2017

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Explorations
Unlimited

TECHNICAL REPORT

ON THE WOUTERSPAN ALLUVIAL DIAMOND PROJECT,

HERBERT DISTRICT, SOUTH AFRICA

FOR

ROCKWELL DIAMONDS INC

Effective Date: 28 February 2017

Signature Date: 27 May 2017

Table of Contents *Page*

<u>Figures</u>

Tables

Plates

Units and Abbreviations

ABBREVIATION	DESCRIPTION
amsl	Above mean sea level
BBBEE	Broad Based Black Economic Empowerment (the more correct term of the usually shortened BEE (Black Economic Empowerment))
Bottom cut-off size ("bcos")	Bottom cut-off refers to the smallest size diamond (in mm) that is recovered in the sampling and mining process
Cdn$	Canadian Dollar
CIM	Canadian Institute of Mining Metallurgy and Petroleum
CP	Competent Person, as defined by SAMREC
cpht	Carats per 100 Tonnes
ct	Carat(s)
ct/100m^3	Carats per 100 cubic metres
ct/st	Carats per Stone
DMR	Department of Mineral Resources (Previously known as Department of Minerals and Energy ("DME"))

DMS	Dense Media Separation plant
DTM	Digital Terrain Model
DWS	Department of Water and Sanitation (previously Department of Water and Forestry "DWAF")
EMPlan	Environmental Management Plan (as required for a prospecting right)
EMPR	Environment Management Programme (as required for a mining right)
ESKOM	Electricity Supply Commission
GSSA	Geological Society of South Africa
IMSSA	Institute of Mine Surveyors of South Africa
JSE	Johannesburg Stock Exchange
m	Metres
M	Million
Ma	Millions of Years before Present
MPRDA	Mineral and Petroleum Resource Development Act (Act 28 of 2002)
NAPEGG	The Association of Professional Engineers, Geologists and Geophysicists of the Northwest Territories
NI 43-101	National Instrument 43-101
PLATO	See SAGC
Pr. Sci. Nat.	Professional Natural Scientist
QP	Qualified Person, as defined by National Instrument 43-101
SACNASP	South African Council for Natural Scientific Professions
SAGC	South African Geomatics Council (SAGC). Prior to 2016, called PLATO (South African Council for Professional Land Surveyors and Technical Surveyors)
SAIMM	South African Institute for Mining and Metallurgy
SAMREC	South African Code for Reporting of Mineral Resources and Mineral Reserves
SARS	South African Revenue Service
SG	Specific Gravity
SLP	Social & Labour Plan (as required for a mining right)
tph	Tonnes (metric) per hour
TSX	Toronto Stock Exchange
USD	United States Dollar
ZAR	South African Rand

SUMMARY

Explorations Unlimited ("EU") was retained by Rockwell Diamonds Inc. ("Rockwell" or "the Company") to prepare a Technical Report for the Wouterspan Project ("Wouterspan" or "WP") in the Herbert District of the Northern Cape Province, South Africa. This technical report, comprising background information, drill and sample data derived from the property up to 28 February 2017, is prepared to document the results of exploration work on the Wouterspan property as summarized in the Company's Annual Information Form for the 2017 fiscal year.

The conclusions expressed in this independent technical report are appropriate as at 28 February 2017. The assessment is, therefore, only valid for this date and will change with time in response to ongoing exploration and production results as well as with variations in economic, market, legal or political factors.

- *Rockwell*, listed on the TSX (RDI) and the JSE (RDI) is a company involved in the exploration and mining of alluvial diamond deposits. In South Africa:
- Rockwell and its wholly-owned subsidiary Rockwell Resources RSA (Pty) Ltd ("Rockwell RSA") owns (and Rockwell RSA operates) the Wouterspan Project (Middle Orange River) through a 74% shareholding in HC Van Wyk Diamonds Limited ("HCVWD");

The Wouterspan project is located along the north bank of the middle Orange River between Douglas and Prieska in the Northern Cape Province of South Africa, some 100km southwest of Douglas and some 200km from Kimberley. The project is comprised of several individual farm portions of the farm Wouterspan (Lanyonvale 376), totalling of 7,407.8447ha. A number of permits are valid for the project, which have all been applied to be combined into a single Mining Right. The combined Mining Right (MR208) was granted on 25 January 2010, but has not yet been executed[1].

Property	Size (ha)	Number	Validity
Remainder of Portion 9 (Wouter) Portion 14 (Stofdraai) of the farm Lanyon Vale 376, Hay district	1,369.9544 1,640.6412	HCVWD (NC) 30/5/1/1/2/193 PR Protocol No 45/2005 Registered in the Mineral & Petroleum Titles Registration Office: Pretoria on 05 December 2005 under 96/2005 (PR)	Granted. 22/11/2005 -21/11/2007 Renewal lodged on 21/08/2007 Accepted on 04/09/2007 Renewal Granted 25/05/2009 for three years **PR Consolidated into MR 208 waiting for execution date**
Portion 16 (a portion of Portion 9) of the farm Lanyon Vale 376, Hay district	240.4480	HCVWD (NC) 30/5/1/1/2/197 PR Protocol No 36/2007 Registered in the Mineral & Petroleum Titles Registration Office: Pretoria on 18 September 2007 under 839/2007(PR)	Granted. 08/08/2007-07/08/2009 Renewal lodged on 07/05/2009 Accepted on 05/06/2009 **PR Consolidated into MR 208 waiting for execution date**

[1] Typically, the period of grant/validity is only set at the execution.

Remainder of Portion 18 (a portion of Portion 10) of the farm Lanyon Vale 376, Hay district	271.5347	HCVWD (NC) 30/5/1/1/2/408 PR Protocol No 38/2007 Registered in the Mineral & Petroleum Titles Registration Office: Pretoria on 18 September 2007 under 840/2007 (PR)	Granted. 08/08/2007-07/08/2009 Renewal lodged on 07/05/2009 Accepted on 20/05/2009 **PR Consolidated into MR 208 waiting for execution date**
Portion 7 Portion 11 (De Hoek)	1,628.9209 1,288.5227	HCVWD (NC) 30/5/1/2/2/0208 MR	**MR Consolidated into MR 208 waiting for execution date**
Remainder of Portion 9 (Okapi) of the farm Lanyon Vale 376, Hay district	779.0389	Okapi Diamonds Pty Ltd (NC) 30/5/1/1/2/426PR	Converted Prospecting Right Granted 23/11/2006–22/11/2008 Renewal Submitted 13/08/2008 Renewal accepted 20/08/2008 *Section 11 granted and executed* **PR Consolidated into NC208MR waiting for execution date**
Portion 16 (a portion of Portion 9) of the farm Lanyon Vale 376, Hay district	188.7789	Farhom Mining and Construction Pty Ltd (NC) 5/3/2/3452 MRC	Old Order MP 144/2004 Conversion application lodged on 29/07/2005 Accepted on 03/08/2005 Conversion Granted 06/04/2009 Consent Section 11(2) granted to HC van Wyk Diamonds Limited 06/04/2009 **MR Consolidated into NC208MR waiting for execution date**

The present Orange River between Douglas and Prieska, generally referred to as the Middle Orange River (MOR), displays a meandering channel morphology, best developed in areas underlain by the Dwyka Group. Palaeochannel depositional packages of the Orange River are preserved at different elevations above the present Orange River bed. The ages of the terraces young with decreasing elevation and, conversely, the probability of preservation decreases with increasing age and elevation. The Wouterspan deposit comprises an extensive, flat lying alluvial sequence located on terraces developed on the left bank of the present river, approximately 20-70m above the Orange River. The bedrock is well exposed in the workings and shale and tillite of the Karoo age Dwyka Group are common. The fluvial-alluvial gravels comprise a sequence of (basal) gravels 2-4m thick overlain by generally less than 5m of variably calcreted sands and silts and covered by a thin layer of soil and scree. The cobble-sized clasts within the gravels consist mostly of lava and quartzite with significant, if variable, amounts of Banded Iron Formation (BIF), and minor amounts of limestone, tillite, and agate. The matrix is sandy to gritty. As is usual with these types of deposits the degree of calcretisation decreases downward, and are characterised by hardpan or laminar calcrete at the surface to loosely cemented gravels at depth. The gravels, which are generally known to be diamondiferous, are, typically, not well sorted and are typical of braid bars that migrate through sections of river channels in response to variable water speed.

The Wouterspan properties were prospected and mined since 2005, initially by professional diggers (alluvial miners) and, subsequently, by Rockwell (in 2007/8). The Wouterspan mine was put on Care & Maintenance at the end of November 2008, as a result of international economic conditions and the declining diamond price. During the period March - November 2008, some 100,000m^3 of Rooikoppie and 452,293m^3 of calcreted fluvial-alluvial gravel (for a total of 552,293m^3) was processed to recover 3,896.42ct at an average grade of 0.70ct/100m^3 at a bottom cut-off size (bcos) of 2mm.

Since 2015, as part of Rockwell's plan of putting Wouterspan back into production, the plan has been updated and provides for the sampling of Rooikoppie gravels only in the initial stage, followed by sampling of fluvial alluvial gravels. Consequently, an extensive pitting campaign was initiated into the Rooikoppie gravels, with the intention of classifying these deposits based on the experience gained on Rockwell's Remhoogte project. As part of this programme, Rockwell excavated 1,695 prospect pits, specifically to determine the thickness and nature of the Rooikoppie gravels.

As part of the current (2016/2017) re-evaluation of the Wouterspan project, Rockwell has also proposed an updated mining plan based, not on bulk-mining of the entire gravel profile, but on the mining of selective units within the fluvial-alluvial stratigraphy and only specific Rooikoppie units. Subsequently, Rockwell geologists have re-examined the original borehole logs to extract particular coarse units. Although the volumes available might be expected to be reduced from previous programmes, it is expected that the resultant grades should be higher. Consequently, a re-sampling programme was initiated (since previous resource estimation programmes had been based on sampling the entire gravel profile).

As this sampling programme has only just been initiated, the sample sizes are not sufficiently large to support a Diamond/Mineral Resource classification. Further, gravel samples to date have largely been mixed – both interms of gravel type and sample location. In addition, the values of the diamonds recovered from the current re-sampling programme are derived from small samples which are insufficient to support a Diamond/Mineral Resource classification. **As a result, no current Diamond/Mineral Resources are estimated for the Wouterspan project.**

The volume of fluvial-alluvial gravel targeted on the Wouters section of Wouterspan is in the 30-40Mm^3 range, with expected average grades of 0.4-0.6ct/100m^3 and values of USD1,600-2,000/ct. The Rooikoppie Exploration Target in the same area is some 2-3Mm^3 at grades of 0.2-0.6ct/100m^3 and values of USD 1,300-2,000/ct. These target grades/values are based on limited recoveries within the prospecting area. Although an additional 2-3Mm^3 of Rooikoppie gravel has been outlined on the Stofdraai section of Wouterspan, no samples have been processed from this area. Diamond grade and value targets of 0.2-0.4ct/100m^3 and USD900-2,000/ct are based purely on geological interpretation of the gravel quality. *It is important to note that any statements of potential quantity and grade are conceptual in nature, that there has been insufficient exploration in these areas to define a mineral resource and that it is uncertain if further exploration will results in the targets being delineated as a mineral resource.*

It is recommended that the bulk-sampling programme continue to process both Rooikoppie and Fluvial-Alluvial gravels with the objective of upgrading certain of the Exploration Targets to Inferred Mineral Resources and/or to an Indicated Mineral Resource by obtaining representative grade and value data; and completing a Prefeasibility Study (if Indicated resources are defined). During this programme, it is fundamentally important that samples be processed separately by block and type, so that reliable results may be obtained. On-mine bulk-sampling and trial-mining costs on WPC and Stofdraai are expected to run at some ZAR22M/month. The planned CAPEX budget is some ZAR50M.

In addition, geological prospecting should continue on Stofdraai – 968 prospect pits are planned for 2017, at a budgeted cost of some ZAR200,000. Advancement to the subsequent phase of bulk-sampling is contingent upon positive results.

The independent QP has reviewed both the proposed work programme and budget and concurs that they are reasonable for the stage of the project.

1 INTRODUCTION

1.1 Terms of Reference and Scope of Work

Explorations Unlimited ("EU") was retained by Rockwell Diamonds Inc. ("Rockwell" or "the Company") to prepare a Technical Report for the Wouterspan Project in the Herbert District of the Northern Cape Province, South Africa. This Technical Report comprises background information and drill and sample data that includes bulk-sampling information from the property up to 28 February 2017. It has been prepared to document the results of exploration on the properties as summarized in the Company's Annual Information Form for the 2017 fiscal year.

