



**Environmental Solutions Provider**  
Co. Reg. No. 1999/05985/07

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20 September 2010

Attention: Mr. A Salomon

Dear Andrew,

**Letter of Recommendation of Exemption for the Proposed Crown Gold Recoveries (Pty)  
Ltd Pipeline Project**

Digby Wells and Associates submitted a heritage scoping survey report to the South African Heritage Resources Agency SAHRA in May 2010, detailing a proposed pipeline project by Crown Gold Recoveries (Pty) Ltd (CGR). This document reported on the intent of CGR to develop this pipeline from their tailings facility at Crown Mines to the plant at Ergo (>50 km). SAHRA responded on 9 September 2010, stating the following:

- The HIA Adjudication Committee was unfamiliar with the report writer (Ms. Marike Fourie); and
- The information provided was not adequate, especially in a contextual manner.

Subsequent to the heritage scoping survey undertaken by Digby Wells (May 2010), I have been appointed on a permanent basis to act as this company's in-house professional archaeologist. In this capacity, I have been tasked to review the report and provide some advice to Digby Wells as to SAHRA's comments. It is my professional opinion that the SAHRA Adjudication Committee did not review the report in detail. Should they have done so, they would have noted that the report was submitted in terms of Section 38(1) of the National Heritage Resources Act, No. 25 of 1999 (NHRA), as a 'Notice of Intent to Develop' and not as a Heritage or Archaeological *Impact Assessment*.

I do accept that the naming of the report may have been misleading, as it made reference to a 'Heritage Assessment'. I have therefore suggested to the report writer that the report should be resubmitted, clearly stating that it is merely a 'Heritage Scoping Assessment and Notice of Intent to Develop' in order to avoid any further confusion. If the report was read in detail, however, the following should have been clear:

**Directors:** AR Wilke (South African), CD Wells (South African), PD Tanner (British)\*, AJ Reynolds (British)\*  
RH Plaistowe (Chairman) (British)\*, GE Trusler (C.E.O) (South African)  
\*Non-executive

- In the Executive Summary it clearly states that “The objectives of the heritage scoping assessment was to notify the South African Heritage Resource Agency (SAHRA) and Provincial Heritage Resource Agency (PHRA) of the proposed pipeline development”;
- All contextual and geographical information on the proposed pipeline route are included, specifically pages 8 and 12 to 14 of the report.

In my professional opinion, the report is sufficiently detailed enough to request a Letter of Recommendation of Exemption for a full HIA and AIA on the entire length of the proposed pipeline. I base this request on the following (please also refer to the edited report attached):

- The entire length of the proposed pipeline is located in *existing* servitudes that have been impacted on previously by other pipelines; and
- The proposed pipeline will be constructed above-ground using *existing* plinths 500 meters apart of which each footprint is less than 1 m<sup>2</sup>.
- It is my professional opinion that no heritage resources will be negatively impacted on by the proposed pipeline development, as The pipeline will be constructed above-ground utilising existing infrastructure:
- The entire pipeline will be located within existing servitudes; and
- All access routes for construction activities are also located in existing servitudes, access off existing main routes.

I attach a short personal CV to this request for your scrutiny, if need be. Please feel free to contact either myself or the project manager, Grant Beringer (grant@digbywells.co.za, 011 504 1423) should you require any further information regarding this request or details of the proposed activity.

I hope that you find the above in order, and that the request for a Letter of Recommendation for Exemption be considered in earnest.

Sincerely,

Johan Nel  
 (BA, BA Hons)  
 Professional ASAPA member and CRM-accredited practitioner

**Johan Nel**

Archaeologist

Digby Wells Environmentals

**PERSONAL INFORMATION**

Date of Birth: 07/01/1980

Languages: English, Afrikaans

Motor Vehicle License: code 08

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Email: johan.nel@digbywells.co.za

**EDUCATION**

*Potchefstroom Gimnasium (1993 – 1995)*

*Hoërskool Brandwag (1996-1997)*

Matric Exemption (Standard 10 / Grade 12) English, Afrikaans, History, Art, Biology, Geography

*University of Pretoria (UP) (1998-2001)*

BA Degree (Bachelor of Arts) with Majors in Anthropology & Archaeology

Subjects included: Anthropology, Archaeology, IsiZulu, History of Ancient Cultures, Geography, Philosophy.

*University of Pretoria (UP) (2002)*

BA (Honours) Degree specialising in Archaeology, focussed on Isotopic Analysis of Human Remains from the Ben Alberts Nature Reserve, Thabazimbi, and documentation of ritual initiation structures (*phiri*) from Maleoskop, Groblersdal.

*University of Pretoria (UP) (2002)*

Attended a course on physical anatomy and dissection for non-degree purposes.

*University of Pretoria (UP) (2007 – present)*

M.A (*Magister Artium*) Degree, specialising in Archaeology. Dissertation title: Finding Frontiers: An Archaeology of Landscape in South Africa's northern frontier during the last 500 years. The study uses a landscape approach to determine whether pottery analysis and settlement layout are adequate heuristics to interpret notions of 'frontiers' and identity. Received an National Research Foundation / Five Hundred Year Initiative research bursary over the years 2008 to 2009.

