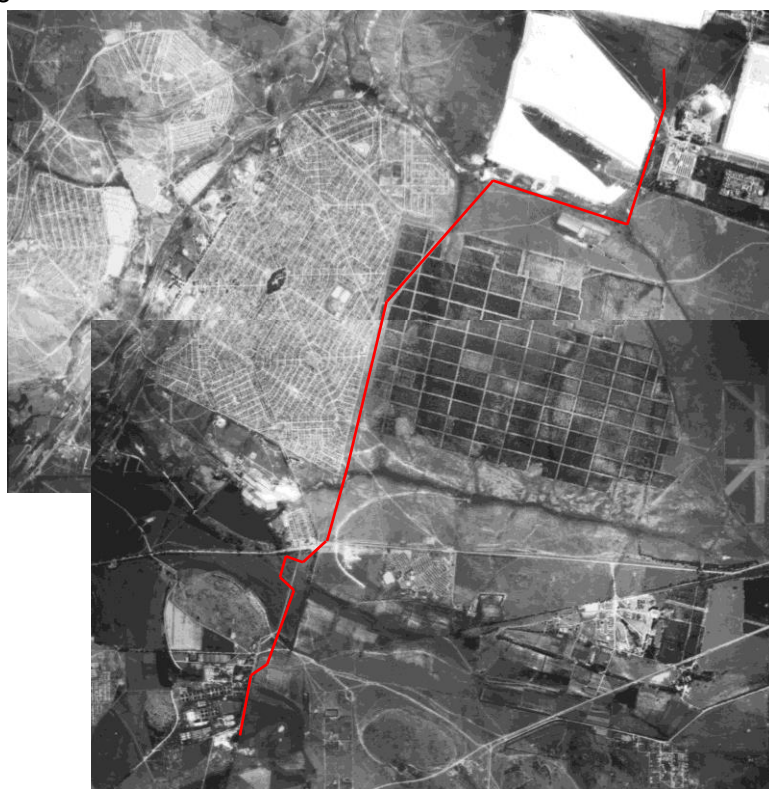


Figure 4-3: Historical aerial imagery of the Goudkoppies Project area in 1952

A total of five heritage reports conducted in the surrounding area were reviewed for the Goudkoppies project. Four of the heritage studies reported no identified heritage sites in their respective project areas (Fourie, 2007; Kusel, 2013; Ndvhoho & Magoma, 2010; Van Schalkwyk, 2003). Two open air churches were identified by Huffman and Calabrese (1997). See Figure 4-4 below for identified sites and Appendix C for the site list.

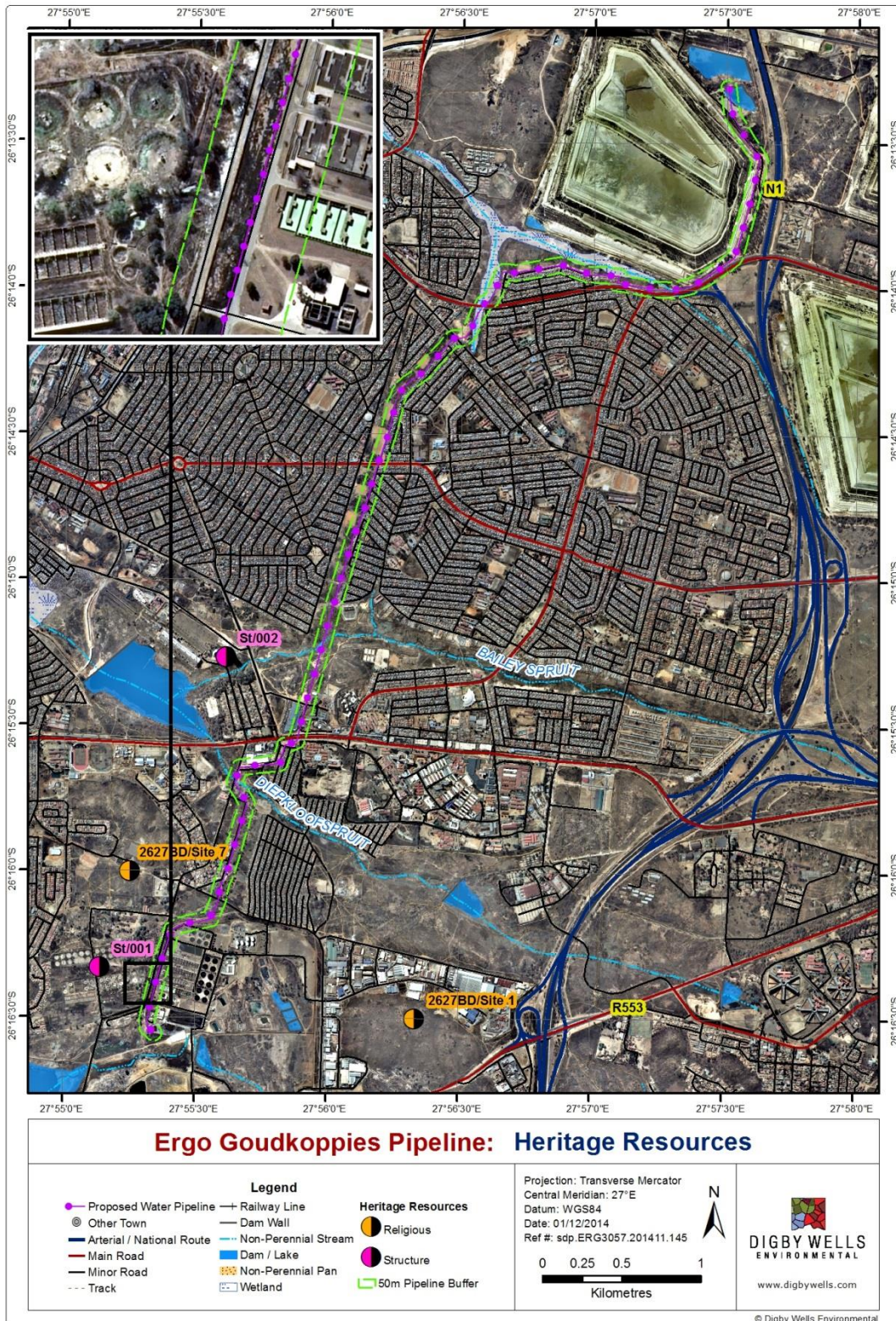


Figure 4-4: Identified Heritage Resources

4.2 Current Conditions of the Project Area

A site visit was conducted by the Aquatics and Biophysical specialists, who surveyed the proposed pipeline route and water crossing points. The pipeline route will be buried within an existing Eskom servitude for the majority of the route and has been heavily disturbed by roads, power lines and dumping (See Figure 4-5 to Figure 4-8).