A number of documents dealing with the Wouterspan properties have, previously, been filed on www.sedar.com and submitted to the JSE Limited Stock Exchange:

- *"Technical Report on the Wouterspan Alluvial Diamond Deposits, Middle Orange River, Northern Cape Province, South Africa"* by R. De Decker of De Decker and Associates Consulting Services, dated 30 March 2006 ("DDA" report),
- *"Update of Resources with respect to National Instrument 43-101F Technical Report on Rockwell Diamonds Inc Wouterspan Alluvial Diamond Deposits (Wouterspan) Operation, Northern Cape Province, South Africa"* by Clay A and McKenna, N, dated May 2007 ("Venmyn" report),
- *"Technical Report on The Wouterspan Alluvial Diamond Deposits, Middle Orange River, The Republic of South Africa"* by T R Marshall, dated 31 October 2007,
- *"Technical Report on The Wouterspan Alluvial Diamond Deposits, Middle Orange River, The Republic of South Africa"* updated on 28 February 2008 by T R Marshall and G Norton,
- "*Technical Report on the Wouterspan Alluvial Diamond Project, Herbert District, The Republic of South Africa"*, for Rockwell Diamonds Inc. with the effective date of 28 February 2009 by T R Marshall and G Norton,
- "*Technical Report on the Wouterspan Alluvial Diamond Project, Herbert District, The Republic of South Africa"*, for Rockwell Diamonds Inc. Updated on 29 September 2009 by T R Marshall and G Norton,
- *"Revised Technical Report on the Wouterspan Alluvial Diamond Project, Herbert District, The Republic of South Africa"*, for Rockwell Diamonds Inc. (effective date 30 November 2010), by T R Marshall and G Norton

Explorations Unlimited ("EU") is a South African based consultancy owned by Dr Tania R Marshall that has been operating since 1996. EU provides a variety of exploration and prospecting consulting services to the international minerals community, in particular with respect to geological evaluation and financial valuation of alluvial diamond mineral properties. This Technical Report was prepared, primarily, by Dr T.R. Marshall (Pr. Sci. Nat.). Dr Marshall has over 20 years' experience in the alluvial diamond industry, including a background in international mineral exploration and evaluation studies and has had direct experience with alluvial-eluvial diamond mining operations as a consulting geologist and, also, as an operator. Dr Marshall's experience includes operational and financial aspects of alluvial diamond mining, including mine-planning and costing. Rockwell has accepted that the qualifications, expertise, experience, competence, and professional reputation of Dr Marshall are appropriate and relevant for the preparation of this Report.

Rockwell, listed on the TSX (RDI) and the JSE (RDI), is a company involved in the exploration and mining of alluvial diamond deposits in South Africa (**Fig. 1.1 and Fig. 1.2**).

Figure 1.1 Location of Wouterspan operations

- Rockwell and its wholly-owned subsidiary Rockwell Resources RSA (Pty) Ltd (“Rockwell RSA”) owns[2] the Wouterspan Project (Middle Orange River) through a 74% shareholding in HC Van Wyk Diamonds Limited (“HCVWD”);

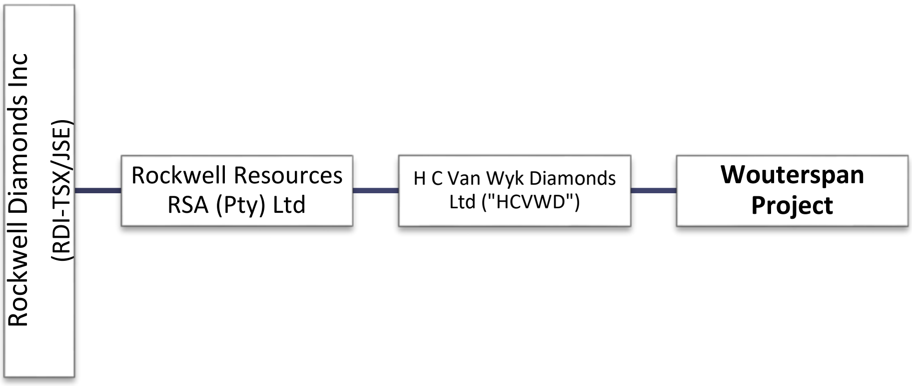

Figure 1.2 Corporate shareholdings of Rockwell (2016)

[2] On 24 March 2017, it was announced that a judge in Kimberley South Africa issued an interim liquidation order against three subsidiaries of Rockwell. The interim orders, which still have to be confirmed in a final hearing, includes Rockwell RSA, HCVWD and Saxendrift Mine (Pty) Ltd (Saxendrift). See section 3.6.1 for further details.

In addition, Rockwell owns a 20% stake in Flawless Diamond Trading House (Proprietary) Limited ("FDTH"), thus providing a unique marketing and sales arm for Rockwell at a fee which is well below the market norm.

The Technical Report was compiled by Dr Marshall. This Technical Report has been prepared in accordance with Canadian Securities Administrators' National Instrument 43-101 - *Standards of Disclosure for Mineral Projects* ("NI 43-101"), the NAPEGG guidelines for the Reporting of Diamond Exploration Results, Identified Mineral Resources and Ore Reserves and the Best Practice Guidelines prepared by CIM to assist the QP in the planning, supervision, preparation and reporting of Mineral Resource and Mineral Reserve (MRMR) estimates. The Mineral Resource estimate has, further, been prepared with reference to the 2016 South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (SAMREC) code. In particular, the SAMREC Code (along with the SAMREC Diamond Guidelines document[3]) provides guidelines for the diamond industry. The SAMREC Code has also been incorporated into the JSE Listings Rules. Since Rockwell is dual listed in both Canada and South Africa, reference will be made to both CIM and SAMREC Mineral Resource estimation codes (with CIM taking preference as the company's primary listing is the TSX).

The conclusions expressed in this independent resource estimate are appropriate as at 28 February 2017. The appraisal is, therefore, only valid for this date and will change with time in response to ongoing exploration and production results as well as with variations in diverse external factors.

1.2 Sources of Information

The comments and recommendations in this report, specific to the Wouterspan property, are based, primarily, on information and technical documents and production data supplied by Rockwell. Underlying legal contracts, permissions and agreements have not been reviewed by the author (refer section 2.1). Other technical/scientific papers and miscellaneous documents referred to are identified within the text or have been referenced in Section 18.

Since Dr Marshall was not on the Wouterspan Project site for the full period of the prospecting and bulk-sampling, much reliance was placed on the technical management of Rockwell who provided production data and internal audit reports for review. Dr Marshall has reviewed this data and considers it to be reasonable for the purpose of this report. In these aspects, reliance has been placed upon the relevant mine personnel providing the information.

An independent assessment of the regional diamond size frequency distribution was completed by Dr M M Oosterveld in December 2008. Dr Oosterveld is an acknowledged expert in this field, and is registered with SACNASP. The author has not independently verified the findings of this study, but has accepted them to be materially accurate in all respects.

1.3 Units and Currency

All values are metric, unless otherwise stated. Historical grade and tonnage figures are reported in units as originally published. All budget costs are presented in South African Rands (ZAR) and United States Dollars (USD), for which a nominal exchange rate of USD1 = ZAR13,41 has been used (31 March 2017). Diamond values are expressed in United States Dollars.

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[3] 2016 SAMREC Guideline Document for the Reporting of Diamond Exploration Results, Diamond Resources and Diamond Reserves (and other Gemstones, where Relevant) v1.1 ("SAMREC Diamond Guidelines")

1.4 Field involvement of Qualified Person

A site visit to the Wouterspan project area has undertaken by Dr Marshall during 14-15 March 2017. During this visit, a review was made of all geological, technical and administrative procedures and protocols being practiced by Rockwell personnel. In addition, numerous discussions were held with the management and technical personnel of Rockwell, who readily provided all requested information. EU's extensive experience in this area (including previous visits to the Property) as well as that gained from prior investigations of other, nearby deposits was also drawn upon as required.

1.5 Use of Data

Neither Explorations Unlimited nor family members have a business relationship with Rockwell or any associated company, nor with any other company mentioned in the Report which is likely to materially influence the impartiality of the Report, or create the perception that the credibility of the Report could be compromised or biased in any way. The views expressed herein are genuine and deemed independent of Rockwell. Moreover, neither the author of the report nor family members have any financial interest in the outcome of any transaction involving the properties considered in this Report, other than the payment of normal professional fees for the work undertaken in its preparation (which is based upon hourly charge-out rates and reimbursement of expenses). The payment of such fees is not dependent upon the content, or conclusions, of this Report or any consequences of any proposed transaction.

Rockwell has warranted that a full disclosure of all material information in its possession or control has been made to EU, and that it is complete, accurate, true and not misleading. Draft copies of the Report have been reviewed for factual errors by Rockwell. Any changes made as a result of these reviews did not involve any alteration to the conclusions made. Hence, the statements and opinions expressed in this document are given in good faith and in the belief that such statements and opinions are not false and misleading at the date of this Report.

Written consent will be provided to Rockwell for the filing of the Technical Report with any stock exchange and other regulatory authority and also for any publication by them of the Technical Report for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, provided that the content and form is consistent with this Technical Report. For all other public reporting purposes[4], specific consent is required from EU as to the form and content of any extracts from this Technical Report. EU reserves the right, but will not be obligated, to revise this Report and conclusions if additional information becomes known to EU subsequent to the date of this Report.

[4] Documents compiled for public reporting purposes are defined in the SAMREC Code (2016) as any documents which may find their way into the public domain.

2 RELIANCE ON OTHER EXPERTS

2.1 Legal Opinion

A Title Opinion regarding the underlying legal contracts, permissions and agreements was provided by Director in Mining and Resources, Chris Stevens of Werksmans Attorneys on 8 May 2017 – "*Title Opinion: Wouterspan Project*".

Chris Stevens is a director with Werksmans Attorneys where he is head of the firm's Mining and Resources practice area. He advises on all aspects of mining law in South Africa, including in relation to commercial arrangements, conveyancing, litigation, opinion work, black economic empowerment laws and due diligence aspects. He advises many of the South African major mining houses on these aspects, as well as medium size mining companies and junior exploration companies. He further advises numerous American, UK, Canadian and Australian mining companies with interests in South Africa and acts for numerous black empowerment companies in relation to mining transactions. He has also been involved in numerous transactions for South African mining entities in sub-Saharan Africa. He has also been integrally involved in advising numerous mining companies on various aspects of the Mineral and Petroleum Resources Development Act, 28 of 2002, as well as the amendments to that legislation. Chris Stevens co-lectured the LLB course at the University of the Witwatersrand on prospecting and mining law in 1998 to 2007. He lectures at the University of the Witwatersrand to mining and engineering students on compliance aspects and annually lectures at the University of Pretoria for MSc geology students in a compliance course. He sat on the mining law committee of the International Bar Association in 2002 to 2006. Chris Stevens received B. Com and LLB degrees from the University of Witwatersrand and has been practicing mining law since 1987. He was admitted as a notary public in 1990. Chris Stevens speaks at numerous conferences, both in South Africa and internationally in relation to the South African mining industry and, as such, is well qualified to produce reliable legal opinions on the Saxendrift project.

The author has not independently verified the status of these contracts, permissions and agreements but has accepted that the legal opinion represents a materially accurate situation. The author has relied on this opinion for the compilation of Section 3.2.

2.2 Survey

Up until end August 2010, the sample volumes were surveyed by an independent professional surveyor (F J van der Merwe) who is registered with PLATO[5] and who may act as a CP in his own right. These were provided to Rockwell, under certification, on a monthly basis. The author has relied on these mined volumes in all sections dealing with bulk-sample and trial-mining results prior to this date.

From September 2010 to end of February 2017, the surveying on Saxendrift was completed by an independent survey services company, RBW Survey (Pty) Ltd. The fieldwork and calculations was under the auspices of Roland Harms (registered with IMSSA), supported by qualified and trained surveyors in the field. The legal appointment and signing off of month-end calculations and all prescribed statutory plans are the responsibility of Werner Harms, appointed in terms of the Mines and Works Act of 1956.

[5] South African Council for Professional Land Surveyors and Technical Surveyors. This body has been, subsequently, re-organised into the South African Geomatics Council (SAGC), a statutory body and the Institute of Mine Surveyors of South Africa (IMSSA), a professional body.