## **EMPLOYMENT**

- 2010 – present: Archaeologist and CRM specialist, Digby Wells Environmentals
- 2005 – 2010: Co-owner and manager of Archaic Heritage Project Management, Cultural Heritage Resources Management consultancy company;
- 2004 – 2005: Resident, professional archaeologist, Rock Art Mapping Project based at Didima / Cathedral Peak, Ukhahlamba-Drakensberg World Heritage Site, Department of Geomatics, University of KwaZulu-Natal;
- 2003 – 2004: Freelance, professional archaeologist;
- 2002 – 2003: Special Assistant, Physical Anthropology Unit, Department of Anatomy, University of Pretoria;
- 2000 – 2002: Technical Assistant, Physical Anthropology Unit, Department of Anatomy, University of Pretoria;
- 1999 – 2000: Assistant in Mapungubwe Project, Department of Anthropology and Archaeology, University of Pretoria;
- 1998 - 1999: Volunteer at National Cultural History Museum, Pretoria, Writer for BAT ('By About Town) arts section in Perdeby, official University of Pretoria student newspaper.

## **EXPERIENCE**

Johan has volunteered at museums since childhood. His first formal experience in the archaeological and heritage environment during his tertiary studies, where he assisted professional archaeologists in cataloguing excavated material from a historical site in Pretoria. He was employed by the Department of Anthropology and Archaeology in his second year of study to assist in the Mapungubwe Project. This entailed collections management of certain artefacts from the Mapungubwe archaeological site to be included in the Mapungubwe Museum at UP. By his third year of study he was permanently employed by the Department of Anatomy, UP, where his training and experience included grave relocation, forensic archaeology, collections management, fossil preparation, as well as intensive archaeological fieldwork. He left this department soon after qualifying as a professional archaeologist to pursue a freelance career. He gained valuable experience in Cultural Resources Management, being contracted by established companies in addition to undertaking his own projects. In 2004 an opportunity arose for him to be the resident, professional archaeologist for the Rock Art Mapping Project. This entailed survey and documentation of known rock art sites, as well as the identification of new sites. Johan established Archaic Heritage Project Management with a partner towards the end of 2005. He managed this company until his appointment at Digby Wells in 2010. During the five years managing Archaic, Johan has undertaken numerous projects that included archaeological impact assessments and Phase 2

projects, grave relocation, social consultation, and general heritage research projects such as land claims. Current areas of expertise at Digby Wells include archaeological field work, historical research, managing Archaeological and Heritage Impact Assessments, and drafting and reviewing reports.

### **PROFESSIONAL MEMBERSHIPS**

Association of Southern African Professional Archaeologists (ASAPA): Professional Member

ASAPA Cultural Resources Management (CRM) section: Accreditation in:

Grave Relocation – Field Director

Iron Age – Field Supervisor

Rock Art – Field Supervisor

International Association of Impact Assessors (South Africa)

Society for Africanist Archaeologists (SAfA)

### **DIGBY WELLS PROJECT EXPERIENCE:**

- Archaeological Impact Assessment – Phase 1: Galaxy Gold Agnes Mine, Barberton, South Africa;
- Archaeological Impact Assessment – Phase 1: HCI Khusela Palese Extension, Bronkhorstspuit, South Africa
- Archaeological Impact Assessment – Phase 1: Randgold Kibali Gold Project, Environmental and Social Impact Assessment, Kibali, Democratic Republic of the Congo;
- Archaeological Impact Assessment – Phase 1: Nzoro Hydropower Station, Environmental and Social Impact Assessment, Democratic Republic of the Congo;
- Grave relocation process: Randgold Kibali Mine, Relocation Action Plan, Kibali, Democratic Republic of the Congo;
- Heritage Scoping Report on historical landscape and buildings in Port Elizabeth: ERM South Africa;
- Review of Archaeological Assessment: Resources Generation, Coal Mine Project in the Waterberg area, Limpopo Province.

**HERITAGE SCOPING ASSESSMENT AND NOTICE  
OF INTENT TO DEVELOP  
FOR THE  
PROPOSED PIPELINE PROJECT**

**CROWN GOLD RECOVERIES (PTY) LTD**

*A wholly owned subsidiary of DRD Gold South Africa*

**26 MAY 2010**

*Prepared by Marike Fourie*



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<b>Name</b>	<b>Responsibility</b>	<b>Date</b>
Marike Fourie <i>Environmental Consultant</i>	Report Writer	13 May 2010
Darren Dunne <i>Social Consultant</i>	1 <sup>st</sup> Review	17 May 2010
Steve Horak <i>Manager Social Sciences</i>	2 <sup>nd</sup> Review	19 May 2010
Grant Beringer <i>Project Manager</i>	Final Review	25 May 2010

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*This report is provided solely for the purposes set out in it and may not, in whole or in part, be used for any other purpose without DWA's prior written consent.*



## EXECUTIVE SUMMARY

Digby Wells and Associates (Pty) Ltd (DWA) has been appointed as independent environmental consultants by Crown Gold Recoveries (Pty) Ltd (CGR) to assess the physical, biological and socio-economic environment associated with the proposed pipeline project. In compliance with Section 102 of the Minerals and Petroleum Resource Development Act (Act 28 of 2002, MPRDA) (MPRDA), a comprehensive Environmental Impact Assessment (EIA) and Environmental Management Programme (EMP) amendment was compiled for this project. The EIA/EMP report will be submitted to the Department of Mineral Resources (DMR) in order to obtain environmental authorisation for the proposed project.