Figure 4-5: View of the proposed pipeline route between the existing Eskom and road servitude, and the Crown Tailings Facility



Figure 4-6: View of existing pipelines running under a road through a culvert. The proposed pipeline will also run along existing pipeline routes



Figure 4-7: View of Eskom servitude which the proposed pipeline route will follow



Figure 4-8: View of Eskom servitude in which the proposed pipeline will run next to the Orlando Towers

4.3 Discussion Summary

No heritage resources were identified within the proposed pipeline route during the desktop study. As stated in the limitations in section 3.6, no heritage survey was conducted; however the Aquatics and Biophysical specialists who went out to site did not note any heritage resources such as historical structures, graves or open air churches within the proposed pipeline route. Additionally, no built structures are located within the pipeline route as it is a registered Eskom servitude. The Eskom servitude is 100 m in width and already acts as buffer for any built structure on either side of the servitude. The local study area can be characterised as a Struggle era landscape and has been developed over the years to a degree that the positive identification of *in situ* heritage is decreased significantly.

Heritage resources are located in the areas surrounding the proposed pipeline route; however they will not be impacted on by the proposed development.

The geology of the project area is not conducive to the presence of fossils and the pipeline will only be buried at a depth of no more than 3 m and will not affect the bedrock.

The Klipspruit Sewage farm is older than 60 years and is under general protection in terms of section 34 of the NHRA and any changes to these structures will require a permit under section 34. The proposed pipeline will run adjacent to the Klipspruit Sewage farm from the current Goudkoppies WWTW at a distance of 65 m. An arbitrary 50 m buffer was placed on either side of the pipeline, as depicted in the zoom insert in Figure 4-4. The pipeline will be constructed beneath the existing Eskom servitude and between two roads that already serve as buffer, therefore the Klipspruit Sewage farm will not be directly impacted on by the proposed pipeline.

The Crown Tailings Facility in the far north of the historical photograph (Figure 4-3) are well over 60 years old as they are already very well established in 1952. They are protected under section 34 of the NHRA and any changes to these structures will require a permit under section 34. However, the pipeline and 50 m buffer will run on the outside of the tailings facility and will not directly impact them as shown in Figure 4-4.

The Orlando Power Station and cooling towers are protected under section 34 of the NHRA, and any changes to the structures will require a permit in terms of section 34 of the NHRA. However the proposed pipeline route and 50 m buffer will not directly impact the towers as depicted in Figure 4-4.

The two open air churches identified by a previous HIA are defined as places associated with oral traditions or living heritage (section 2 (b) of the NHRA) and must be protected. However, they are located over 300 m from the proposed pipeline and will not be directly impacted on as shown in Figure 4-4.

5 Sources of Risk

Sources of risk were determined considering the project activities that may impact on identified heritage resources (See Table 5-1).

Table 5-1: Identified sources of risk

Identified Project Activity	Description	Development as defined in NHRA	Sources of risk to heritage resources	Project Phase
GN 544, 9 (i)	The construction of facilities or infrastructure exceeding 1000 metres in length for the bulk transportation of water with an internal diameter of 0,36 metres or more. The envisaged 0.5 m diameter pipeline be constructed over a distance of approximately 6000 m.	This activity constitutes development as defined in terms of NHRA Section (s) 2(viii) (a) construction, alteration, demolition, removal or change of use of a place or a structure at a place.	There are no sources of risk to identified heritage resources as they are not located within the proposed pipeline route.	n/a
GN 544, 11 (xi)	The construction of infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse. The pipeline will cross one or more watercourses by way of a bridging structure to carry the pipeline.	This activity constitutes development as defined in terms of NHRA Section (s) 2(viii) (a) construction, alteration, demolition, removal or change of use of a place or a structure at a place.	There are no sources of risk to identified heritage resources as they are not located within the proposed pipeline route.	n/a
GN 544, 18 (i)	The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from a watercourse. Certain portions of the pipeline may be buried underneath a water course.	This activity constitutes development as defined in terms of NHRA s. 2 (viii) (e) and (f) any change to the natural or existing condition or topography of land; and any removal or destruction of trees, or removal of vegetation or topsoil.	There are no sources of risk to identified heritage resources as they are not located within the proposed pipeline route.	n/a

5.1 Direct Impacts

Activities undertaken during the construction phase of the project have the greatest likelihood of resulting in direct impacts on heritage resources. Project activities associated with GN 544 9(i), 11(xi) and 18(i) (as described in Table 5-1) will result in site clearing and earthworks that could potentially alter, i.e. damage or destroy sub-surface or unidentified heritage resources.

Heritage resources identified during this study however are not located within the proposed pipeline routing and should not be directly impacted upon by the project related activities. While the Klipspruit Sewage farm is in close proximity, approximately 65 m from the pipeline, the pipeline will be buried below the Eskom servitude and between two roads which act as a buffer, and should therefore not be directly impacted on during site clearance.

5.2 Induced Impacts

Induced and/or secondary impacts on heritage resources are commonly associated with the operational phase of the project. Subsequent to the construction of the pipeline, the potential for secondary impacts from leaks or ruptures increases. This impact could potentially affect heritage resources that are located outside of the current impact footprint.

5.3 Cumulative Impacts

The installation of the proposed pipeline will add to the industrial landscape. This region is intrinsically linked to the history of Johannesburg and the political struggle of South Africa. The increase of an industrial landscape will erode at the sense of place of the area. This could potentially result in the gradual diminishing of the cultural significance of the region.

6 Conclusion and Recommendations

The surrounding area in which the proposed pipeline is situated is associated with the history of the early development of Johannesburg and the Apartheid Struggle. However the specific route that the proposed pipeline will follow will not directly impact any places or structures associated with these phases of history. Additionally, the sense of place of the surrounding areas will not be impacted as the proposed pipeline will be situated within already established servitudes.

The project activities will be restricted to the pipeline route within the existing Eskom servitude, and will not impact any of the identified heritage resources located outside of the proposed pipeline route. No heritage resources were identified within the proposed pipeline route or within 50 m on either side of the route. Based on the results and findings as discussed above, the likelihood of any heritage and/or palaeontological resources occurring in and near the proposed Goudkoppies Project is low.

Consequently, no sources of risk or impacts were identified for known heritage resources as they are located outside from the proposed pipeline route and 50 m buffer. However, potential sources of risks were identified such as accidental damage and/or destruction to sub-surface and/or unidentified heritage resources within the pipeline route.

Digby Wells thus requests a Letter of Exemption from any further heritage assessments with regard to the Goudkoppies Project be issued to Ergo. The project area is highly disturbed, therefore there is a low potential for the discovery of in situ archaeological or heritage remains. The pipeline will be buried no more than 3 m below the surface, therefore there will be a low potential for the bedrock to be impacted on, considering the geology of the area is of low palaeontological sensitivity.