2.3 Diamond Valuation

Valuation of the recovered diamonds has been through the industry standard practice of putting representative diamond parcels up for sale, either through Flawless Diamonds Tender House ("FDTH") or Diacore.

- FDTH is a marketing and tender sale company (held 20% by Rockwell) that operates a professional run, fully transparent "sealed-bid tender system". Details of this process are described in a later section.
- Diacore provides rough and polished diamonds to customers internationally and has manufacturing facilities/offices in Botswana, South Africa, Namibia, India, Dubai, Belgium, Israel and New York. The group is well-known for its investment in rare and exceptional diamonds as well as for the creation of unique high-end jewellery (amongst which are the 203.04ct De Beers Millennium Star and the 59.6ct fancy vivid Steinmetz Pink).

Values obtained for diamonds through both these means represent actual sales completed in competitive market by registered, practicing, international diamond buyers whose qualifications (and individual identities) are unknown. Since the values thus obtained are actual, realised sales figures, and not simply a valuation with no obligation to purchase, there are no risks associated with the diamond values used in this technical report. These sales values have been relied upon by the author in all sections relating to diamond valuations. The author has checked each brokers note and Kimberley Process Certificate to verify the information provided.

3 PROPERTY DESCRIPTION AND LOCATION

3.1 Property description and location

The Wouterspan project is located along the north bank of the middle Orange River between Douglas and Prieska in the Northern Cape Province of South Africa (**Fig. 3.1**), which area has been the site of intense alluvial diamond activity since the 19th century. The middle Orange River and, particularly, the stretch between Douglas and Prieska, are historically important diamond mining centres, with alluvial deposits having been mined here for over 100 years (de Wit *et al*., 1997; Marshall, 1987).

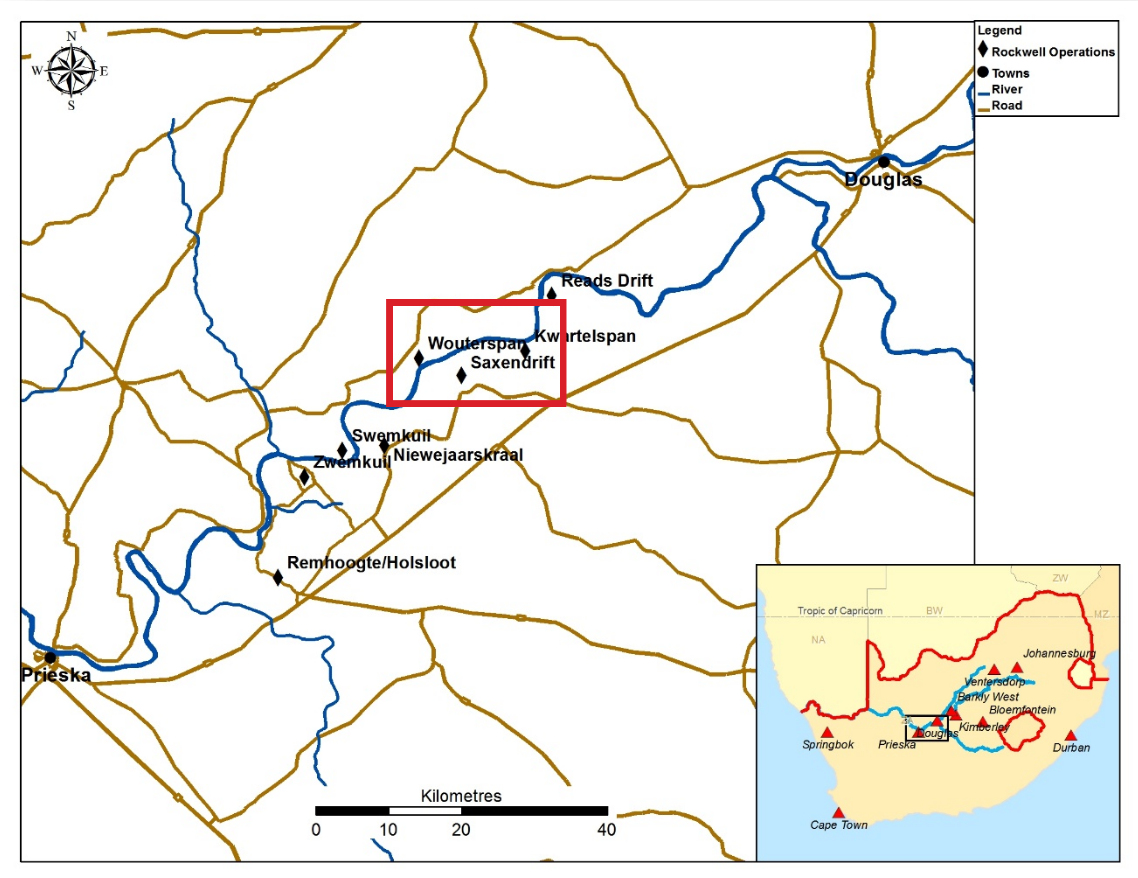


Figure 3.1: Location of the Wouterspan project in the Northern Cape Province

Wouterspan is located some 100km southwest of Douglas and some 200km from Kimberley on the right bank of the Orange River. The project is comprised of a number of individual farm portions of the farm Wouterspan (Lanyonvale 376), for a total of 7,407.8447ha (**Fig. 3.2; Table 3.1**).

For ease of reference, the Wouterspan project is sub-divided into the main Wouters operation (comprising the farms to the south of the main road) and the satellite Stofdraai operation (comprising the northern portion of the farms Wouter and Stofdraai). The western properties (Re Ptn 18 and Ptns 7 and 11 have yet to be evaluated).

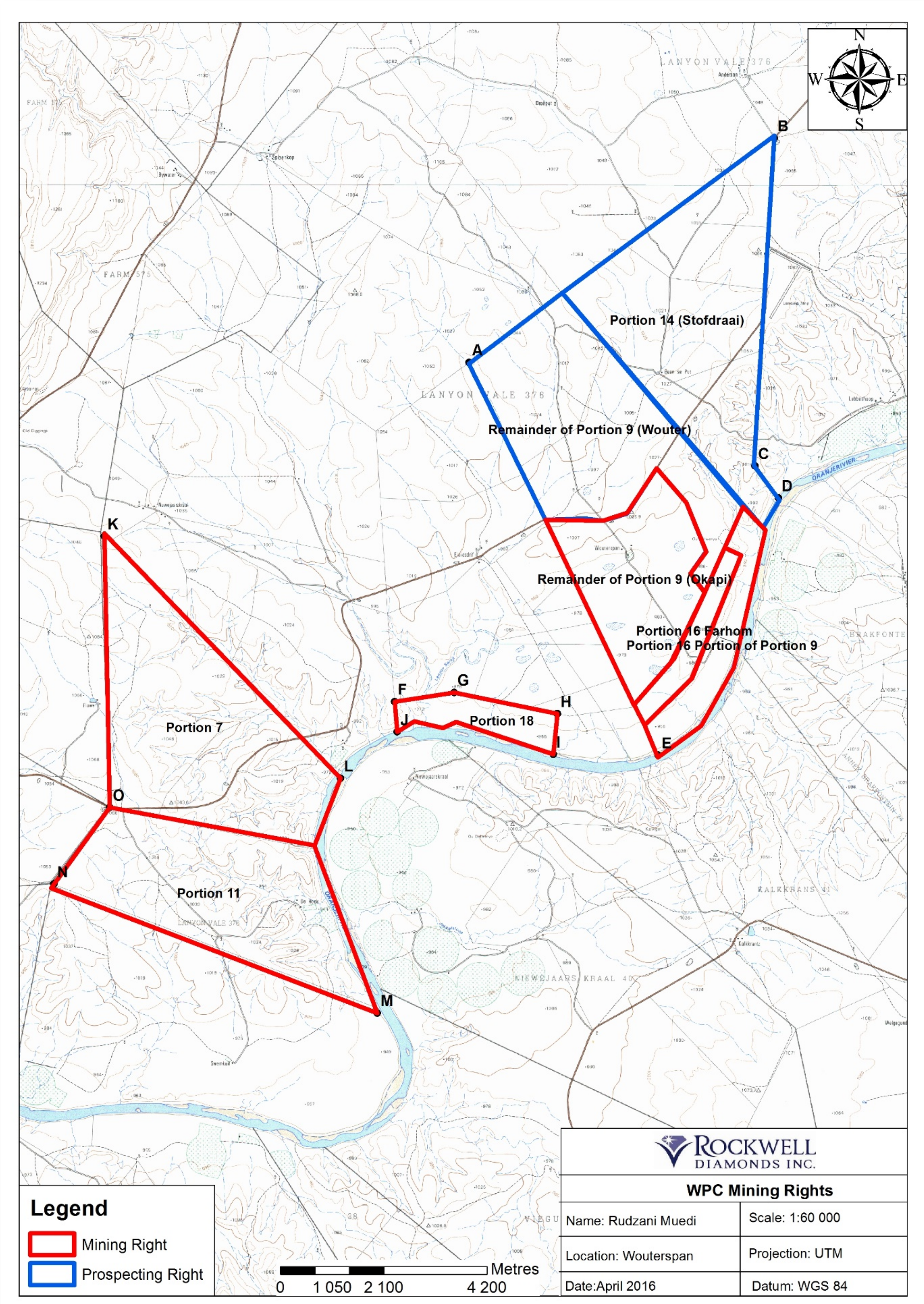


Figure 3.2 Location of the Wouterspan Project Properties

Table 3.1: Co-ordinates of the Wouterspan properties (Datum: WGS84)

POINT	UTM Y	UTM X	POINT	UTM Y	UTM X
A	6,758,762.20	707,604.15	I	6,750,728.29	709,273.88
B	6,763,181.96	713,844.13	J	6,751,290.87	706,007.07
C	6,756,535.55	713,375.96	K	6,755,412.57	700,031.49
D	6,755,920.20	713,804.56	L	6,750,418.00	704,708.59
E	6,750,744.54	711,283.96	M	6,745,658.05	705,539.02
F	6,751,882.67	705,966.54	N	6,748,304.59	698,930.32
G	6,752,048.17	707,151.57	O	6,749,854.77	700,122.16
H	6,751,553.58	709,406.23			

3.2 Permits contracts and agreements

3.2.1 The Wouterspan project

In early 2005, HCVWD entered into agreements with two companies - *Okapi Diamonds (Pty) Ltd* ("Okapi") and *Farhom Mining and Construction (Pty) Limited* ("Farhom"), private South African companies involved in the mining of alluvial diamonds on Lanyonvale (for details of these agreements, consult *"Technical Report on The Wouterspan Alluvial Diamond Deposits, Middle Orange River, The Republic of South Africa"* by T R Marshall, dated 31 October 2007). As of April 2009, the Farhom mining right was ceded to HCVWD. The application to cede the Okapi prospecting rights to HCVWD and to consolidate all the rights into a single mining right was submitted to DMR in November 2008. It is understood that the relevant Section 11 consent has been granted and the cession has been executed and lodged with the Mining Titles Office for registration. The following details regarding the surface and mineral rights have been taken from the Legal Opinion provided by Werksmans.

3.2.2 Surface ownership / land use rights

The surface right and the land over the greater part of the Lanyonvale mineral holdings is owned[4] by HCVWD. In respect of the "Wouters" portion of Lanyonvale (Portion 9, previously under licence to Okapi), both the Surface Right and the land are owned[6] by Mr A C Vlok. Final payment for these surface rights and land will be made upon registration of the mining right in the name of HCVWD.

3.2.3 Mineral rights (Mining/Prospecting Rights, permits)

An old order Mining Permit (MP144/2004), in the name of Farhom Mining and Construction (Pty) Ltd, was converted successfully to a new order Mining Permit. The application was granted on 06 April 2009. Since the application was in the name of Farhom Mining, a Section 11 cession (and ministerial consent) was required to cede it to HCVWD. The combined Mining Right (over portions 14, 16, 7, 11 and 18 of the farm Lanyonvale 376)[7] was granted on 25 January 2010, but has not yet been executed (**Table 3.2**).