This heritage scoping assessment forms part of the environmental impact assessment process and water use license application for the proposed pipeline project. **The objectives of the heritage scoping assessment were to notify the South African Heritage Resource Agency (SAHRA) and Provincial Heritage Resource Agency (PHRA) of the proposed pipeline development.** The heritage scoping assessment was conducted in accordance with the legislative requirements of the NHRA (no 25 of 1999), National Environmental Management Act (NEMA) (107 of 1998) and the MPRDA (28 of 2002).

The first step of this heritage scoping assessment process involved information gathering and literature reviews. The second step involved a site survey for a physical assessment of the proposed project area. The field visit was conducted between 28 April 2010 and 14 May 2010. General site conditions were observed during the site surveys, which included developed areas with industrial buildings, roads, railways and servitudes. In terms of the current project plan, the proposed pipeline project will primarily follow existing servitudes such as railway lines, roads and existing pipelines, as well as areas where the surface and soils have already been disturbed. The area was assessed to determine the potential of sites of archaeological and heritage significance and sites or structures older than 60 years existing in the proposed footprint area. The entire the proposed pipeline servitude is located in existing servitudes.

The report provides more detail on the historical and current land use of the proposed pipeline route, as well as an overview description of the proposed project. Literature review results and site survey findings are described in this report to provide the relevant heritage authority with adequate information to provide constructive recommendations on the way forward. Should sites of archaeological or heritage significance be found during construction or operation, an archaeologist must be contacted to assess the nature and significance of the site.



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## **1 INTRODUCTION**

In terms of the National Heritage Resource Act (25 of 1999) (NHRA), Section 38 (a) specific types of development includes the “...*construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length*”. Digby Wells and Associates (Pty) Ltd (DWA) was appointed as independent environmental consultants by CGR to assess the physical, biological and socio-economic environment associated with the proposed pipeline project. As part of this project, a comprehensive Environmental Impact Assessment (EIA) and Environmental Management Programme (EMP) amendment was compiled, in compliance with Section 102 of the Minerals and Petroleum Resource Development Act (Act 28 of 2002, MPRDA). The report will be submitted to the Department of Mineral Resources (DMR) in order to obtain environmental authorisation for the proposed project.

As an integrated element of the project and as part of the EIA/EMP amendment report, a heritage scoping assessment was compiled to ensure all heritage aspects of the proposed project are taken into consideration. The objective of the heritage scoping assessment is to notify the relevant heritage authority of the proposed development and to identify and evaluate the potential of sites, objects and structures of cultural and natural significance existing within the boundaries of the proposed pipeline project area. The heritage scoping assessment report will be submitted to the South African Heritage Resources Agency (SAHRA), a statutory organisation established in terms of the NHRA (No. 25 of 1999) as the national body responsible for the protection of South Africa’s cultural heritage resources.

This report describes the historical and current land use of the proposed project area, as well as an overview description of the proposed project. The heritage scoping assessment includes the results of literature reviews and site visits, as well as relevant project information and site data to the national and/or provincial heritage authority.

## **2 STUDY AREA AND LAND USE**

### ***2.1 Historical area and land use***

The Gauteng Province and surrounding regions Johannesburg forms the proposed setting for the proposed pipeline project. Gauteng Province’s history is primarily embedded in the discovery of gold and includes a pivotal role in the country’s struggle for freedom. Since the discovery of gold in 1886 in this region, the gold rush attracted large numbers of prospectors and immigrants from various locations to Johannesburg and surrounding




areas. Rural villages rapidly developed into shanty towns that spread out along the gold-bearing reef. These corrugated iron settlements were soon formalised, providing the infrastructure for modern-day Johannesburg. The early years of mining saw primitive mining methods with shallow mining occurring along the Main Reef outcrop. This mining was loosely situated in the area of the current M2 highway running east-west along the south of central Johannesburg. The development of better mining methods saw the start of deep mining by means of vertical shafts to access the deeper Main Reef seam dipping to the south (Matakoma Heritage Consultants, 2006). The advent of deep mining saw the development of larger mine infrastructure such as stores, living quarters, crushers and metallurgical plants. Increased development and expansions lead to increased gold production and improvements in local and provincial infrastructure and businesses.

### 2.2 Current area and land use

The proposed Crown pipeline route will run from the Crown Plant in the west of Gauteng to the Ergo Plant at Witpoort Estates, following existing servitudes and pipeline routes where possible. The existing railway servitudes and pipeline routes are primarily located in industrialised and developed areas that are managed by the City Council and Transnet. Current land use of proposed project areas are summarised in the table below:

**Table 1: Current land use**

SITE	DESCRIPTION	MAP/ LOCATION
City Deep	The City Deep Operations and Crown Plant are located within the urbanised Central Witwatersrand, containing a substantial amount of infrastructure such as roads, railway lines, power lines, telephone lines and water reticulation systems. Servitudes exist to protect infrastructure where necessary. Details of servitudes can be requested from the mine offices. The land use adjacent to the mining operations varies but generally comprises existing industrial, commercial/residential areas and undeveloped land.	



Knights	<p>The Knights Operations are situated in the Germiston area and support infrastructure such as access roads, railway lines and power lines are available in the area. Existing tailings and return water dams and a metallurgical plant is also in place and forms part of the Knights Operations.</p>	

The land use is therefore considered to be mainly industrial, following areas of existing road and railway servitudes, where possible.

### 3 EXPERTISE OF THE SPECIALIST

A CV and declaration of experience is attached in Appendix 1.