Exemption should be considered for archaeological, palaeontological and built environment studies, as well as burial grounds and graves with the following conditions:

- The proposed pipeline route must maintain a minimum of 50 m buffer from any identified heritage such as the Orlando Power Station and Klipspruit Sewage farm; and
- Chance Finds Procedures (CFP's) must be compiled and implemented as part of the Environmental Management Plan (EMP) that in turn should include a register of applicable permits and Heritage authorisations that may be required in the event that any heritage resources protected in terms of ss. 27, 28, 29, 34, 35, 36 and 37 of the NHRA are impacted on

7 References

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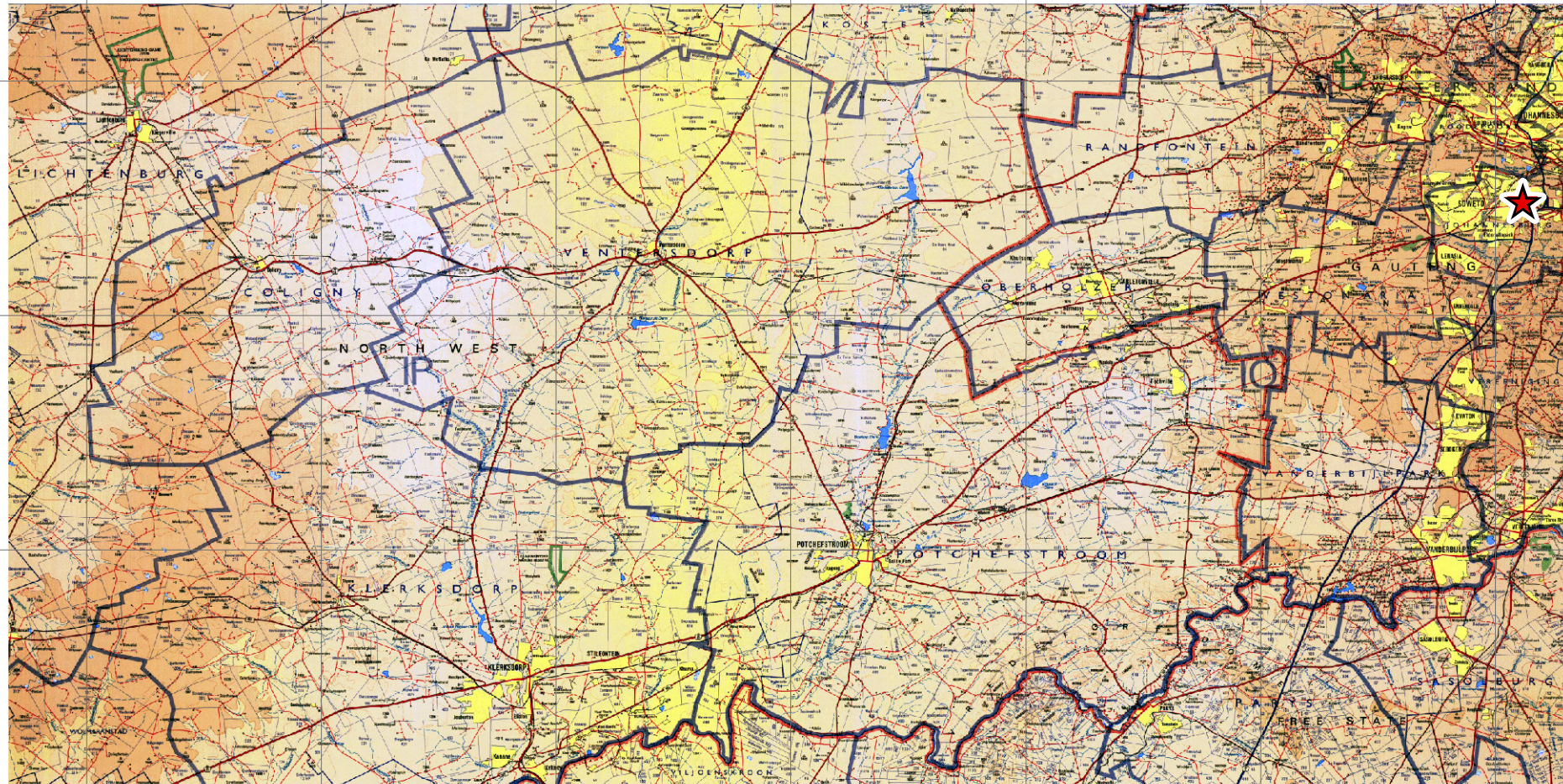
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Appendix A: Plans

Ergo Goudkoppies Pipeline: Regional Setting 1:250 000

Legend

★ Project Area



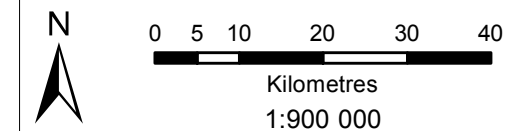
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Projection: Transverse Mercator Ref #: sdp.ERG2613.201412.004
Datum: WGS84 Revision Number: 1
Central Meridian: 27°E Date: 01/12/2014