[6] Under South African law, the land may also be owned by the holder of the Surface Right

[7] The acceptance letter issued by the DMR fails to mention Re/Ptn 9, notwithstanding that it was part of the application

Table 3.2 Summary of current mineral rights holdings on the Wouterspan Project

Property	Size (ha)	Number	Validity
Remainder of Portion 9 (Wouter) Portion 14 (Stofdraai) of the farm Lanyon Vale 376, Hay district	1369,9544 1640,6412	HCVWD (NC) 30/5/1/1/2/193 PR Protocol No 45/2005 Registered in the Mineral & Petroleum Titles Registration Office: Pretoria on 05 December 2005 under 96/2005 (PR)	Granted. 22/11/2005 -21/11/2007 Renewal lodged on 21/08/2007 Accepted on 04/09/2007 Renewal Granted 25/05/2009 for three years **PR Consolidated into MR 208 waiting for execution date**
Portion 16 (a portion of Portion 9) of the farm Lanyon Vale 376, Hay district	240,4480	HCVWD (NC) 30/5/1/1/2/197 PR Protocol No 36/2007 Registered in the Mineral & Petroleum Titles Registration Office: Pretoria on 18 September 2007 under 839/2007(PR)	Granted. 08/08/2007-07/08/2009 Renewal lodged on 07/05/2009 Accepted on 05/06/2009 **PR Consolidated into MR 208 waiting for execution date**
Remainder of Portion 18 (a portion of Portion 10) of the farm Lanyon Vale 376, Hay district	271,5347	HCVWD (NC) 30/5/1/1/2/408 PR Protocol No 38/2007 Registered in the Mineral & Petroleum Titles Registration Office: Pretoria on 18 September 2007 under 840/2007 (PR)	Granted. 08/08/2007-07/08/2009 Renewal lodged on 07/05/2009 Accepted on 20/05/2009 **PR Consolidated into MR 208 waiting for execution date**
Portion 7 Portion 11 (De Hoek)	*1,628,9209* *1,288,5227*	HCVWD (NC) 30/5/1/2/2/0208 MR	**MR Consolidated into MR 208 waiting for execution date**
Remainder of Portion 9 (Okapi) of the farm Lanyon Vale 376, Hay district	779.0389	Okapi Diamonds Pty Ltd (NC) 30/5/1/1/2/426PR	Converted Prospecting Right Granted 23/11/2006–22/11/2008 Renewal Submitted 13/08/2008 Renewal accepted 20/08/2008 *Section 11 granted and executed* **PR Consolidated into NC208MR waiting for execution date**
Portion 16 (a portion of Portion 9) of the farm Lanyon Vale 376, Hay district	188.7789	Farhom Mining and Construction Pty Ltd (NC) 5/3/2/3452 MRC	Old Order MP 144/2004 Conversion application lodged on 29/07/2005 Accepted on 03/08/2005 Conversion Granted 06/04/2009 Consent Section 11(2) granted to HC van Wyk Diamonds Limited 06/04/2009 **MR Consolidated into NC208MR waiting for execution date**

On 21 November 2008, an application to convert the Okapi prospecting permit to a new order Mining Right, along with the consolidation of all the HCVWD prospecting and mining rights and permits into a single entity (208MR) was submitted to the DME. The Mining Right was granted on 25 January 2010.

Now that the section 11 cession of portion 9 from Okapi to HCVWD has been completed there should be no impediment in the notarial execution of the mining right. In accordance with a Supreme Court of Appeal decision it was held that the period of a right that is granted commences from the date that the holder gains knowledge of the grant of the right by the Minister i.e. when the holder obtains a copy of the letter of grant. The letter of grant for the combined Mining Right was dated 25 January 2010 and it appears as if HCVWD gained knowledge of it by having received a copy thereof on 3 February 2010. That is now deemed to be the date that the right commences. It is noted that the mining work programme provides for a 15-year life of mine although the application form on SAMRAD was for 30 years. It may be that the DMR will execute the mining right only relating to a mining period of 15 years, 7 of which have already run their course. Therefore, HCVWD should negotiate with the DMR and attempt to procure execution of the mining right for at least a 22-year period on the basis that 7 years has run its course and the right has not yet even become effective because it has not been notarially executed. The risk remains that the DMR refuses to do this and that this when the right is executed it will be a right for 15 years from 2 February 2010. Alternatively, HCVWD could attempt to persuade the DMR to execute a mining right relating to a 30-year period because that was on the application form and the application was granted and then the lapse of the initial 7-year period would no longer be relevant.

3.2.3.1 Royalty Payments

As with all mining properties in South Africa, the Wouterspan project is subject to a State royalty. Details are presented in Section 18.2.3.4 but the minimum and maximum rates for diamonds (unrefined minerals) are 0.5% and 7.0%, respectively.

In terms of the Mining and Petroleum Royalties Act, royalties are payable from March 1, 2010. The deadline for the registration of mining and minerals firms, under the Act, had closed on January 29. In compliance with this requirement, Rockwell has registered as a royalty payer with the South African Revenue Service ("SARS").

3.3 BEE Compliance

In October 2014, Rockwell RSA and others initiated a consolidated sale of shares agreement with Siyancuma Capital (Pty) Ltd ("Siyancuma") in terms of which Rockwell RSA agreed to sell 30% of the shares in Saxendrift, HCVWD and Jasper to Siyancuma. Agreements were signed with Siyancuma; however, the suspensive conditions were as yet not met, and negotiations are still under consideration[8] to tweak the implementation. At 28 February 2017, legally Rockwell does not yet have a BEE partner in terms of the Mining Charter.

3.4 Environmental

3.4.1 Water Permits

The Department of Water Affairs and Forestry (DWAF) has issued a permit in favour of Farhom Mining (licence # B191/2/470/1 on 23/09/2007) for 72,000m^3 per annum. Since this figure is insufficient for planned, future production on Wouterspan, Rockwell had made application to DWAF (20/02/2007) for an additional 350,000m^3 per annum in the name of HCVWD. Rockwell is still waiting on DWAF for resolution of this issue.

[8] Rockwell Diamonds Inc. – Management position paper – BEE transaction and status at end Feb 2017. P Cooke, Interim CFO

3.4.2 Environmental and Rehabilitation

For all properties, existing approved Standard Environmental Management Programmes ("SEMP") are in place and will remain valid until new Environmental Management Programmes (EMPR's) have been approved by DMR. Concomitant with the application of the consolidated mining right (208MR), Rockwell submitted an updated EMPR. Signature is expected as soon as the Mining Right is executed.

The Financial Quantum Calculation (**Table 3.3**) at end February 2017, based on the survey results, reflect the following new rates supplied by the DMR. Calculation[9] of premature closure for Wouterspan 2017 is ZAR 14,175,152. The increase is in general due to an increase in DMR rates (12.4%), and primarily an increase in the area of opencast rehabilitation of final voids/ramps.

The indication was that rehabilitation would only be finalized towards the end of the Life of Mine, which was set at 15 years from 2009 as reflected in the Mine Works Plan. Seven years remain as at 28 February 2017 in terms of this plan. The amount of ZAR 14,175,152 (2006: ZAR 7,719,346) represents the current cost of the obligation, and was escalated over the remaining period of 7 (2006: 8) years at a projected average inflation rate of 6.0% (2006: 5.5%) and discounted at a risk-free rate of 8.67% (2006: 9.25%) (the long-term bond fine rate) to establish the present value of the obligation. The above resulted in a present value of ZAR 11,910,000 (2006: ZAR 5,650,000 which was down trended to ZAR 5,379,818) and a future value of ZAR 21,310,000 (2006: ZAR 21,300,000). At 28 February 2017, management considered and confirmed the above financial exposure at ZAR 11,900,000.

Table 3.3 Rehabilitation liability on Wouterspan

Rehabilitation provision at 28 February 2016		R 5 379 818
Farhom	R 1 038 308	
Okapi	R 3 401 538	
AC Vlok	R 1 210 154	
Overall overprovision per audit adjustments	R (270 182)	
Movement during year		R 6 530 182
Rehabilitation provision at 28 February 2017		**ZAR 11 910 000**
Farhom	R 2 196 879	
Okapi	R 7 164 301	
AC Vlok	R 2 548 820	

Guarantees held by the DMR against the rehabilitation obligation are (**Table 3.4**):

Table 3.4 Current rehabilitation guarantees held by Rockwell

Standard bank	05/09/2006	R 80 000	M469050
Standard bank	31/08/2007	R 520 000	M482771
Standard bank	31/08/2007	R 2 257 104	M482750
Standard bank	31/08/2006	R 150 000	M468899
Standard bank	14/12/2006	R 500 000	M473382

[9] Rockwell Diamonds Inc. – provision for rehabilitation – HC van Wyk Diamonds Ltd, Financial year ended 28 Feb 2017. Audit document provided by P Cooke, Rockwell interim CFO on 10 April 2017.

Standard bank	31/08/2007	R 500 000	M482733
Standard bank	30/03/2009	R 100 000	M502474
Standard bank		R 100 000	M512005
	TOTAL	**ZAR 4 207 104**	

3.4.3 Mine closure

Even prior to the opening (re-opening) of Wouterspan, plans are being made to ensure that the eventual mine closure plans will, as far as it is reasonably practicable, rehabilitate the environment affected by the proposed mining operation to its natural or a predetermined state or to a land use which conforms to the generally accepted principle of sustainable development. More specifically, the management of environmental impacts will form an integral part of the proposed mining operation. Negative impacts on the environmental rights will, for as far as is practicable, be anticipated and prevented, and where they cannot be altogether prevented, be both minimised and remedied.

3.5 Social Responsibility

Along with focused business objectives, Rockwell's social responsibility values and commitments form an integral part of the mining operations. Rockwell is committed to providing increased returns to shareholders while sharing the value created from the operations with a wider set of stakeholders through the alignment and linkage of business and social responsibilities.

3.5.1 Social and Labour Plans

In accordance with the MRPDA a Social and Labour Plan ("SLP") is must be submitted to the DMR along with the other requirements for a mining right. The objectives of the SLP is to promote employment and advance the social and economic welfare of all South Africans; to contribute to the transformation of the mining industry; and to ensure that holders of mining rights contribute toward the socio-economic development of the areas in which they are operating, as well as the areas from which the majority of the workforce is sourced. In harmony with these objectives, the SLP requires that the company address literacy levels and life skills within the workforce as well as implement career progression paths, mentorships, internships and bursary plans for its employees. In addition, the company is required to contribute to the upliftment and development of the local communities through procurement, establishment of a Future Forum and the creation of Small, Micro and Medium Enterprises (SMME's).

3.6 Associated Risks

The prospecting and mining business is both risky and speculative. This Technical Report identifies some of the factors that are likely to affect the company and the project, as well as the value of its securities. However, this is not an exhaustive list and investors should seek professional advice for further clarification of the risks involved before deciding whether to invest in the diamond mining industry.

Factors that could cause actual results to differ materially from those in forward-looking statements include uncertainties and costs related to the transaction and the ability of each party to satisfy the conditions precedent in a timely manner or at all, exploration and development activities, such as those related to determining whether mineral resources exist on a property; uncertainties related to expected production rates, timing of production and cash and total costs of production and milling; uncertainties related to the ability to obtain necessary licenses, permits, electricity, surface rights and title for development projects; operating and technical difficulties in connection with mining development activities; uncertainties related to the accuracy of Mineral Resource estimates and estimates of future production and future cash and total costs of production and diminishing quantities or grades if mineral resources; uncertainties related to unexpected judicial or regulatory procedures or changes in, and the effects of, the laws, regulations and government policies affecting our mining operations; changes in general economic conditions, the financial markets and the demand and market price for mineral commodities such as diesel fuel, steel, concrete, electricity, and other forms of energy, mining equipment, and fluctuations in exchange rates, particularly with respect to the value of the US dollar, Canadian dollar and South African Rand; changes in accounting policies and methods used to report financial condition, including uncertainties associated with critical accounting assumptions and estimates; environmental issues and liabilities associated with mining and processing; geopolitical uncertainty and political and economic instability; and labour strikes, work stoppages, or other interruptions to, or difficulties in, the employment of labour, or environmental hazards, industrial accidents or other events or occurrences, including third party interference that interrupt operation of mines or development projects.

To the extent known, no specific risks (*other than the unresolved BEE situation disclosed in section 3.3 above and the provisional liquidation order against Rockwell RSA, HCVWD and Saxendrift, as disclosed below*) exist that may affect access, title or right, or the ability of Rockwell to perform work on the properties comprising the Wouterspan project. However, generalised risks associated with prospecting and mining are always present. These issues are discussed more fully in Section 15.2 and will not be repeated here.