### 4 AIMS AND OBJECTIVES

The objective of this study is to notify SAHRA of the proposed development, assess potential sites of significance and to conserve, mitigate and manage heritage sites and artefacts according to the recommendations and criteria of the relevant heritage authorities and legislation. In essence, this study aims to:

- Notify the SAHRA of the proposed Crown pipeline project and furnish it with details regarding the location, nature and extent of the proposed development.
- Identify, record and document potential archaeological, cultural and historic sites of significance within the proposed development area;
- Evaluate whether the proposed pipeline will have any negative impacts on archaeological, cultural, historical and natural heritage resources during construction, operation and decommissioning phases;



- Recommend mitigation and management measures; if applicable.

## **5 METHODOLOGY**

This heritage scoping assessment process consisted of three steps:

- Step I – Literature Review: This step was aimed at gathering information relating to known archaeological and heritage resources within and surrounding the proposed development area, which included a desktop study and literature review of project information and existing data;
- Step II – Physical Survey: A physical survey was conducted in by vehicle and on foot through the proposed project area between 28 April 2010 and 14 May 2010, aimed at locating and documenting potential sites of archaeological and heritage significance falling within and adjacent to the proposed development footprint; and
- Step III – The final step involved the recording and documentation of general site conditions and potential sites of heritage significance, as well as report writing, mapping and constructive recommendations.

General site conditions and features on site were recorded by means of photos, GPS location, and description. Once the relevant field survey and report compilation was completed the report was submitted to SAHRA for their perusal.

## **6 KNOWLEDGE GAPS**

Although this report has been written as comprehensively and inclusively as possible, it should be noted that some archaeological and heritage sites may be located below the surface, or some areas may have been inaccessible for personal safety reasons (e.g. next to the railway) or covered by dense vegetation. Thus, not all potential archaeological and heritage sites found in the project area are contained in this report. Consequently, chances find procedure must be implemented, which means that an archaeologist or heritage specialist must immediately be contacted should any archaeological or heritage features be uncovered during the construction phase. Such heritage features and/or objects may not be disturbed or removed until such time that a heritage specialist has been able to do an assessment of the site (or object) in question.



## **7 PROJECT OVERVIEW**

### ***7.1 Project Description***

Crown Gold Recoveries (Pty) Ltd (CGR) is a wholly owned subsidiary of DRD Gold South Africa. CGR is currently reclaiming a number of sand dumps and slimes dams that were deposited as tailings during past gold mining operations in the Witwatersrand area. The slimes are either mechanically or hydraulically reclaimed and piped to Crown, City Deep or Knights processing plants. The secondary tailings from the City Deep and Crown plants is deposited on the Homestead /Diepkloof, Mooifontein and GMTS tailings dams, collectively known as the Crown Tailings Complex.

The Crown Tailings Complex is nearing full capacity and an alternative tailings site is required to ensure that reclamation activities can continue. The Brakpan/Withok Tailings Dam, which forms part of the greater East Rand Gold Operations (Ergo), has been identified as a suitable alternative tailings site for the Crown Operations. A pipeline from the Crown Plant to the Ergo Plant will, therefore, be constructed to pipe the tailings from the Crown Plant to the Ergo Plant before it is finally disposed of on the Brakpan/Withok Tailings Dam. The intended pipeline will consist of two pipelines: a 400 mm diameter water pipeline and a 500 mm residue pipeline. The water pipeline will return water from Brakpan/Withok Tailings Facility to be used in the reclamation operations. The proposed pipelines will run from the Crown Plant, situated in Crownwood Road to the Ergo Plant at Witpoort Estates, following existing rail servitudes and pipeline routes as far as possible. Details of the proposed pipeline route is illustrated and summarised in the following section and described in more detail in the Background information Document (BID) in Appendix 2.