Ergo Goudkoppies Pipeline: Regional Setting 1:50 000

Legend

 Proposed Water Pipeline

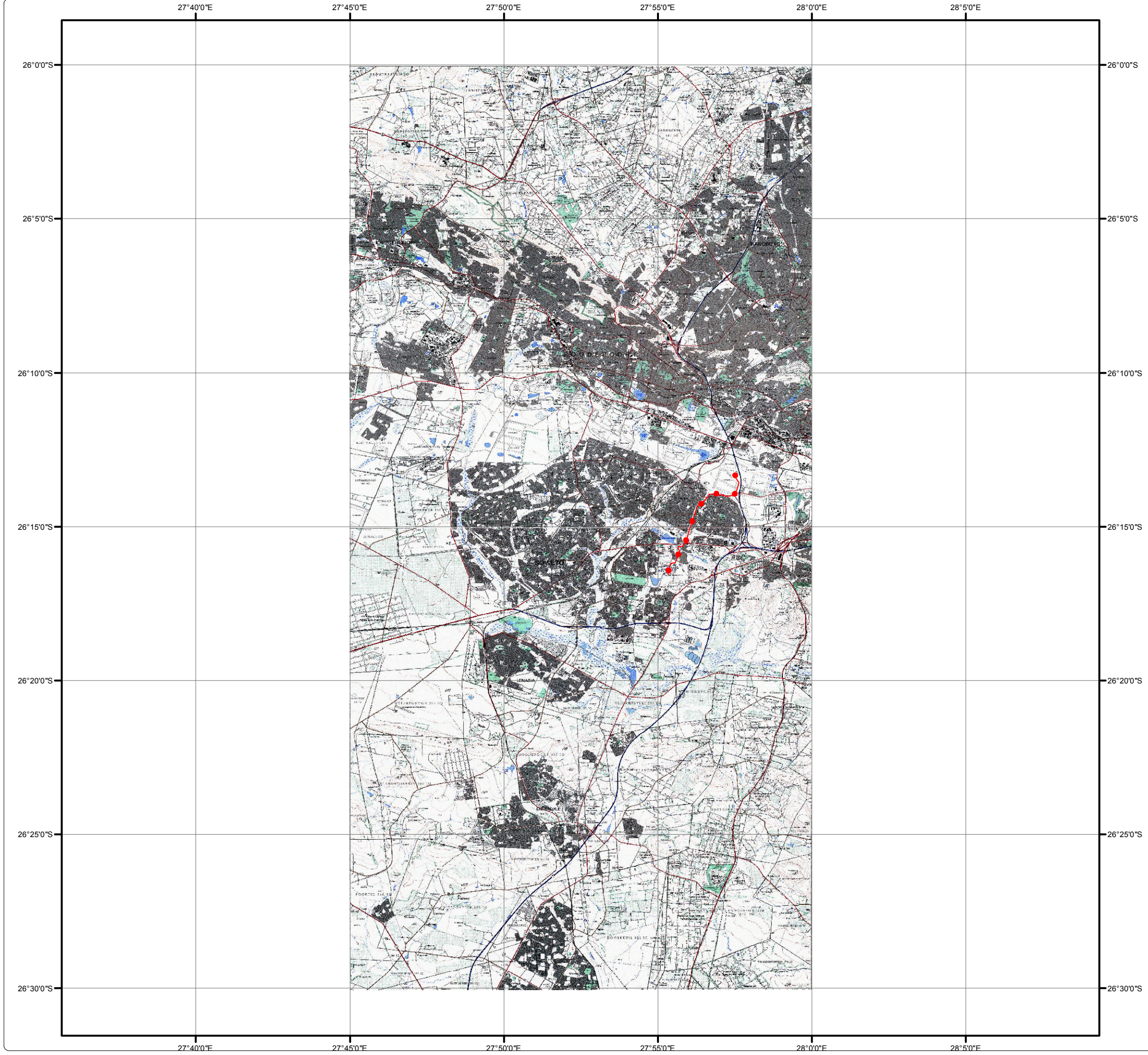
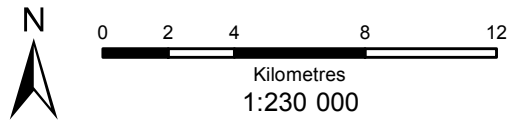
**2627BB Roodepoort
2627BD Lenasia**



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Projection: Transverse Mercator Ref #: pks.ERG2613.201401.070
Datum: WGS 1984 Revision Number: 1
Central Meridian: 27°E Date: 15/01/2014



Ergo Goudkoppies Pipeline: Regional Setting 1: 10 000

Legend

—●— Proposed Water Pipeline

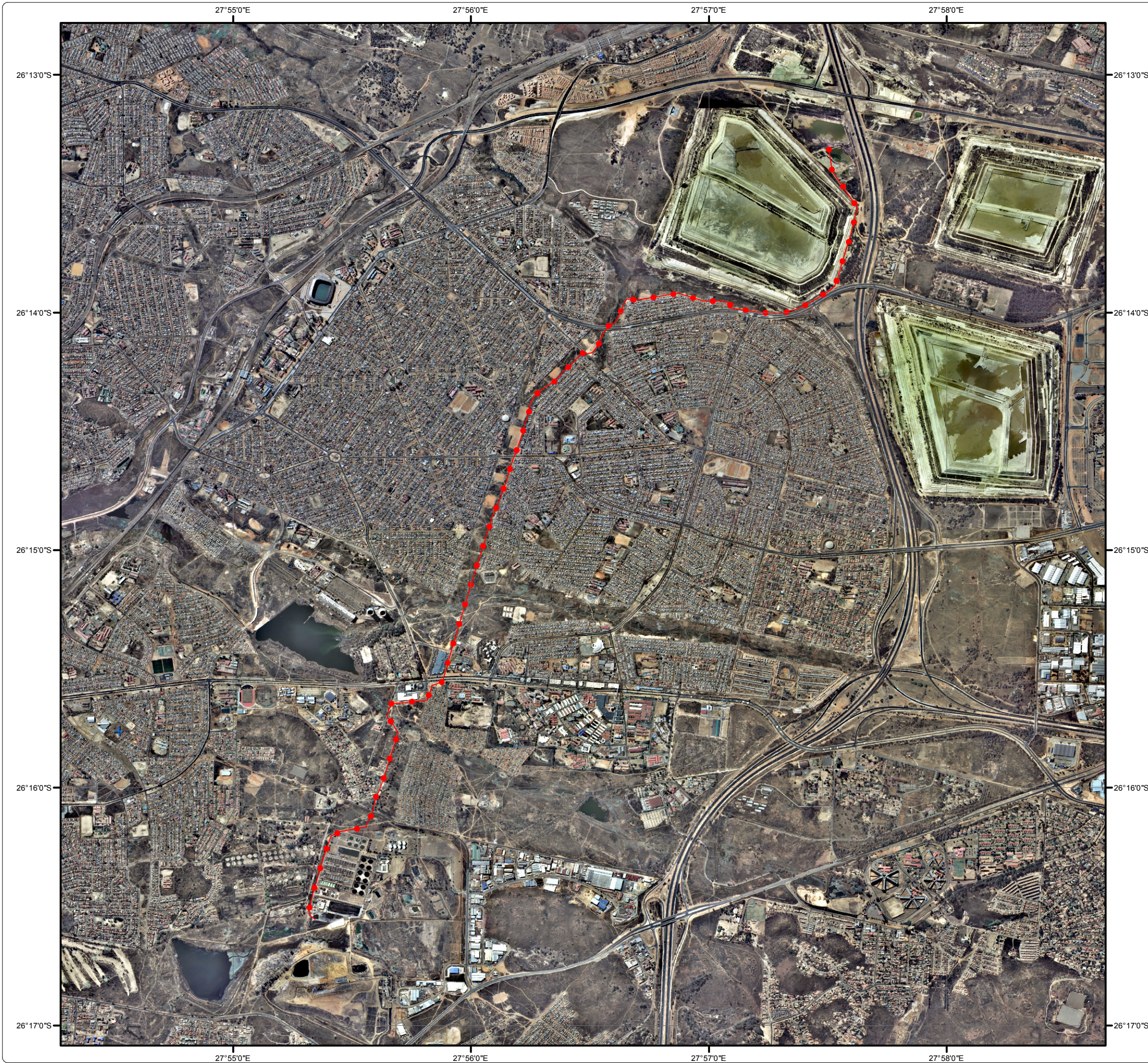
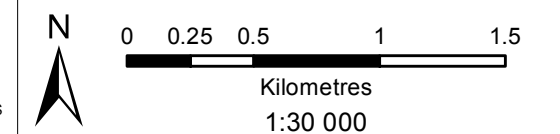
2627BD
2627BB