3.6.1 Interim Liquidation Order

On 24 March 2017, it was announced that a judge in Kimberley, South Africa issued interim liquidation orders against three subsidiaries of Rockwell. The interim orders, which were to have been confirmed in a final hearing (scheduled for 22 June 2017), includes Rockwell RSA, HCVWD and Saxendrift. If the final hearing confirmed the liquidation order, then all the mineral holdings of Rockwell RSA and HCVWD, which includes all the holdings that form part of the Wouterspan project, will lapse.

On 18 May 2017, an application to have all three of the subsidiaries places in business rescue[10] was successful[11]. The business rescue practitioners appointed by the court[12] are appoint Messrs Trevor Murgatroyd and Peter van der Steen of Metis Strategic Advisors.

[10] The business rescue regime does not have a directly analogous structure in Canadian restructuring practice, and is primarily aimed at enabling a company to continue trading on a solvent basis after conclusion of the business rescue process. Business rescue is similar to Canadian work out arrangements, although a major distinction in South Africa is that commercial decisions are made by the management of the company in business rescue (the business rescue practitioners and directors), not the judge which is the practice in Canada. One similarity to the Canadian process is that the Company will need a court order to exit business rescue and to do so, the practitioners will have to be satisfied that the business is sound enough to meet its obligations as they fall due for the subsequent six months after exit (Rockwell Press release, May 19 2017).

[11] The immediate effect is that all legal proceedings against the subsidiaries are stayed, and the liquidation process is suspended (Rockwell Press release, May 19 2017).

[12] This appointment is subject to ratification by the creditors (Rockwell Press release, May 19 2017).

4 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Topography, elevation and vegetation

The project area is situated in a region of gently undulating hills on the edge of the Karoo, an area of sparse, arid semi desert that occupies much of central South Africa. The area comprises elevated palaeoriver terraces at elevations of some 20-30m above the present Orange River. The terraces are cut by a number of small ephemeral streams that flow towards the Orange River. The surrounding terrain (**Plate 4.1**) is a flat semi-desert environment with sparse grass and occasional shrubs, thorn bushes and succulents in a sandy soil. Bigger trees often line the banks of the Orange River.

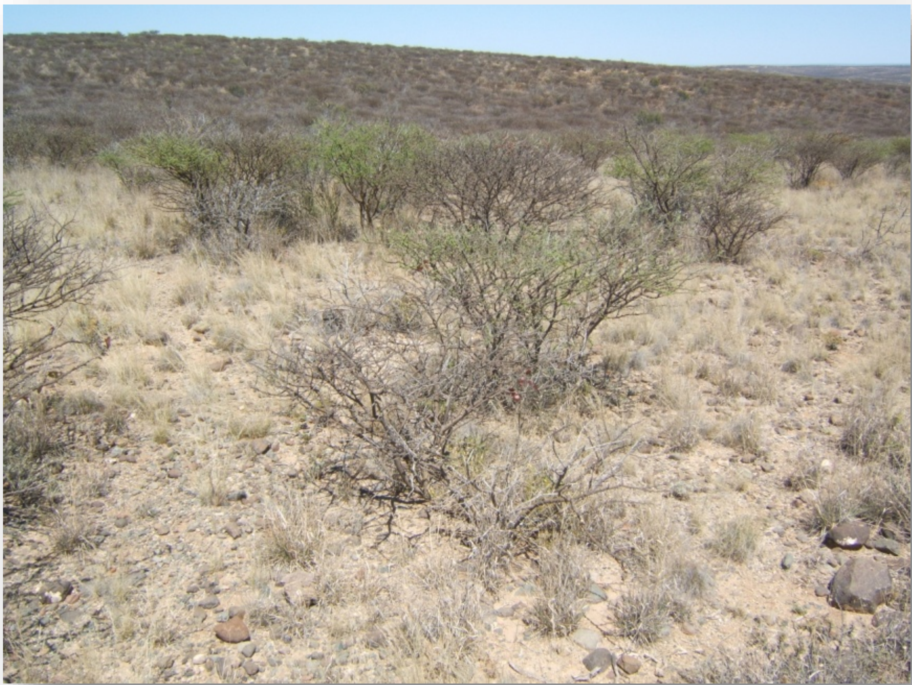
Plate 4.1: Landscape typical of the MORO properties

Since no exploration or mining activities will be undertaken in the present river channel, bank-full discharge conditions will have no effect on operations. Even during floods, the effect on operations will be negligible, since the narrow, modern-day floodplains are not exploration targets.

There are an estimated 5,400 plant species in the Northern Cape Province. The largest part of the province falls within the Nama-Karoo biome, the third largest biome in South Africa, covering about 20.5% of the country or more than 260,000 km^2. It stretches across the vast central plateau of the western half of the country.

The dominant vegetation is a grassy, dwarf shrub land. Grasses tend to be more common in depressions and on sandy soils, and less abundant on clayey soils. Grazing rapidly increases the relative abundance of shrubs. Most of the grasses are of the C4 type and, like the shrubs, are deciduous in response to rainfall events. Sweet Thorn *Acacia karroo* occurs in many places along the banks of the Orange River (**Plate 4.2**).

Plate 4.2 Grasses, trees and shrubs common to the Nama-Karoo biome



The amount and nature of the fuel load is insufficient to carry fires and fires are rare within the biome. The large historical herds of Springbok and other game no longer exist. Like the many bird species in the area - mainly larks - the game was probably nomadic between patches of rainfall events within the biome. The Brown Locust and Karoo Caterpillar exhibit eruptions under similarly favourable, local rainfall events, and attract large numbers of bird and mammal predators. Common animals include the Bat-Eared Fox, Ostrich, Spring Hare, and tortoises. The Riverine Rabbit is a threatened species found in the Nama Karoo.

Less than 1% of the biome is conserved in formal areas. The Prickly Pear *Opuntia aurantiaca* and Mesquite *Prosopis glandulosa* are the major alien invader species. Urbanization and agriculture are minimal, and irrigation is confined to the Orange River valley and some pans. Most of the land is used for grazing, by sheep (for mutton, wool and pelts) and goats, which can be commensurate with conservation. However, under conditions of overgrazing, many indigenous species may proliferate, including Three-thorn *Rhigozum trichotomum*, Bitterbos *Chrysocoma ciliata* and Sweet Thorn *Acacia karroo*, and many grasses and other palatable species may be lost. There are very few rare or Red Data Book plant species in the Biome, however the Shepherd's Bush (*Boscia albutrunca*) is a protected species that occurs widely *(***Plate 4.2***)*.

Plate 4.3: Shepherds Bush (Boscia albitrunca), a protected species, as found on Wouterspan

An extensive bird life can be found within the project area and specifically on the hills and small valleys with dense vegetation growth. Some of the following birds have been spotted on the property or are known to occur in the area. A number of endangered species (both vulnerable and rare[13]) of birds and mammals have been identified on the property, especially in areas which have been rehabilitated.

[13] Vulnerable includes taxa of which all, or most, populations are decreasing because of overexploitation, extensive destruction or degradation of their habitat or other environmental disturbances i.e. the species is considered to facing a high risk of extinction in the wild. Rare indicates taxa with small populations which are not presently endangered or vulnerable, but which are potentially at risk.

4.2 Access and Communication

The project is some 176km from Kimberley and Barkly West via route R357 from Douglas to Prieska south of the Orange River. For reference, Kimberley is some 570km from Johannesburg and can be accessed by national road as well as by rail and air services.

An unpaved airstrip is situated on the farm Saxendrift 20, some 40km to the east. A helipad is located on both Saxendrift and the adjacent Wouterspan. Kimberley Airport (IATA: KIM) services the region with regular, scheduled daily flights to/from Johannesburg (1hr,15min) and Cape Town (2hr,40min).

Communication is available through three cellular telephone networks.

4.3 Proximity to population centres and nature of transport

Douglas and Prieska are some 60km and 70km distant from the Saxendrift operation, respectively. For reference, Kimberley is some 570km from Johannesburg and can be accessed by national road as well as by rail and air services.

An unpaved airstrip is situated on the farm Saxendrift 20, adjacent to Saxendrift Mine. A helipad is located on both Wouterspan and the adjacent Saxendrift mine. Kimberley Airport (IATA: KIM) services the region with regular, scheduled daily flights to/from Johannesburg (1hr,15min) and Cape Town (2hr,40min).

4.4 Climate

Kimberley is situated very close to the geographic centre of South Africa in the Northern Cape at an altitude of some 1,196m (3,924ft). The Northern Cape climate (**Fig. 4.1**) is mainly semi desert – this is a large dry region of fluctuating temperatures and varying topographies. The annual rainfall is sparse, only 50 to 400mm per annum. The average is 256mm, mostly in the form of spectacular summer thunderstorms. The associated wet conditions generally cause plant/processing disruptions for only limited periods.

The average annual evaporation rate is measured at 2,524mm. The low rainfall and high evaporation rates result in extremely dry conditions. Daytime temperatures can be extreme and vary from lows of around in winter to highs of around 42°C in summer. Average temperatures, however, are in the range between a winter minimum of 3°C to a summer maximum of 33°C.

In summer (December to February), temperatures in the Northern Cape usually reach between 33°C and 42°C (in 1948 a recorded high of 52°C was measured along the Orange River). During winter (June to August), daytime temperatures are cold to mild (-5°C to 22°C), and often drop below 0°C at night.

The mine has a year-round operating season and prevailing climatic conditions do not impact on the mining operation to any significant degree. Disruptions, however, do occur due to poor road conditions following heavy rains and three-to-four hour down-time may occur when soaked gravel stockpiles are too wet to process efficiently. During years of exceptional rainfall flooding may occur, resulting in significant disruptions to production, as well as damage to infrastructure (municipal as well as on-mine).

Frosts occur in winter and hail can occur in summer. The prevailing winds are from the east (June to October) and the southwest (October to January). The average monthly wind speeds are generally below 6.3 m/s. Strong winds may be experienced on occasions. The strongest winds are from the northwest which, although resulting in unpleasant working conditions, do not disrupt operations.

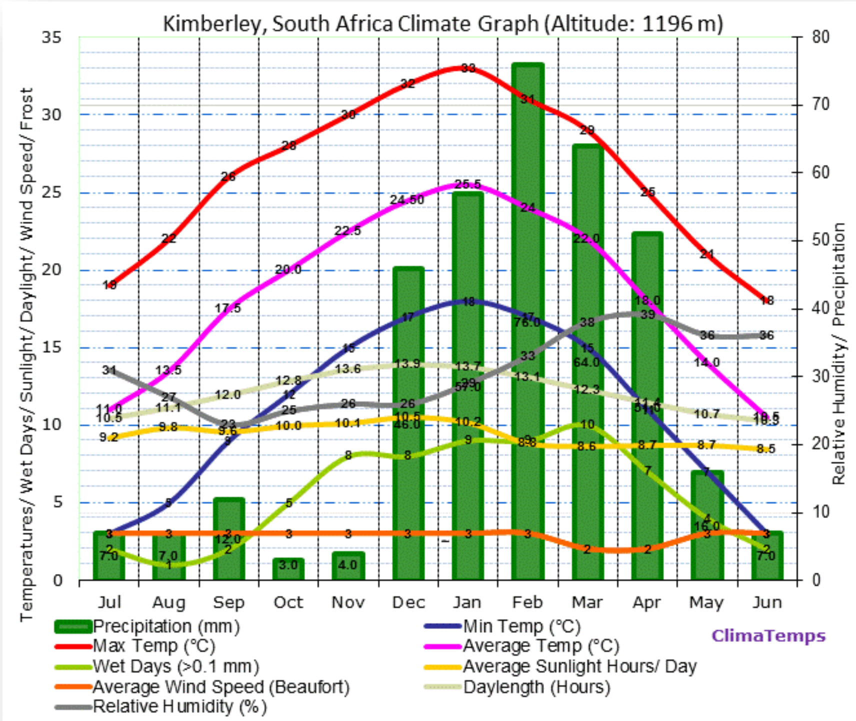


Figure 4.1 Average climatic conditions at Kimberley, (www.kimberley.climatemps.com)

4.5 Infrastructure

This section describes the infrastructure as currently known, identifying any issues that could, potentially, be problematic for future operation. As bulk-sampling operations progress, technical studies will determine the detailed infrastructural requirements. However, to the extent relevant, there is a sufficiency of surface rights for future mining operations and any related infrastructures to be erected.

4.5.1 Roads

The Wouterspan project area is best accessed via Saxendrift Mine, along tarred route R357 from Douglas to Prieska. In 2008 Rockwell completed a bridge across the Orange River to allow access between the operations on the south side of the river and those on the north; however, this was washed away during the unseasonal flooding of January 2011. A low-level, temporary bridge and a pont are used by staff and light vehicles to cross the river when the level is low.