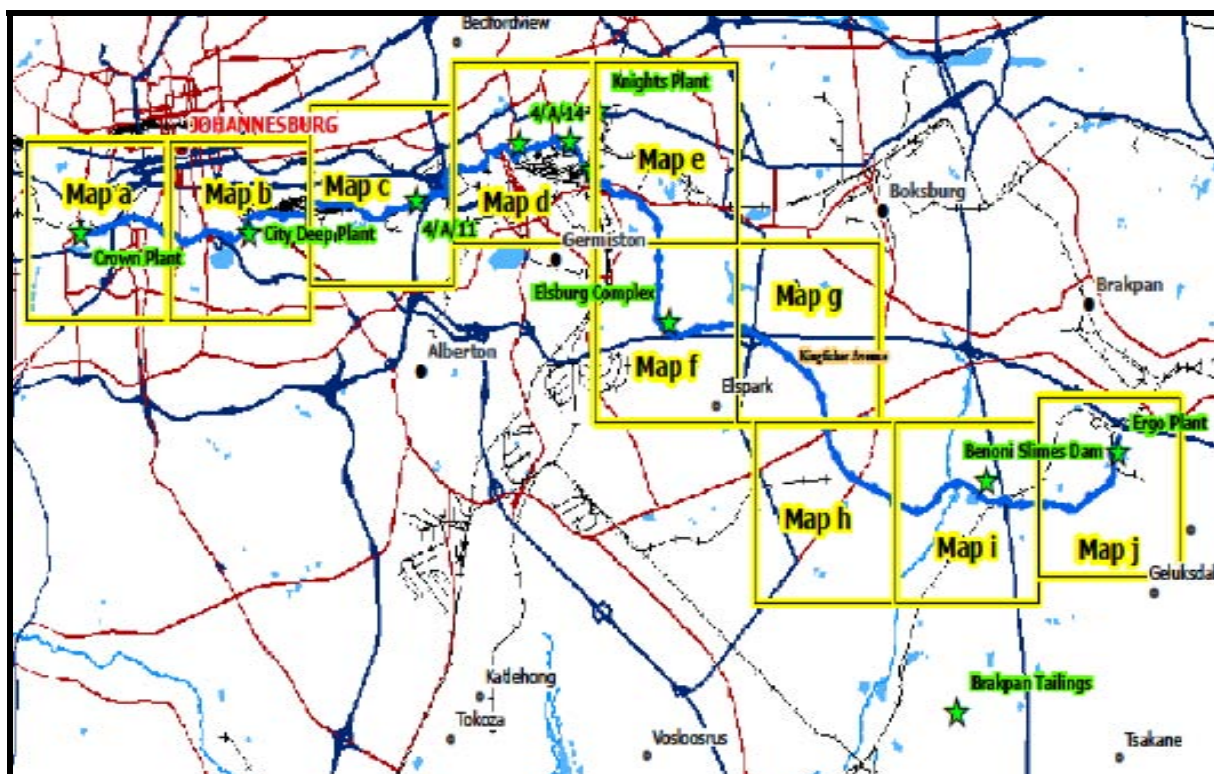


Figure 1: Pipeline Route (Appendix 2)

Summary of pipeline route (with reference to the maps in the BID in Appendix 2):

- 1) Section 1 (Plan 2a) Crown Plant to Turfontein: The pipeline will begin at the Crown Plant south west of the Johannesburg CBD and run in an easterly direction along the railway line, where it will go underneath the M1 Highway (De Villiers Graaff Motorway), over Cross Street and underneath Booyens Road towards Turfontein. At Turfontein the pipeline will cross over the railway lines towards Village Deep.
- 2) Section 2 (Plan 2b): Turfontein to City Deep Plant: The pipeline will continue along the railway servitude underneath Eloff Street and continue north of Wemmer Pan, and travel underneath the Rosettenville and Wemmer Pan Roads to the City Deep Plant, after which the pipelines will pass underneath the Heidelberg and Vickers Roads. The pipeline will then cross over the railway servitude situated to the north east of the City Deep Plant in the Prolecon area, below the 4/L/1 (Kaserne) Dump.
- 3) Section 3 (Plan 2c): City Deep Plant to M2 Highway: The route will continue along the railway servitude, on the northern side of the existing railway line towards Doornfontein, underneath Lower Germiston Road and towards the 4/A/11 Dump. It





then travels towards the Geldenhuis Interchange and underneath the N3 Highway south of the Geldenhuis Interchange, before it crosses under the M2 Highway.

- 4) Section 4 (Plan 2d): M2 Highway to South Germiston: At the 4/L/10 and 4/L/11 Dumps the pipeline will veer off in a northerly direction before joining the railway servitude heading east towards Junction Road, and then north towards Johan Rissik Road. The pipeline will cross over Johan Rissik Road and run in an easterly direction along this road before crossing over the intersection of Johan Rissik and Victoria Road following a southerly route along the western edge of the 4/A/14 Dump towards Keswick Road. The route will proceed east along Keswick Road towards Driefontein and Stanley Road. It will then cross over Stanley Road before moving south along Knights Road just south of Dump 4/A/18.
- 5) Section 5 (Plan 2e): South Germiston to Elsburg Dam: The pipeline will cross over the railway lines, which are situated north of Dukathole. The pipeline will then traverse the western boundary of the 4/L/39 Dump until it crosses over the Lower Boksburg Road (M46) which later becomes Commissioner Street. The route will proceed in a south easterly direction towards Elsburg Road, north east of the Elsburg Dam/Elsburg Spruit.
- 6) Section 6 (Plan 2f): R21 Elsburg Dam to R21 Off-Ramp: The pipeline will travel southwards along the Elsburg Road towards Reiger Park, Elsburg and the Elsburg Slimes Complex. The Elsburg Slimes Complex is situated just north of the N17 Highway. Just before it reaches the N17 Highway the pipeline will be directed east along the southern boundary of the Elsburg Slimes towards Klippoortjie AH, Elspark and Freeway Park. The pipeline will cross Elsburg Spruit south of Cinderella Dam.
- 7) Section 7 (Plan 2g): R21 Off-Ramp to Trichardts Road: The pipeline will pass through Farrar Park and cross underneath the R21 off-ramps and the N17 to follow a south easterly route towards Sunward Park. In Sunward Park it will traverse an area of open space before crossing over Nicholson Road and over Kingfisher Avenue. Still in a south easterly direction, the pipeline will travel towards Trichardts Road.
- 8) Section 8 (Plan 2h): Trichardts Road to Benoni Slimes Dam: The pipeline will cross over North Boundary Road (R554) towards Windmill Park and Barry Marais Road (R43). Once it has crossed over Barry Marais Road it will join the railway servitude to run in an easterly direction towards the Benoni Slimes Dam and Heidelberg Road.
- 9) Section 9 (Plan 2i): Benoni Slimes Dam to Denne Road: The route will then pass underneath Heidelberg Road towards Denne Road (no longer following the railway).
- 10) Section 10 (Plan 2j): Denne Road to Ergo Plant: The pipeline crosses Denne Road towards 10th Road (Withok Estates). The pipeline crosses a stream between Denne Road and 10th Road and then runs north east along 10th Road which becomes



Vlakfontein Road and thereafter 17th Road. The pipeline will then cross over 17th Road to enter the premises of the Ergo Plant.