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Projection: Transverse Mercator Ref #: sdp.ERG2613.201412.006
Datum: WGS84 Revision Number: 1
Central Meridian: 27°E Date: 01/12/2014



Appendix B: CV of Specialist



DIGBY WELLS
ENVIRONMENTAL

NATASHA HIGGITT

Ms Natasha Higgitt
Assistant Heritage Consultant
Social Department
Digby Wells Environmental

1 EDUCATION

- University of Pretoria
- BA Degree (2008)
- Archaeology Honours (2010)
- Title of Dissertation- Pass the Salt: An Archaeological analysis of lithics and ceramics from Salt Pan Ledge, Soutpansberg, for evidence of salt working and interaction.

2 LANGUAGE SKILLS

- English - Excellent (read, write and speak)
- Afrikaans - Fair (read, write and speak)
- Italian – Poor (Speaking only)

3 EMPLOYMENT

- July 2011 to Present: Assistant Heritage Consultant at Digby Wells Environmental
- April 2011 to June 2011: Lab assistant at the Albany Museum Archaeology Department, Grahamstown, Eastern Cape
- April 2010 to March 2011: Intern at the Archaeology Department, Albany Museum, Grahamstown, Eastern Cape under the Department of Sports, Recreation, Arts and Culture, Eastern Cape Government, South Africa (DSRAC)

4 FIELD EXPERIENCE

- Human remains rescue excavation at St Francis Bay, Eastern Cape
- Human remains rescue excavation at Wolwefontein, Eastern Cape
- Recorded two rock art sites at Blaauwbosch Private Game Reserve, Eastern Cape

- Attended a 2 week excavation/study tour in the Friuli Region in Italy, organised by the *Società Friulana di Archeologia*, sponsored by *Ente Friuli nel Mondo*, and excavated a 12th century medieval castle
- Attended a 2 week excavation in Limpopo, Waterpoort Archaeological Project organised by Xander Antonites (Yale PhD Candidate)
- A total of 5 University of Pretoria Archaeology field schools in Limpopo and Gauteng spanning over 4 years

5 PROJECT EXPERIENCE

- Notification of Intent to Develop for the Doornkloof Flood Remedial Measures Project, Centurion, Gauteng Province for Iliso Consulting (Pty) Ltd (Digby Wells Environmental)
- Notification of Intent to Develop for the Oakleaf Open Cast Coal Mine, Bronkhorstspuit, Gauteng Province for Oakleaf Resources (Digby Wells Environmental)
- Notification of Intent to Develop for the Rietfontein 101IS Prospecting Project for Rustenburg Platinum (Digby Wells Environmental)
- Heritage Impact Assessment for the Weltevreden Open Cast Coal Mine, Belfast, Mpumalanga for Northern Coal (Pty) Ltd (Digby Wells Environmental)
- Notification of Intent to Develop for the Grootegeluk Expansion Project, Lephalale, Limpopo Province for Exxaro Resources (Pty) Ltd (Digby Wells Environmental)
- Notification of Intent to Develop and Heritage Statement for the London Road Petrol Station, Alexandria, Gauteng for ERM Southern Africa (Pty) Ltd (Digby Wells Environmental)
- Heritage Impact Assessment for the Roodepoort Strengthening Project, Roodepoort, Gauteng for Fourth Element (Digby Wells Environmental)
- Heritage Statement for the Stoffel Park Bridge Upgrade, Mamelodi, Gauteng for Iliso Consulting (Pty) Ltd (Digby Wells Environmental)
- Heritage Statement for the Witrand Prospecting EMP, Bethal, Mpumalanga for Rustenburg Platinum (Digby Wells Environmental)
- Heritage Statement for the Onverwacht Prospecting EMP, Kinross, Mpumalanga for Rustenburg Platinum (Digby Wells Environmental)
- Heritage Statement for a Proposed Acetylene Gas Production Facility, located near Witkopdorp, Daleside, south of Johannesburg, Gauteng Province for Erm Southern Africa (Pty) Ltd (Digby Wells Environmental)
- Heritage Impact Assessment for the Platreef Platinum Project, Mokopane, Limpopo for Platreef Resources (Digby Wells Environmental)
- Heritage Statement for ATCOM and Tweefontein Dragline Relocation Project, near Witbank, Mpumalanga Province for Jones and Wagner Consulting Civil Engineers (Digby Wells Environmental)



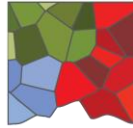
- Heritage Statement Report for the Wilgespruit Bridge Upgrade, Pretoria, Gauteng Province for Iliso Consulting (Pty) Ltd (Digby Wells Environmental)
- Heritage Statement Report for the Kosmosdal sewer pipe bridge upgrade, Pretoria, Gauteng Province for Iliso Consulting (Pty) Ltd (Digby Wells Environmental)
- Phase 1 Heritage Impact Assessment for the Thabametsi Coal Mine, Lephalale, Limpopo for Exxaro Coal (Digby Wells Environmental)
- Heritage Statement for the Zandbaken Coal Mine Project, Zandbaken 585 IR, Sandbaken 363 IR and Bosmans Spruit 364 IS, Standerton, Mpumalanga for Xtrata Coal South Africa (Digby Wells Environmental)
- Phase 1 Heritage Impact Assessment for the Brakfontein Thermal Coal Mine, Mpumalanga for Universal Coal (Digby Wells Environmental)
- Development of a RAP for Aureus Mining for the New Liberty Gold Mine Project, Liberia (Digby Wells Environmental)
- Phase 1 Archaeological Impact Assessment for the MBET Pipeline, Steenbokpan, Limpopo (Digby Wells Environmental)
- Notice of Intent to Develop and Cultural Resources Pre-Assessment for Orlight SA (PTY) Ltd Solar PV Project. 2012. (Digby Wells Environmental)
- Agricultural Survey for Platreef ESIA, Mokopane, Limpopo. 2011. (Digby Wells Environmental)
- Cultural Resources Pre-Assessment for the Proposed Sylvania Everest North Mining Development in Mpumalanga, near Lydenburg. 2011. (Digby Wells Environmental)
- Phase 2 Mitigation of Archaeological sites at Boikarabelo Coal Mine, Steenbokpan, Limpopo. 2011. (Digby Wells Environmental)
- Cultural Resources Pre-Assessment for Proposed Platinum Mine Prospecting in Mpumalanga, near Bethal for Anglo Platinum. 2011. (Digby Wells Environmental)
- Cultural Resources Pre-Assessment for proposed Platinum Mine at Mokopane, Limpopo for Ivanhoe Platinum. 2011. (Digby Wells Environmental)
- Phase 1 AIA Mixed-use housing Development, Kwanobuhle, Extension 11, Uitenhage, Eastern Cape. 2011.
- Phase 1 AIA Centane to Qholora and Kei River mouth road upgrade survey, Mquma Municipality, Eastern Cape. 2011. (SRK Consulting)
- Phase 1 AIA Clidet Data Cable survey, Western Cape, Northern Cape, Free State and Eastern Cape. 2011. (SRK Consulting)
- Phase 1 AIA Karoo Renewable Energy Facility, Victoria West, Northern Cape. 2011. (Savannah Environmental)
- Phase 1 AIA Windfarm survey in Hamburg, Eastern Cape. 2010. (Savannah Environmental)