Currently, access to the operation is via an unpaved road from Douglas to Prieska on the northern side of the Orange River. This public road is not well maintained and can significantly increase the wear-and-tear on vehicles travelling it on a regular basis.

A well-maintained network of high-speed gravel roads and farm tracks provides ingress to all areas of the Wouterspan prospecting area. Within the limits of the sampling area, water-bowsers spray the roads to limit dust.

4.5.2 Water

The operations are located next to the Orange River and the necessary pumping stations and water supply pipelines are in place to provide a year-round water supply. The project sources water from the Orange River, currently under a licence to pump 72,000m^3per annum. The operation is planned to consume a total of 350,000m^3per annum and additional licences have been requested from DWAF. An updated water balance will also be compiled, once plant specifications have been finalised. In essence, however, water for the mine is pumped from the river, via a pipeline to a reservoir. The water is then directed to the various plants. Waste water together with the slimes is pumped to the mined-out areas, after which recycled water is returned to the processing plants.

4.5.3 Power

The property is connected to the national Electricity Supply Commission (ESKOM) electricity grid, with the necessary transformers and supply lines in place. Power is provided through a 22kV line. Voltage is decreased to 400V through a transformer on site and distributed as required. Rockwell has placed R1,905,000[14] in a trust account to cover various ESCOM guarantees.

Power outages have taken place in South Africa since early 2008. To mitigate against the potential effects of these power outages, management has implemented remedial including:

- All scheduled and planned maintenance is to be conducted during periods of power outages to reduce overall plant downtime.
- Five backup generators, with a total of 1.4MVA have been installed at Wouterspan, to run the processing plants in the event of unscheduled power outages.

In addition, Rockwell has purchased all available power, as other users have scaled down (or closed down) their operations. For example, when SONOP closed their operation on Elsie's Drift (adjacent to the west of Wouterspan), Rockwell was able to purchase 3.5MvA for their own use.

4.5.4 Waste Disposal

Domestic waste disposal takes place in small landfill sites in the mined-out areas. Industrial waste is removed to municipal dump sites. Adjacent to the on-site office is a septic tank leading to a French drain. These facilities are adequate for the people who will be working on the site.

Previously, some slimes were pumped into old excavations, as an interim measure. This deposition option was selected as a means of facilitating rehabilitation. The excavations were selected as slimes deposition areas as part of backfilling strategy, rather than disturbance of new areas. At present, there are no facilities for the treatment of polluted water, other than the mine residue dams, which act as settling dams, and clean water will be pumped back into the process water once the silt has settled out.

4.5.5 Mine Residue Deposits

A detailed Code of Practice ("COP") regarding mine residue deposits on Wouterspan was completed by HCVWD during 2008. The COP was drawn up in accordance with DMR guidelines to assess and manage risks generally associated with both coarse and fine tailings dumps. This will be updated during forthcoming Technical Studies.

[14] Guarantee # M514494, M469062 and M481774

4.5.5.1 Coarse Dumps

The primary disaggregation and screening is done next to the plant and the overburden is then backfilled. Trucks take screened material to the treatment plant. The fine tailings will be pumped to the mine residue dams and the oversized tailings will be dumped, backfilled and landscaped.

4.5.5.2 Fine Residue Dumps

Currently, one fine residue dam with a capacity of 6,676,668m^3 exists on Wouterspan (**Plate 17.3**). The dam drains into a return water dams, where some 30% of the water is recovered. At completion, the dump will be 38m high. Decommissioning of the dam must ensure the stability of the structure and will include post mine-closure monitoring.

Plate 4.4: Construction of fine residue dam on Wouterspan (photo courtesy of Rockwell)

4.5.1 Staff/Labour

In the initial stage of the project, the project will be administered from offices adjacent to the processing facilities on Wouterspan. Certain senior and shared staff will, however, still be located at the nearby Saxendrift Mine, where Rockwell has retained possession of well-established facilities. Senior staff are housed on Niewejaarskraal but will, in time, also be moved to Wouterspan.

4.5.2 Essential services

All services and facilities, including hospitals, police, and municipal, are available in Kimberley (~200km), including the regional office of the Department of Mineral Resources (DMR). However, most essential services can be obtained at Douglas, some 66km distant from the mine.

5 HISTORY

5.1 Background

The first alluvial diamond discovery in South Africa was on the farm De Kalk on the banks of the Upper Orange River, some 55km upstream from Saxendrift in 1866. (De Wit, 1996). Recoveries of several large (+100ct) diamonds led to initial enthusiastic mining of shallow "Rooikoppie" gravels by artisanal diggers who flocked to the area.

Since the late 1800's, numerous properties along the Middle Orange River ("MOR") have been prospected/mined for alluvial diamonds (**Fig. 5.1**), the majority of which have been derived from high level terraces. The Middle Orange River has not seen the intense prospecting and mining activities more typical of the Vaal and Lower Orange Rivers, because large areas are covered by a very hard layer of calcrete, 0.5m – 3m thick, which limited historic access to the underlying gravel horizons. In addition, the gravels in many areas contain a high percentage of banded ironstone clasts, which make the treatment and concentration of the gravels technically difficult, from a metallurgical perspective, unless magnetic separators are used.

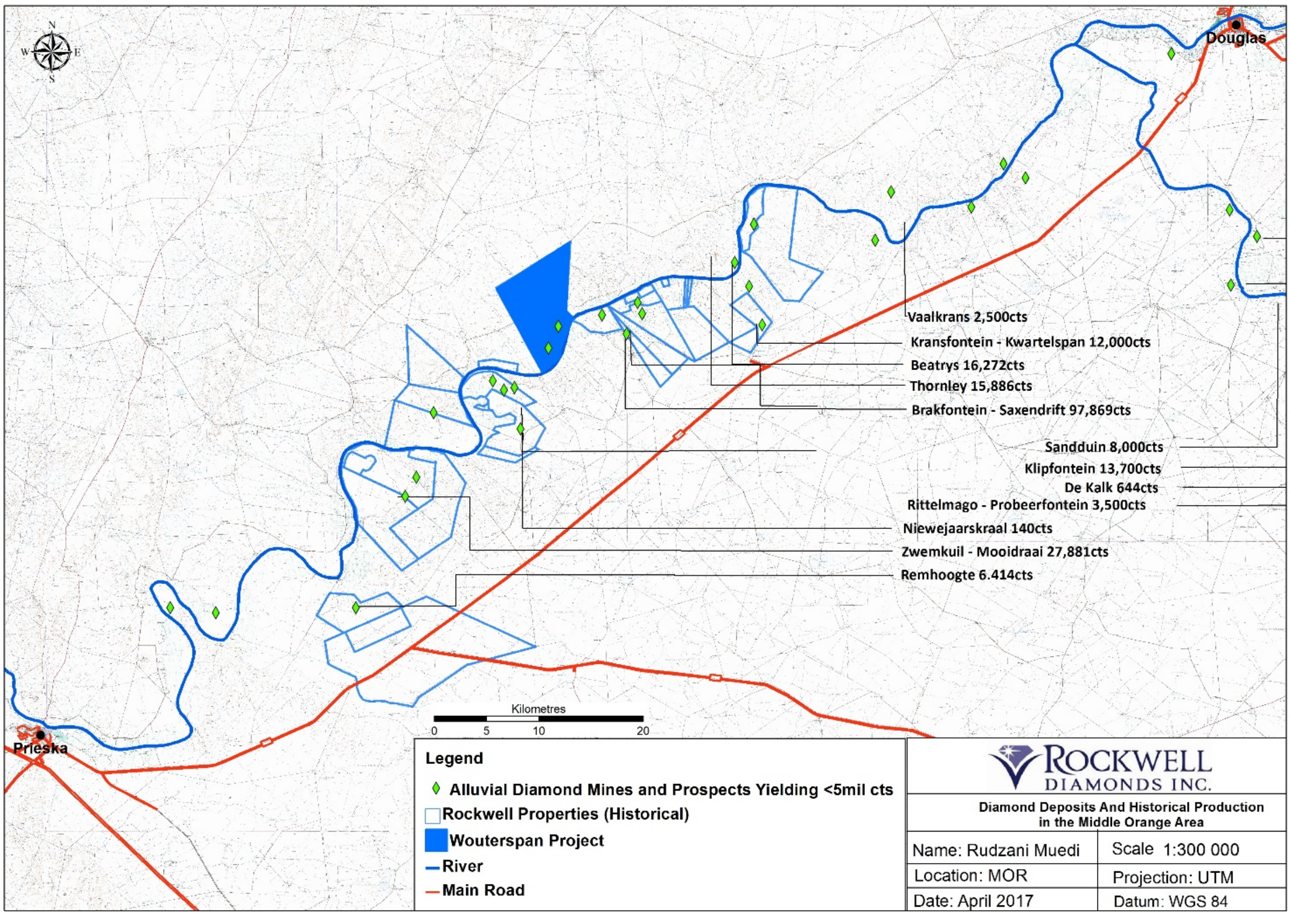


Figure 5.1 Historical diamond production from the middle Orange River (redrawn from Telfer *et al*, 2006)

Through the application of modern treatment methods and equipment, recoveries have improved to the extent that these deposits can now be mined efficiently. The mining problems have been solved by the use of blasting and heavy earthmoving equipment to rip and remove the hard calcrete-silcrete layer. This new technology resulted in the area being effectively explored for the first time by companies such as Northern Cape Diamond Mining, Moonstone Diamonds (Moonstone Diamonds announcement to the ASX, 20 Oct 1997), Pioneer Minerals and the Gem Diamond Mining Corporation (Gem Circular to Shareholders, 1998, Gem Diamond Mining Corporation Annual Report, 1999), the latter of which was responsible for initially mining the Saxendrift diamond deposit. The deposit was subsequently mined by Trans Hex, and is now owned and operated profitably by Rockwell.

5.2 Previous Exploration/Development

5.2.1 Historical

In July 2005, it was reported that, on the basis of preliminary percussion drilling results, the size of the gravel deposits at Wouterspan could be at some 30-40 million tonnes, with a grade range of 0.4-0.5cpht (Cooke, 2005). These figures were based on limited sampling and drilling during April 2005. These resource estimations do not conform to the reporting guidelines as stipulated by either NI 43-101 or SAMREC and should not be relied upon. They might be considered as exploration target information where the statements of potential quantity and grade are conceptual in nature, that there has been insufficient exploration to define a mineral resource and that it is uncertain if further exploration will result in the target being delineated as a mineral resource.

During the period February and May 2006, a local drill contractor under instruction from HCVWD and supervised by Cooke, a drilled a total of 191 boreholes (2,097m) on Okapi, and 278 boreholes (3,265m) on Farhom. The data collected from the boreholes were used in the construction of a geological model for the area from which contour plans illustrating gravel thickness, overburden thickness and bedrock elevation were produced. Potential for some 45-50Mm^3 of gravel (4-5Mm^3 of Rooikoppie and 40-45Mm^3 of Primary gravels) was estimated to exist on the Wouterspan property (De Decker, 2006). An average grade of 0.55ct/100m^3 was determined from a bulk-sample programme that processed a total of 513,892m^3 Primary gravel and 24,013m^3 Rooikoppie gravel (individual recovered sample grades varied from 0.2-1ct/100m^3). This programme was described in a Competent Persons Report ("CPR") in March 2006, compiled by De Decker and Associates. This technical report described the exploration and trial mining operations on Wouterspan. However, no resources were estimated for Wouterspan because the diamond grade data from the sampling was not deemed sufficient to be representative of the deposits on a property-wide scale. The exploration results described in this programme might be considered to define an exploration target, where statements of potential quantity and grade are conceptual in nature, there has been insufficient exploration to define a mineral resource and it is uncertain if further exploration will result in the target being delineated as a mineral resource.

5.3 Previous Ownership

Portion 16 and Portion "Wouter" of Lanyonvale were previously owned by *Farhom Mining and Construction (Pty) Limited* ("Farhom"), a private company owned by Mr J F Gouws ("Mr. Gouws"). HCVWD entered into a memorandum of agreement with Farhom and Mr. Gouws in terms of which Mr. Van Wyk was granted an option to acquire a mining right over the property, the shares in Farhom, and the property and was appointed as a sub-contractor for mining activities during the option period.