## **7.2 Project Motivation**

The proposed pipeline will play a key role in the future of both the City Deep and the Crown Operations. These operations have continued for longer than was originally planned and as a result the Crown Tailings Complex is nearing the end of its life. An alternative Tailings Storage Facility (TSF) will have to be found in order to ensure the future of the City Deep and Crown Operations. The proposed pipeline will make it possible to transport tailings from the Crown Plant to the ERGO Plant for deposition of the Brakpan/Withok Tailings Dam. Existing infrastructure and servitudes will be used for the pipeline which will limit the impacts expected from the proposed project.




## **8 FINDINGS**

During the field survey and heritage scoping assessment between 24 April and 14 May 2010, no potential heritage resources were observed in the project area that may potentially be impacted by proposed activities. This is due to the proposed activities being located within existing servitudes. A summary of the findings are described in the following table.



**Table 2: Heritage scoping assessment of the proposed pipeline route**

PIPELINE ROUTE	SITE DESCRIPTION	ILLUSTRATION/S	POTENTIAL HERITAGE SITES
<p><i>Section 1 (Plan A) Crown Plant to Turfontein</i></p>	<p>The area from the Crown Plant (south-west of Johannesburg CBD), consists mainly of existing industrial and road development. Existing railway lines and railway crossings are involved. An example of existing pipelines located within railway servitude is illustrated on the right.</p>		<p>No sites of heritage significance were observed in the areas from the Crown Plant to Turfontein that may potentially be impacted by the proposed development.</p>
<p><i>Section 2 (Plan 2b): Turfontein to City Deep Plant</i></p>	<p>This area consists of existing railway lines and servitudes in an industrial area.</p>		<p>No sites of heritage significance were observed in the areas from Turfontein to City Deep Plant that may potentially be impacted by the proposed development.</p>



<p><i>Section 3 (Plan 2c): City Deep Plant to M2 Highway</i></p>	<p>This area includes existing railway servitudes and road infrastructure. The proposed route crosses a number of established interchanges (i.e. Geldenhuis) and consists of existing road infrastructure.</p>		<p>No sites of heritage significance were observed in the areas from City Deep Plant to M2 Highway that may potentially be impacted by the proposed development.</p>
<p><i>Section 4 (Plan 2d): M2 Highway to South Germiston</i></p>	<p>Areas surrounding mine dumps are largely disturbed by developments. This area follows existing railway and road servitudes and includes road crossings. An example of existing pipelines running through a dump area is illustrated on the right.</p>		<p>No sites of heritage significance were observed in the areas from the M2 Highway to South Germiston that may potentially be impacted by the proposed development.</p>
<p><i>Section 5 (Plan 2e): South Germiston to Elsburg Dam</i></p>	<p>This route follows existing pipeline servitudes along Lower Boksburg rd, passing under the road through a wetland. Areas around the dump areas (4/L/39) are disturbed. Existing roads will be crossed running towards Elsburg Road, north east of the Elsburg Dam/Elsburg Spruit.</p>		<p>No sites of heritage significance were observed in the areas from South Germiston to Elsburg Dam that may potentially be impacted by the proposed development.</p>



<p><i>Section 6 (Plan 2f): R21 Elsburg Dam to R21 Off-Ramp</i></p>	<p>This area includes existing road and pipeline servitudes where the proposed pipeline will eventually cross Elsburg Spruit south of Cinderella Dam. The area consists of existing infrastructure and road developments.</p>		<p>No sites of heritage significance were observed in the areas from the R21 Elsburg Dam to the R21 Off-Ramp that may potentially be impacted by the proposed development.</p>
<p><i>Section 7 (Plan 2g): R21 Off-Ramp to Trichardts Road</i></p>	<p>This area crosses through Farrar Park and Sunward Park in the Boksburg region. In Sunward Park it will traverse an area of open space before crossing over Nicholson Road and over Kingfisher Avenue.</p>		<p>No sites of heritage significance were observed in the areas from the R21 Off-Ramp to Trichardts Road that may potentially be impacted by the proposed development.</p>
<p><i>Section 8 (Plan 2h): Trichardts Road to Benoni Slimes Dam</i></p>	<p>This area includes existing road servitudes where the proposed pipeline will pass under Barry Marais Road and join another railway servitude running towards the Benoni Slimes Dam and Heidelberg Road.</p>		<p>No sites of heritage significance were observed in the areas from Trichardts Road to Benoni Slimes Dam that may potentially be impacted by the proposed development.</p>



<p><i>Section 9 (Plan 2i): Benoni Slimes Dam to Denne Road</i></p>	<p>The route then passes underneath Heidelberg Road towards Denne Road (The photograph on the was taken as pipeline passes under North Boundary Rd. The pipeline follows the railway and passes under a bridge (Heidelberg rd).</p>		<p>No sites of heritage significance were observed in the areas from Benoni Slimes Dam to Denne Road that may potentially be impacted by the proposed development.</p>
<p><i>Section 10 (Plan 2j): Denne Road to Ergo Plant</i></p>	<p>This area includes existing road servitude areas and industrial infrastructure. The proposed pipeline will cross a stream between Denne Road and 10th Road and follow servitude line to eventually enter the premises of the Ergo Plant.</p>		<p>No sites of heritage significance were observed in the areas from Denne Road to Ergo Plant that may potentially be impacted by the proposed development. (Existing plant and associated infrastructure pictured left. Source: <a href="http://www.drd.co.za/im/gallery_ej.asp">www.drd.co.za/im/gallery_ej.asp</a>)</p>

## 9 DISCUSSION

Increased industrial development and urbanisation has resulted in more archaeological and heritage sites being placed at risk during developments and intrusive projects. Heritage authorities subsequently requested more focussed assessments to avoid losing archaeological and heritage resources located in a project area (ASAPA, 2009).