- Phase 1 AIA Windfarm survey in Molteno, Eastern Cape. 2010. (Savannah Environmental)
- Phase 1 AIA Housing Development at Motherwell, P.E. 2010. (SRK Consulting)
- Phase 1 AIA Sand quarry survey in Paterson, Eastern Cape. 2010. (SRK Consulting)
- Phase 1 AIA Quarry Survey at Victoria West. 2010. (Acer [Africa] Environmental Management Consultants)
- Phase 1 AIA Quarry Survey at Port Elizabeth. 2010. (E.P Brickfields)

6 PROFESSIONAL AFFILIATIONS

- Association of Southern African Professional Archaeologists (ASAPA): Professional member
- Association of Southern African Professional Archaeologists (ASAPA): CRM Practitioner (Field Supervisor: Stone Age, Iron Age and Rock Art)
- South African Museums Association (SAMA): Member



DIGBY WELLS

ENVIRONMENTAL

Mr. Justin du Piesanie
Heritage Management Consultant: Archaeologist
Social Sciences Department
Digby Wells Environmental

1 Education

Date	Degree(s) or Diploma(s) obtained	Institution
2013	Continued Professional Development Programme, Architectural and Urban Conservation: Researching and Assessing Local Environments	University of Cape Town
2008	MSc	University of the Witwatersrand
2005	BA (Honours) (Archaeology)	University of the Witwatersrand
2004	BA	University of the Witwatersrand
2001	Matric	Norkem Park High School

2 Language Skills

Language	Written	Spoken
English	Excellent	Excellent
Afrikaans	Proficient	Good

3 Employment

Period	Company	Title/position
08/2011 to present	Digby Wells Environmental	Heritage Management Consultant: Archaeologist

Digby Wells and Associates (South Africa) (Pty) Ltd (Subsidiary of Digby Wells & Associates (Pty) Ltd). Co. Reg. No. 2010/008577/07. Fern Isle, Section 10, 359 Pretoria Ave Randburg Private Bag X10046, Randburg, 2125, South Africa
Tel: +27 11 789 9495, Fax: +27 11 789 9498, info@digbywells.com, www.digbywells.com

Directors: A Sing*, AR Wilke, DJ Otto, GB Beringer, LF Koeslag, AJ Reynolds (Chairman) (British)*, J Leaver*, GE Trusler (C.E.O)
*Non-Executive

Period	Company	Title/position
2009-2011	University of the Witwatersrand	Archaeology Collections Manager
2009-2011	Independent	Archaeologist
2006-2007	Maropeng & Sterkfontein Caves UNESCO World Heritage Site	Tour guide

4 Professional Affiliations

Position	Professional Body	Registration Number
Member	Association for Southern African Professional Archaeologists (ASAPA); ASAPA Cultural Resources Management (CRM) section	270
Member	International Council on Monuments and Sites (ICOMOS)	14274
Member	Society for Africanist Archaeologists (SAfA)	N/A

5 Publications

- Huffman, T.N. & du Piesanie, J.J. 2011. Khami and the Venda in the Mapungubwe Landscape. *Journal of African Archaeology* 9(2): 189-206

6 Experience

I have 5 years experiences in the field of heritage resources management (HRM) including archaeological and heritage assessments, grave relocation, social consultation and mitigation of archaeological sites. During my studies I was involved in academic research projects associated with the Stone Age, Iron Age, and Rock Art. These are summarised below:

- Wits Fieldschool - Excavation at Meyersdal, Klipriviersberg Johannesburg (Late Iron Age Settlement).
- Wits Fieldschool - Phase 1 Survey of Prentjiesberg in Ugie / Maclear area, Eastern Cape.
- Wits Fieldschool – Excavation at Kudu Kopje, Mapungubwe National Park Limpopo Province.

- Wits Fieldschool – Excavation of Weipe 508 (2229 AB 508) on farm Weipe, Limpopo Province.
- Survey at Meyerdal, Klipriviersberg Johannesburg.
- Mapping of Rock Art Engravings at Klipbak 1 & 2, Kalahari.
- Survey at Sonop Mines, Windsorton Northern Cape (Vaal Archaeological Research Unit).
- Excavation of Kudu Kopje, Mapungubwe National Park Limpopo Province.
- Excavation of KK (2229 AD 110), VK (2229 AD 109), VK2 (2229 AD 108) & Weipe 508 (2229 AB 508) (Origins of Mapungubwe Project)
- Phase 1 Survey of farms Venetia, Hamilton, Den Staat and Little Muck, Limpopo Province (Origins of Mapungubwe Project)
- Excavation of Canteen Kopje Stone Age site, Barkley West, Northern Cape
- Excavation of Khami Period site AB32 (2229 AB 32), Den Staat Farm, Limpopo Province

Since 2011 I have been actively involved in environmental management throughout Africa, focusing on heritage assessments in compliance with International Finance Corporation (IFC) Performance Standards and other World Bank Standards and Equator Principles. This exposure to environmental, and specifically heritage management has allowed me to work to international best practice standards in accordance with international conservation bodies such as UNESCO and ICOMOS. In addition, I have also been involved in the collection of quantitative data for a Relocation Action Plan (RAP) in Burkina Faso. The exposure to this aspect of environmental management has afforded me the opportunity to understand the significance of integration of various studies in the assessment of heritage resources and recommendations for feasible mitigation measures. I have worked throughout South Africa, as well as Burkina Faso, the Democratic Republic of Congo, Liberia and Mali.