A further portion of Lanyonvale was owned by *Okapi Diamonds (Pty) Ltd* ("Okapi"), which is a private company, owned by A C van Wyk. A contractor's agreement was concluded by and between Okapi, HCVWD and Mr A C Vlok on 14 February 2005 in terms of which Okapi granted to Mr H C Van Wyk the option to acquire Prospecting Permit PP86/2004, as well as the right to convert such prospecting permit into a new form mining right, as well as the right to apply for a mining right.

Both options have, subsequently, been exercised by HCVWD and the permits have been ceded to HCVWD under section 11 cessions (see section 3.2.3 for details).

6 GEOLOGICAL SETTING AND MINERALISATION

6.1 Geology

6.1.1 Regional Geology

The geology of South Africa (**Fig. 6.1**) is extremely varied and spans a period of about 4 billion years (SACS, 1980). The northeast portion of the country is dominated by the granitic rocks and belts of volcanic and sedimentary rocks forming the Archaean Kaapvaal Craton. Much of the rest of the country is covered by Phanerozoic sediments.

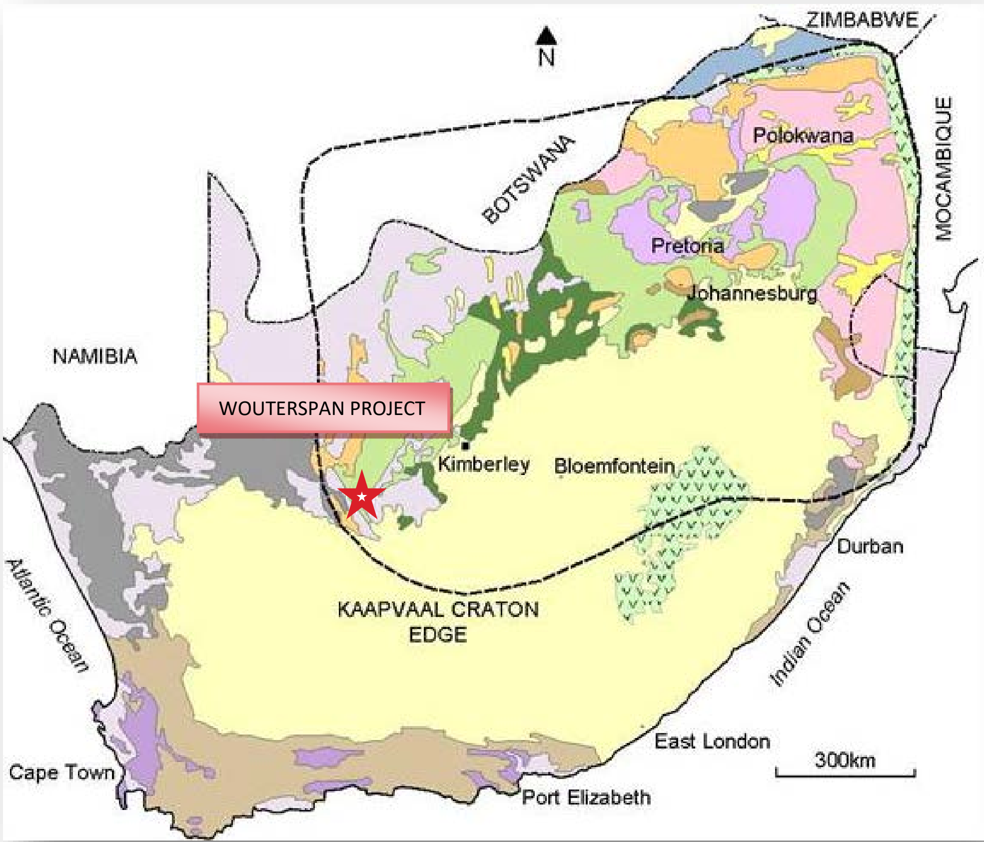


Figure 6.1 The General Geology of South Africa

The earliest clusters of diamondiferous kimberlites, namely Kuruman and Cullinan, intruded into South Africa during the Proterozoic era. The main kimberlitic (both diamondiferous and barren) intrusive event, however, took place in the late Mesozoic. All the kimberlites that host economic deposits occur on the Kalahari Archon (Kaapvaal and Zimbabwe Cratons), while those occurring in the surrounding Proterozoic basement are non-diamondiferous (Gurney, Moore, Otter, Kirkley, Hops, & McCandless, 1991). Over 2,000 kimberlite pipes, blows and fissures have been recorded across South Africa, Lesotho, Swaziland, Botswana and Zimbabwe, spanning emplacement age range of approximately 1,700 – 40 Million years ago ("Ma"), with peaks at 1,700Ma, 1,200Ma, 600-500Ma, 240Ma, and 200-80Ma. Kimberlite emplacement was followed by the liberation and entrainment of diamonds and the subsequent deposition of terraces on the ancient Vaal and Orange Rivers.

Two prolonged periods of exposure and erosion, firstly, between the Archaean eruption of the Ventersdorp lavas and initial Karoo sedimentation at about 300Ma and later between the end of the major Karoo event at 150 Ma and the Vaal River sedimentation at 5Ma, would have substantially re-shaped the surface across which the palaeo-Vaal and its tributaries flowed. Added to this, the super-continental scale Dwyka glacial event that marked the onset of Karoo sedimentation would, itself, have exerted a transformational effect on the post-Ventersdorp surface. The surface over which the palaeo-Vaal and Orange Rivers flowed and on which the diamondiferous gravels were subsequently deposited, would have been irregular, affording high potential for diamond traps.

Later, river evolution was strongly influenced by the two periods of uplift known to have affected the eastern part of the interior of southern Africa. The first uplift of 200-300m occurred at about 18.6 Ma, which was followed at 2.5 Ma by an event of by 900m uplift. This uplift would have triggered a period of accelerated river incision and simultaneous lowering and peneplanation of the land surfaces, accompanied by the supply of detritus, which included minute proportions of diamonds (De Wit, The distribution and stratigraphy of inland alluvial diamond deposits in South Africa, 1996) (De Wit, Ward, Jacob, Spaggiari, & van der Westhuisen, 1997).

The present drainage of the region consists of the Vaal-Harts River from the northeast, and the Orange River from the southeast. There is, however, strong evidence that a major drainage, flowing along the eastern face of the Ghaap Plateau, entered the approximately 20km downstream from the Vaal-Orange confluence, during the Miocene-Pliocene. It is suggested that this substantial river may have had as much as four times the discharge of the Orange River. McCarthy (1983) suggested that it had the upper Zambezi, Okavango and Kwando rivers as tributaries. The upper Limpopo may also have flowed into the system during the Miocene-Pliocene.

The alluvial diamonds of the Middle Orange, thus, have several probable primary source areas:

- The diamondiferous kimberlites of Lesotho, eroded by the present Orange River;
- Diamonds from the same source as the Lichtenburg - Western Transvaal diamond-fields, eroded by the Vaal-Harts system;
- Diamonds derived from the kimberlites of the Kimberley area; and
- Diamonds from Botswana and the Postmasburg fields, including the Finsch kimberlite, eroded by the palaeo-drainage noted above.

6.1.2 Local Geology

The bedrock of the Orange River valley between the confluence of the Vaal and Orange Rivers at Douglas and Prieska is dominated by flat-lying Dwyka tillite and siltstone of the Karoo Supergroup. The Dwyka, typically, comprises matrix-supported diamictite with both local and transported pebbles and boulders as drop-stones in a rock-flour matrix (**Plate. 6.1**). Underlying the Dwyka are lavas of the Ventersdorp Supergroup, which are overlain (in places) by sediments of the Griqualand West Supergroup, comprising shales, quartzites and dolomites. The bedrock is cut by faults and dolerite dykes, which are rarely exposed.

The surface on which the Dwyka was deposited was irregular with several topographic highs. Owing to the irregularity of the pre-Dwyka surface, several reaches of the river are superimposed on pre-Dwyka topographic highs, which may give rise to more rugged topography. In these instances, the Orange River is often confined to gorges with increased river gradients. In contrast, the more easily eroded Dwyka has been dissected by minor tributaries of the Orange River, giving rise to a trellis-type drainage pattern.

Remnants of Kalahari sands (Hutton Sands) are found in many places along the Middle Orange. In addition, the area is relatively arid, with sparse vegetation except for a narrow riparian fringe along the river. The prevailing north-westerly wind has blown the finer river sands inland, this process being particularly pronounced on north-south oriented reaches of the river, where the eastern bank may have a blanket of sand extending for several kilometres inland. Aeolian action has tended to mix this sand with the remnants of Kalahari. The sand cover thickens southwards from the river and may blanket the underlying lithologies with several metre-thick cover.

Plate 6.1 Dwyka tillite bedrock on which the alluvial gravels are developed

6.1.3 Property Geology

The Wouterspan deposit comprises an extensive flat lying alluvial sequence located on the right bank of the modern Orange River. A number of terraces have been identified on the properties.

- The main deposit gravels occur some 20-30m above the Orange River ("C" terraces) and appear to have been deposited in a braided river environment. (**Plate 6.2**).
- A small, "B" terrace remnant (**Plate 6.3**) and,
- Another terrace has been identified to the north of the main prospecting area on the Stofdraai project area (**Plate 6.4**). The elevation of this terrace is the same as the B terrace in the south, but rises significantly to the north.

The gravels and bedrock are well exposed in the workings on the "C" terrace, identifying shale/tillite of the Karoo age Dwyka Group as common bedrock to the gravels. The gravel deposits on the Wouterspan C terrace appear to be devoid of any obvious size gradation of the clasts upwards through the succession (either upward-fining or upward-coarsening). This has been attributed to high stream velocities and rapid deposition. Clasts of Ventersdorp lava predominate, with significant (if variable) amounts of banded iron formation (BIF), chert, quartzite and quartz also present. Downstream of the Lanyonvale Spruit (located on Wouterspan) all the deposits (both Rooikoppie and fluvial-alluvial), contain considerable amounts of BIF clasts. These clasts are derived from the Pence formation of the Transvaal Supergroup which is developed on the Ghaap Plateau to the north and northwest of the Orange River. The amount of these heavy clasts has caused recovery problems for diggers who, either did not recognise the problem or did not have the equipment to extract the BIF prior to processing the gravels.

Plate 6.2 Main C- Terrace, some 20-30m above the Orange River

Past and present work has shown that the majority of the alluvial diamonds found in gravel deposits along all of the middle Orange River terraces are, typically, found in two distinct gravel horizons. These comprise an upper, deflation deposit (locally known as Rooikoppie gravels) overlying fluvial-alluvial units, often known as Primary gravels (see section 7 where these gravel deposit types are described in detail).

Both deposit types have been seen to be developed extensively on the Wouterspan C terraces as well as the small B terrace remnant. Rooikoppie gravels have also been shown to be developed over much of the northern sections of Wouterspan (Wouter and Stofdraai).

The western properties have not yet been prospected so little is known regarding the development of gravels here. However, B and C terrace elevations have been identified (*ref. Fig.3.2*)

Plate 6.3 B-Terrace, some 40-60m above the Orange River (995m amsl) on Wouterspan

Plate 6.4 High Terrace on Wouter portion of the Stofdraai project

6.1.3.1 Fluvial-Alluvial Sequence

Drilling has identified the presence of five fluvial-alluvial channels on the main ("C") terrace (**Fig. 6.2**). An older braidplain, represented by a number of discrete channels, is preserved at around 980m amsl (demarcated by yellow bedrock). This has, subsequently, been incised by a younger, meandering channel (demarcated by the blue bedrock). The stratigraphy of this younger channel is defined by an upward fining sequence.