This heritage scoping assessment for the Crown Pipeline project was therefore compiled to ensure the heritage aspects are taken into consideration for the proposed pipeline development. In addition, this assessment was undertaken in terms the requirements and guidelines of the NHRA (no 25 of 1999) to notify the South African Heritage Resources Agency (SAHRA) and furnished it with details regarding the location, nature and extent of the proposed development. In terms of NHRA Section 38 (4), the heritage report must be considered timeously by the responsible heritage resources authority which must, after consultation with the person proposing the development, decide (a) whether or not the development may proceed; (b) any limitations or conditions to be applied to the development; (c) what general protections in terms of this Act apply; (d) whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of the development; and (e) whether the appointment of specialists is required as a condition of approval of the proposed development. In terms of Section 38 (3) of the NHRA Act, this heritage scoping assessment addressed the following requirements:

**Table 3: Checklist in terms of NHRA (no 25 of 1999) Section 38 (3)**

<b>NHRA (NO 25 OF 1999) 38 (3) REQUIREMENTS</b>	<b>HERITAGE SCOPING ASSESSMENT CHECKLIST</b>
a) The identification and mapping of all heritage resources in the area affected;	Section 7 of this report (Project Details) and Appendix 2 (BID)
b) Assessment of the significance of resources;	Section 8 (Findings) and Table 2 (site survey and report)
c) An assessment of the impact of the development on such heritage resources;	Section 8 (Findings) and Table 2 (site survey yielded no sites of heritage significance to be impacted by the development)
d) An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;	Section 7 (Project Details) and Appendix 2 (BID) explains the motivation for this project; no significance impacts are anticipated (more details in EIA/EMP)
e) The results of consultation with communities affected by the proposed	In terms of the MPRDA (no 28 of 2002) a comprehensive Public Participation Process



<p>development and other interested parties regarding the impact of the development on heritage resources;</p>	<p>(PPP) was undertaken for this project. Interested and Affected Parties (i.e. residents or located land/business owners within 100 meters of the proposed development) were consulted during April and May 2010. Details on the consultation process are available in the PPP report.</p>
<p>f) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and</p>	<p>Not applicable (site survey yielded no sites of heritage significance that will be impacted by the development)</p>
<p>g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.</p>	<p>Mitigation and monitoring is required as part of the EIA/EMP procedures for this project. Chance find procedures should be implemented (i.e. if any site of heritage significance be identified during construction/operation of the pipeline, a heritage specialist will be contacted to assess the nature and significance of the find; SAHRA will be notified, if required.)</p>

## 10 MITIGATION AND MONITORING RECOMMENDATIONS

Environmental monitoring and management forms part of the EIA/EMP for the proposed Crown pipeline project. The purpose of an effective monitoring and management process is to provide advice to the developer in terms of recommendations for environmental, social and heritage components as part of the integrated environmental management and monitoring plan for the proposed project. From a heritage perspective, this implies that sites must be monitored for potential archaeological and heritage findings (i.e. change find procedures must be implemented).

General mitigation and monitoring guidelines include:

- (i) During the construction phase for the proposed pipeline development, the surface areas may be disturbed and subsoil may be exposed. If any possible archaeological or heritage finds are made during construction, the operations must be paused and a qualified archaeologist be contacted for an assessment of the significance and nature of the find.
- (ii) If any potential graves or cemeteries are identified, operations must be stopped until the site is assessed by a qualified archaeologist. Graves and Cemeteries should be protected in situ, however, if these sites will be directly affected, a grave relocation will be recommended. A grave relocation process must be implemented by a team of qualified specialists in accordance with the NHRA (no 25 of 1999), the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (Act





65 of 1983 as amended), as well as in accordance with the relevant permit conditions and in compliance with ASAPA Minimum Standards and Act 65 of 1983 (as amended).

## **11 CONCLUSION**

Conditional to the effective implementation of an integrated environmental monitoring and management plan for the proposed Crown pipeline project, as well as adherence to relevant legislative requirements, there is no reason from a heritage point of view why this development should not proceed.

## **12 REFERENCES**

*ASAPA, Association for Southern African Professional Archaeologists; (2009)*  
*<http://www.asapa.org.za/index.php>, Online*

*BAUMANN & WINTER Consultants (2005), Guideline for involving Heritage specialists in EIA processes, CSIR, Edition 1, June 2005, Pretoria*

*IFC, International Finance Corporation, (2006), IFC Performance Standard, Guidance Note, April 2006, World Bank*

*Matakoma Heritage Consultants (2006), Heritage Scoping Assessment for The Top Star Dump Mining Project – Crown Gold Recoveries Reference: Top Star Dump – 001; Compiled By: Wouter Fourie & Jaco Van der Walt, 22 May 2006*

*NHRA (No 25 of 1999), National Heritage Resource Act, South Africa*

*PISTORIUS, J. (1994), Eskom Archaeological Identification guide, Johannesburg*

*SAHRA APMHOB Permit Committee, (2006), Assessment & Mitigation as a Prerequisite for Mining & Prospecting, Cape Town*