7 Project Experience

Please see the following table for relevant project experience:



Project Title	Project Location	Date:	Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (man months)	Name of Client	Contract Outcomes	Reference
Klipriviersberg Archaeological Survey	Meyersdal, Gauteng, South Africa	2005 2006	Survey of residential development in Meyersdal. This included the recording of identified stone walled settlements through detailed mapping and photographs. Included was the Phase 2 Mitigation of two stone walled settlements	Archaeological Impact Assessments	Researcher, Archaeological Assistant	2 months		Completed survey, excavations and reporting	Archaeological Resource Management (ARM) Prof T.N. Huffman thomas.huffman@wits.ac.za
Sun City Archaeological Site Mapping	Sun City, Pilanesberg, North West Province, South Africa	2006 2006	Recording of an identified Late Iron Age stonewalled settlement through detailed mapping	Mapping	Archaeological Assistant, Mapper	1 month	Sun City	Completed mapping	Archaeological Resources Management (ARM) Prof T.N. Huffman thomas.huffman@wits.ac.za
Witbank Dam Archaeological Impact Assessment	Witbank, Mpumalanga, South Africa	2007 2007	Archaeological survey for proposed residential development at the Witbank dam	Archaeological Impact Assessment	Archaeological Assistant	1 week		Completed Archaeological Impact Assessment report	Archaeological Resources Management (ARM) Prof T.N. Huffman thomas.huffman@wits.ac.za
Archaeological Assessment of Modderfontein AH Holdings	Johannesburg, Gauteng, South Africa	2008 2008	Archaeological survey and basic assessment of Modderfontein Holdings	Archaeological Impact Assessment	Archaeologist	1 month		Completed the assessment of 13 properties	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com
Heritage Assessment of Rhino Mines	Thabazimbi, Limpopo Province, South Africa	2008 2008	Heritage Assessment for expansion of mining area at Rhino Mines	Heritage Impact Assessment	Archaeologist	2 weeks	Rhino Mines	Completed the assessment	Archaeological Resources Management (ARM) Prof T.N. Huffman thomas.huffman@wits.ac.za
Cronimet Project	Thabazimbi, Limpopo Province, South Africa	2008 2008	Archaeological survey of Moddergat 389 KQ, Schilpadnest 385 KQ, and Swartkop 369 KQ,	Archaeological Impact Assessment	Archaeologist	1 weeks	Cronimet	Completed field survey and reporting	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com



Eskom Thohoyandou SEA Project	Limpopo Province, South Africa	2008 2008	Heritage Statement defining the cultural landscape of the Limpopo Province to assist in establishing sensitive receptors for the Eskom Thohoyandou SEA Project	Heritage Statement	Archaeologist	2 months	Eskom	Completed Heritage Statement	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com
Wenzelrust Excavations	Shoshanguve, Gauteng, South Africa	2009 2009	Contracted by the Heritage Contracts Unit to help facilitate the Phase 2 excavations of a Late Iron Age / historical site identified in Shoshanguve	Excavation and Mapping	Archaeologist	1 week	Heritage Contracts Unit	Completed excavations	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com
University of the Witwatersrand Parys LIA Shelter Project	Parys, Free State, South Africa	2009 2009	Mapping of a Late Iron Age rock shelter being studied by the Archaeology Department of the University of the Witwatersrand	Mapping	Archaeologist	1 day	University of the Witwatersrand	Completed mapping of the shelter	University of the Witwatersrand Karim Sadr karim.sadr@wits.ac.za
Transnet NMPP Line	Kwa-Zulu Natal, South Africa	2010 2010	Heritage Survey of the Anglo-Boer War Vaalkrans Battlefield where the servitude of the NMP pipeline	Heritage Impact Assessment	Archaeologist	1 week	Umlando Consultants	Completed survey	Umlando Consultants Gavin Anderson umlando@gmail.com
Archaeological Impact Assessment – Witpoortjie Project	Johannesburg, Gauteng, South Africa	2010 2010	Heritage survey of Witpoortjie 254 IQ, Mindale Ext 7 and Nooitgedacht 534 IQ for residential development project	Archaeological Impact Assessment	Archaeologist	1 week	ARM	Completed survey for the AIA	Archaeological Resources Management (ARM) Prof T.N. Huffman thomas.huffman@wits.ac.za
Der Brochen Archaeological Excavations	Steelpoort, Mpumalanga, South Africa	2010 2010	Phase 2 archaeological excavations of Late Iron Age Site	Archaeological Excavation	Archaeologist	2 weeks	Heritage Contracts Unit	Completed excavations	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com
De Brochen and Booyensdal Archaeology Project	Steelpoort, Mpumalanga, South Africa	2010 2010	Mapping of archaeological sites 23, 26, 27, 28a & b on the Anglo Platinum Mines De Brochen and Booyensdal	Mapping	Archaeologist	1 week	Heritage Contracts Unit	Completed Mapping	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com



Eskom Thohoyandou Electricity Master Network	Limpopo Province, South Africa	2010 2010	Desktop study to identify heritage sensitivity of the Limpopo Province	Desktop Study	Archaeologist	1 Month	Strategic Environmental Focus	Completed Report	Strategic Environmental Focus (SEF) Vici Napier vici@sefsa.co.za
Bathhako Mine Expansion	North-West Province, South Africa	2010 2010	Mapping of historical sites located within the Bathhako Mine Expansion Area	Mapping	Archaeologist	1 week	Heritage Contracts Unit	Completed Mapping	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com
Kibali Gold Project Grave Relocation Plan	Oriental Province, Democratic Republic of Congo	2011 2013	Implementation of the Grave Relocation Project for the Randgold Kibali Gold Project	Grave Relocation	Archaeologist	2 years	Randgold Resources	Successful relocation of approximately 3000 graves	Kibali Gold Mine Cyrille Mutombo Cyrille.c.mutombo@kibaligold.com
Kibali Gold Hydro-Power Project	Oriental Province, Democratic Republic of Congo	2012 2014	Assessment of 7 proposed hydro-power stations along the Kibali River	Heritage Impact Assessment	Heritage Consultant	2 years	Randgold Resources	Completed Heritage Impact Assessment	Randgold Resources Charles Wells Charles.wells@randgoldresources.com
Everest North Mining Project	Steelpoort, Mpumalanga, South Africa	2012 2012	Heritage Impact Assessment on the farm Vygenhoek	Heritage Impact Assessment	Heritage Consultant	6 months	Aquarius Resources	Completed Heritage Impact Assessment	Aquarius Resources
Environmental Authorisation for the Gold One Geluksdal TSF and Pipeline	Gauteng, South Africa	2012 2012	Heritage impact Assessment for the proposed TSF and Pipeline of Geluksdal Mine	Heritage Impact Assessment	Heritage Consultant	4 months	Gold One International	Completed Heritage Impact Assessment	Gold One International
Platreef Burial Grounds and Graves Survey	Mokopane, Limpopo Province, South Africa	2012 2012	Survey for Burial Grounds and Graves	Burial Grounds and Graves Management Plan	Heritage Consultant	4 months	Platreef Resources	Project closed by client due to safety risks	Platreef Resources Gerick Mouton
Resgen Boikarabelo Coal Mine	Limpopo Province, South Africa	2012 2012	Archaeological Excavation of identified sites	Archaeological Excavation	Heritage Consultant	4 months	Resources Generation	Completed excavation and reporting, destruction permits approved	Resources Generation Louise Nicolai
Bokoni Platinum Road Watching Brief	Burgersfort, Limpopo Province, South Africa	2012 2012	Watching brief for construction of new road	Watching Brief	Heritage Consultant	1 week	Bokoni Platinum Mine	Completed watching brief, reviewed report	Bokoni Platinum Mines (Pty) Ltd