*SAHRA Website, (2008), South African Heritage Resource Agency, <http://www.sahra.org.za/intro.htm>, Online*



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**APPENDIX 1:**

*CV and Experience of Relevant Specialists*

*(Marika Fourie)*

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## PERSONAL INFORMATION:

Name: MARIKE FOURIE  
Title: Environmental Consultant  
Company: Digby Wells and Associates

## EDUCATION

- University of Pretoria (UP) 2000 – 2002: BhcS. Degree *Cum Laude*;
- University of Pretoria (UP) 2003 – BhcS. (Hon) Degree *Cum Laude* Specializing in Cultural and Heritage Tourism Management;
- University of Johannesburg (R.A.U) 2005 – 2006: (M.A.) Degree, specializing in Sustainable Development;
- Wildlife Campus (Ecolife) 2007, Certificate in Wildlife Management;
- University of Johannesburg 2008 – present, (PhD) Degree in Environmental Management

*Lifetime Membership: Goldenkey International Honorary Society: Membership attained through academic achievement (Honorary Colours) in the BhcS. Degree.*

## EMPLOYMENT

- 2006 – Current: Environmental Consultant at Digby Wells and Associates (Department of Social Sciences)
- 2005 – Lecturer in Sustainable Tourism Development at the University of Johannesburg (previously known as R.A.U)
- 2005 – Lecturer in Geography at Abbott's College, Northcliff
- 2004 – Researcher for South African Veterinary Association (SAVA): Development of Veterinary Museum at Onderstepoort, Pretoria
- 2004 – Administrative Assistant at Financial Services Compensation Scheme (FHCS), London, U.K
- 2002 – 2003 : Research Assistant at University of Pretoria (UP), Archive Assistant & Part-time Travel Writer for Campus Newspaper

## EXPERIENCE

Whilst completing a BhcS. (Hon) and Masters Degree, Marike has done intensive research, fieldwork and impact assessments in the Blouberg area (Limpopo Province). The Hananwa community formed an integral part of the Masters Degree in Sustainable Development as well as an Ethno-botanical assessment of the region (Bhcs). As a lecturer in Sustainable Tourism Development and Geography, Marike was responsible for the preparation of formal lectures, presentations, practical guidance (excursions) and student evaluation. Other work experiences such as Research assistant for South African Veterinary Association (SAVA) and University of Pretoria (UP) were primarily focussed on resource analysis, literature reviews, compilation of development proposals, data input and constructive recommendations. Current area of expertise at DWA lies in the formulation and implementation of sustainable development initiatives, archaeological impacts assessments and assisting with scoping reports, Environmental Impact Assessments (EIA), local economic development plans (LED) and Environmental Management Plans (EMP).

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**Projects recently involved in include:**

- Sadiola Deep Sulphides Project (ESIA, Project Manager), AngloGold Ashanti (AGA), Mali, West Africa;
- Valencia Uranium (EIA/EMP, Assistant Project Manager), Forsys Metals, Namibia;
- HCI Nokuhle Project (Archaeological management and Sustainability impacts assessment for EIA/EMP), Ogies, Mpumalanga
- Tselentis and Spitzkop Mining developments (EIAs/EMPs, Archaeological Management), Xstrata, Mpumalanga, South Africa;
- Crown Ergo Mining Operation and related reclamation activities (EIAs/EMPS, Air Quality and Archaeological Management), Gauteng;
- Northern Coal, Weltevreden (EIA/EMP, Archaeological Management), Mpumalanga;
- Etoile (BFS, Preliminary Archaeological Investigations), IMC, Democratic Republic of Congo (DRC);
- Khutala Mineral Optimisation Project, EIA/EMPR, Ingwe Colliery, Mpumalanga;
- Klippoortjie 5 Seam EMPR Addendum, Xstrata Coal, Mpumalanga
- Cleaner Production (CP) Campaign, Water Research Commission (WRC), South Africa;
- Op Goeden Hoop Mining Right Application, NuCoal, Mpumalanga
- Mmamabula Energy Project, CIC, Botswana, Facilitation of archaeological impacts assessment and heritage management of various aspects of the project, including:
  - Mine & Power station EIA/EMPR,
  - Transmission Lines EIA/EMPR,
  - Railway Link and Service Corridor,
  - Kudumatse Groundwater exploration boreholes and
  - Calcrete Mine.
- ATC Mini Opencast Pits EMPR Addendums, Xstrata Coal, Mpumalanga.
- Maresburg Platinum Joint Venture, Eastern Platinum, Mpumalanga.
- Bankfontein EIA/EMPR, Vaalsands (Pty) Ltd, Free State
- 3L2 Dump EIA/EMPR, Crown Gold Recoveries, Gauteng
- Lime-Chem EIA/EMPR, Lime-Chem (Pty) Ltd, Limpopo Province

**Courses and seminars recently attended include:**

- Medical Health Seminar (October 2006 , Geosciences MSA Medical);
  - Coal Business Seminar (October 2006, Hyatt Hotel, Rosebank);
  - Health and Safety Course (January 2007; Edwilo Risk Consultants);
  - Corporate Social Investment (March 2007 at Randfontein Estate)
  - Emergency First Aid Course (February 2010) Level One, IEFA
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**APPENDIX 2:**

*Background Information Document of the Project*

*(Public Participation)*

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