SEGA Gold Mining Project	Burkina Faso	2012 2013	Socio Economic and Asset Survey	RAP	Social Consultant	3 months	Cluff Gold PLC	Completed field survey and data collection	Cluff Gold PLC
SEGA Gold Mining Project	Burkina Faso	2013 2013	Specialist Review of Heritage Impact Assessment	Reviewer	Heritage Consultant	1 week	Cluff Gold PLC	Reviewed specialist report and made appropriate recommendations	Cluff Gold PLC
Consbrey and Harwar Collieries Project	Breyton, Mpumalanga, South Africa	2013 2013	Heritage Impact Assessment for the proposed Consbrey and Harwar Collieries	Heritage Impact Assessment	Heritage Consultant	2 months	Msobo	Completed Heritage Impact Assessments	Msobo
New Liberty Gold Project	Liberia	2013 2014	Implementation of the Grave Relocation Project for the New Liberty Gold Project	Grave Relocation	Heritage Consultant	On-going	Aureus Mining	Project is on-going	Aureus Mining
Falea Uranium Mine Environmental Assessment	Falea, Mali	2013 2013	Heritage Scoping for the proposed Falea Uranium Mine	Heritage Scoping	Heritage Consultant	2 months	Rockgate Capital	Completed scoping report and recommended further studies	Rockgate Capital
Putu Iron Ore Mine Project	Petroken, Liberia	2013 2014	Heritage impact Assessment for the proposed Putu Iron Ore Mine, road extension and railway line	Heritage Impact Assessment	Heritage Consultant	6 months	Atkins Limited	Completed Heritage Impact Assessment and provided recommendations for further studies	Atkins Limited Irene Bopp Irene.Bopp@atkinglobal.com
Sasol Twistdraai Project	Secunda, Mpumalanga, South Africa	2013 2014	Notification of intent to Develop and Heritage Statement for the Sasol Twistdraai Expansion	NID	Heritage Consultant	2 months	ERM Southern Africa	Completed NID and Heritage Statement	ERM Southern Africa Alan Cochran Alan.Cochran@erm.com
Daleside Acetylene Gas Production Facility	Gauteng, South Africa	2013 2013	Project Management of the heritage study	NID	Project Manager	3 months	ERM Southern Africa	Project completed	ERM Southern Africa Kasantha Moodley Kasantha.Moodley@erm.com
Exxaro Belfast, Paardeplaats and Eerstelingsfontein GRP	Belfast, Mpumalanga, South Africa	2013 2014	Grave Relocation Plan for the Belfast, Paardeplaats and Eerstelingsfontein Projects	GRP	Project Manager, Heritage Consultant	On-going	Exxaro	Project is on-going	Exxaro Johan van der Bijl Johan.vanderbijl@exxaro.com



Nzoro 2 Hydro Power Project	Oriental Province, Democratic Republic of Congo	2014 2014	Social consultation for the Relocation Action Plan component of the Nzoro 2 Hydro Power Station	RAP	Social Consultant	On-going	Randgold Resources	Completed introductory meetings – project on-going	Kibali Gold Mine Cyrille Mutombo Cyrille.c.mutombo@kibaligold.com
Eastern Basin AMD Project	Springs, Gauteng, South Africa	2014 2014	Heritage Impact Assessment for the proposed new sludge storage facility and pipeline	Heritage Impact Assessment	Heritage Consultant	On-going	AECOM	Project is on-going	AECOM
Soweto Cluster Reclamation Project	Soweto, Gauteng, South Africa	2014 2014	Heritage Impact Assessment for reclamation activities associated with the Soweto Cluster Dumps	Heritage Impact Assessment	Heritage Consultant	On-going	ERGO	Project is on-going	ERGO Greg Ovens Greg.ovens@drdgold.com
Klipspruit South Project	Ogies, Mpumalanga, South Africa	2014 2014	NID and Heritage Statement for the Section 102 Amendment of the Klipspruit Mine EMP	NID	Heritage Consultant	On-going	BHP Billiton	Project is on-going	BHP Billiton
Klipspruit Extension: Weltevreden Project	Ogies, Mpumalanga, South Africa	2014 2014	NID and Heritage Statement for the expansion of the Klipspruit Mine	NID	Heritage Consultant	On-going	BHP Billiton	Project is on-going	BHP Billiton
Ergo Rondebult Pipeline Basic Assessment	Johannesburg, South Africa	2014 2014	NID and Heritage Statement for the construction of the Rondebult Pipeline	NID	Heritage Consultant	1 Week	ERGO	Completed screening assessment and NID	ERGO
Kibali ESIA Update Project	Oriental Province, Democratic Republic of Congo	2014 2014	Update of the Kibali ESIA for the inclusion of new open-cast pit areas	Heritage Impact Assessment	Heritage Consultant	On-going	Randgold Resources	Project is on-going	Randgold Resources Charles Wells Charles.wells@randgoldresources.com
GoldOne EMP Consolidation	Westonaria, Gauteng, South Africa	2014 2014	Gap analysis for the EMP consolidation of operations west of Johannesburg	Gap Analysis	Heritage Consultant	On-going	Gold One International	Project is on-going	Gold One International

Appendix C: Site list

Map ID	Site ID/name	Source	Time period	Type	Latitude	Longitude	Description
2627BD/Site 1	1999-SAHRA-0008/2627BD/Site 1	Huffman & Calabrese 1997	Recent	Religious	-26.275	27.938889	Open air church
2627BD/Site 7	1999-SAHRA-0008/2627BD/Site 7	Huffman & Calabrese 1997	Recent	Religious	-26.266667	27.920833	Open air church
6854/2627BD/SI/001	Klipspruit Sewage Farm		Historical	Structure	-26.272154	27.918977	Historical sewage works
6854/2627BD/SI/002	Orlando Power Station		Historical	Structure	-26.254416	27.926832	Historical power station and local landmark