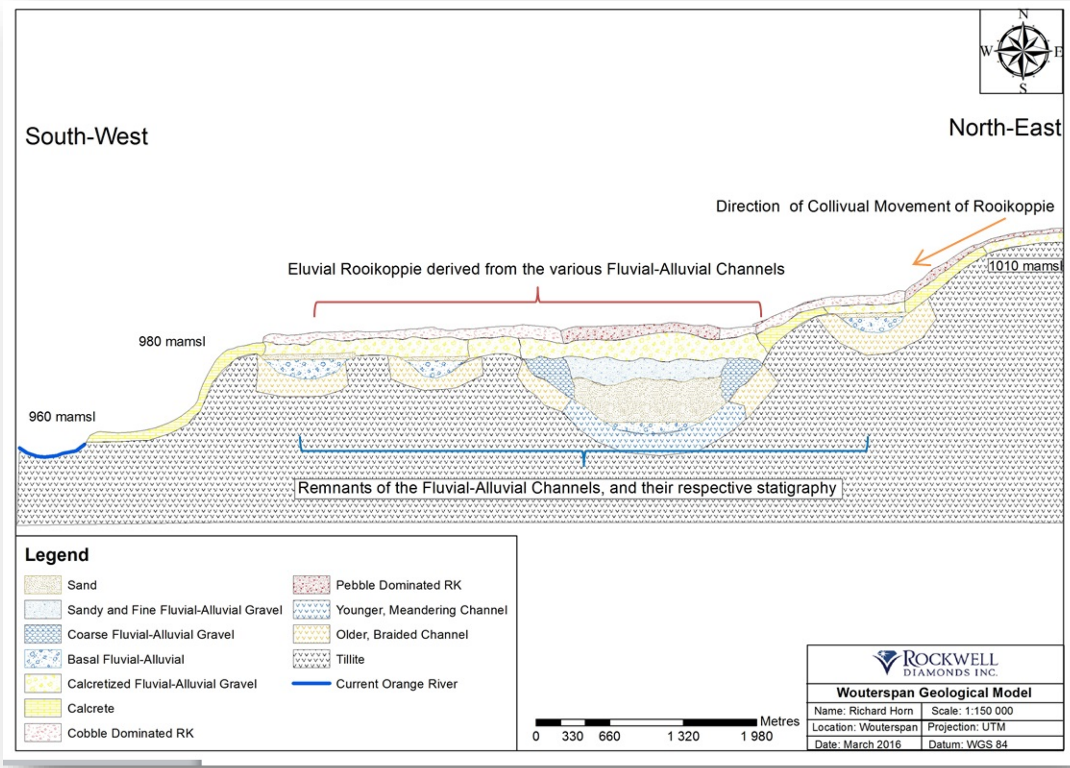


Figure 6.2 Preliminary geological model on the C terrace on Wouterspan (section line on Fig. 9.1)

The older gravel sequence forms deposits of considerable thickness, often in excess of 15m and consisting of rapidly aggraded (or dumped) material. The sequence is compacted and frequently cemented with secondary calcrete. *In situ*, the deposit displays horizontal stratification with occasional sandy units (**Plate 6.5).** The basal gravels, typically, comprise the lower half to one third of the fluvial-alluvial sedimentary sequence and rest directly on the bedrock. The unit (around 5m thick) generally comprises a poorly sorted assemblage of large boulders (up to 45 cm in diameter at the base of the unit), cobbles and pebbles set in a sandy matrix that is considered to have been deposited by a large, high-energy braided system that would be readily capable of transporting diamonds.

The overlying suspended gravels represent gravel bars that have migrated down the river system and have not incised into the bedrock. These units have also been shown to contain diamonds. Diamond grades are usually lower than for the basal deposits owing to their being diluted by finer-grained pebble, sand and silt lenses. The thickness of the suspended gravel unit varies from 3-7m, and may represent large volumes of material.

Plate 6.5 ***Example of the older fluvial-alluvial succession on Wouterspan showing the basal gravels with some large boulders overlain by a finer-grained fluvial succession of sands and gravel lenses.***

The younger, meandering gravel sequence has not yet been exposed by prospecting. Consequently, nothing can be said regarding the stratigraphy, sedimentology or diamond-carrying potential.

6.1.3.2 Rooikoppie gravels

The top few metres of each of the older channels channel have been variably calcretised and are, in turn, covered by thin Rooikoppie gravels. Surface mapping and pitting indicate that (**Fig. 6.3**):

- A coarse (Cobble dominated) Rooikoppie generally overlies the older channels.
- Finer (Pebble dominated) Rooikoppie is found to occur over the younger channel, as well as on the 1,010 mamsl plateau and the south dipping slope below this plateau.

The Rooikoppie overlying the various channels corresponds with the fluvial-alluvial gravel found within the underlying channels. The coarser Rooikoppie is the deflation product of the basal gravel units of the older channels. The finer Rooikoppie overlying most of the main channel is the deflation product of the finer fluvial-alluvial upper gravels. These Rooikoppies that were found over the fluvial-alluvial channels were derived from eluvial processes.

The finer occurrences on the plateau correspond with the finer Rooikoppie found on the slope. The Rooikoppie on the slope appears to be the result of colluvial movement of the Rooikoppie down the slope from the plateau.

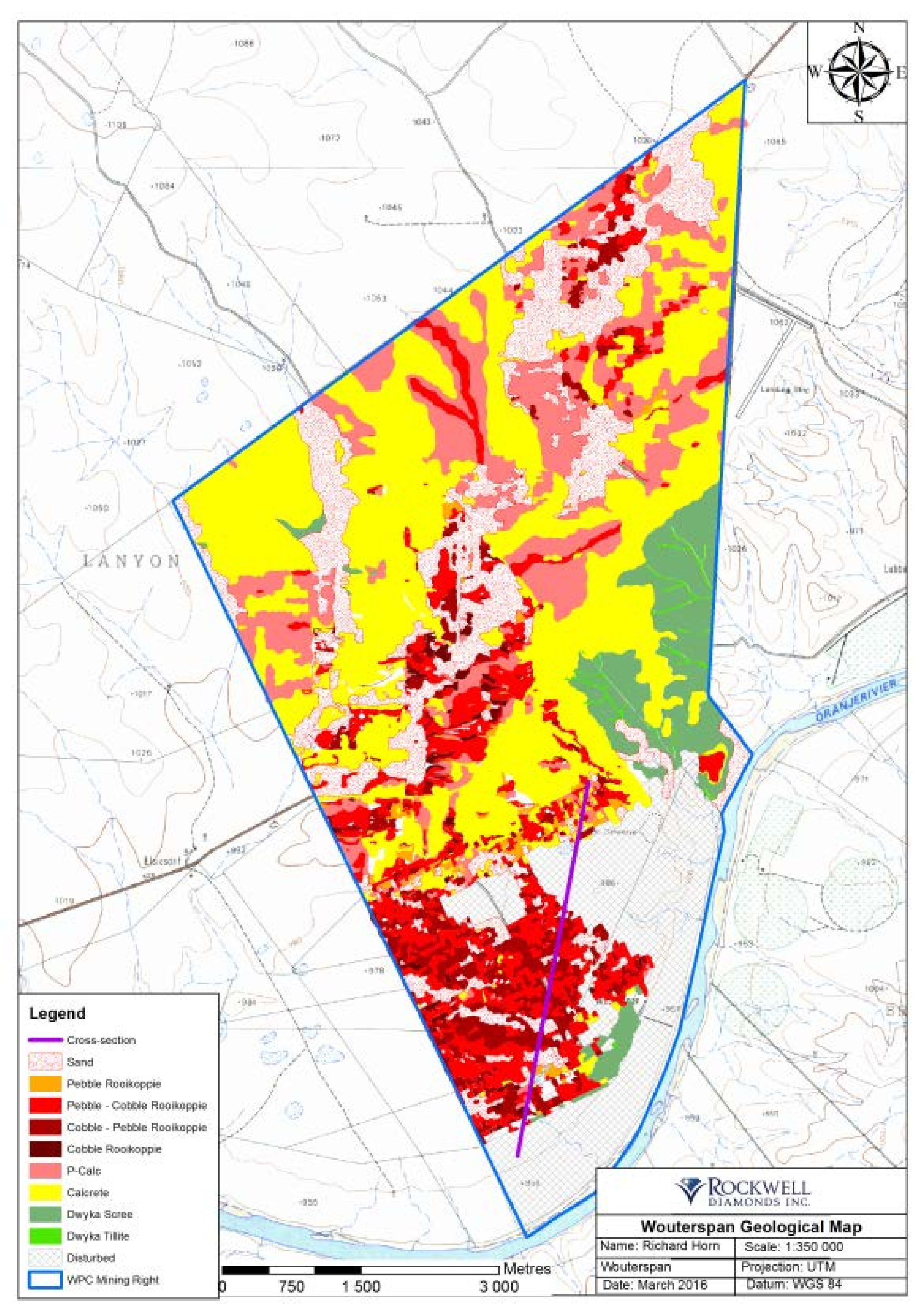


Figure 6.3 Geological map of Wouterspan identifying the different Rooikoppie gravel facies

The Rooikoppie varies in thickness from a few centimetres up to about 2m and has an average thickness of about 1m (**Plate 6.6**). These gravels, typically eluvial in origin (Marshall, 2004) may rest on sand, gravel or a hard, semi-continuous layer of calcrete and silcrete. Solution cavities ("*makondos*") up to 2m deep in the calcretised material form sharp, discontinuous depressions that are filled with the overlying Rooikoppie gravel. Such cavities are concentrates and, consequently, may have higher diamond grade potential, making them of key economic importance.

Plate 6.6 ***Rooikoppie gravels on Wouterspan C-Terrace, typically underlain by calcretised fluvial-alluvial gravels and makondos (below)***

6.1.3.2.1 Rooikoppie deposits on Stofdraai

The Stofdraai Project is located north of The Wouterspan Operation. This project is comprised of two adjacent farm portions, Remainder of Portion 9 (Wouter) and Portion 14 (Stofdraai). These two farm properties contain a single continuous south-west, non-perennial channel. The channel is 9km long, and is 0.6km wide. The channel is the highest in the north-east at 1040 mamsl, and decreases in elevation to 995 mamsl in the south-west. The channel has several 1st and 2nd order non-perennial streams connecting to the channel. The channel has cut through the surrounding country rock, which is a calcretised tillite that generally about 10 metres higher than the non-perennial channel through-out the project area.

Mapping of the pits identified three different areas[15] (**Fig. 6.4)**

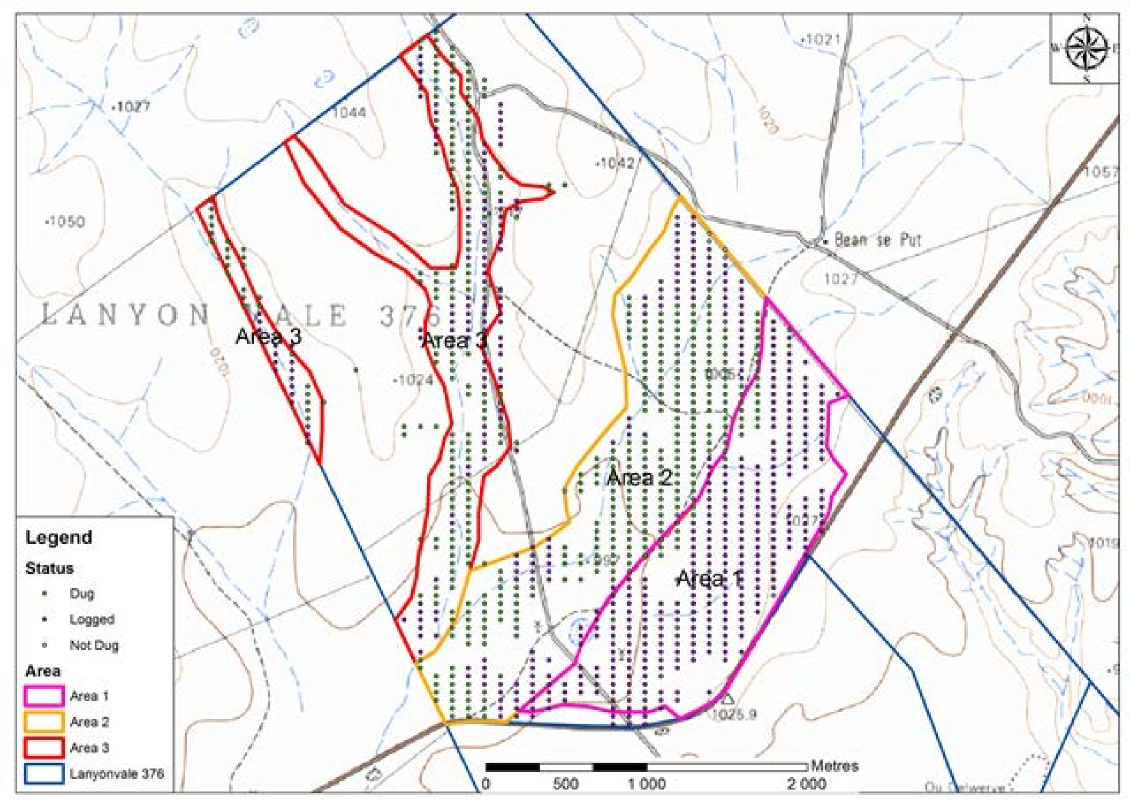


Figure 6.4 Location of different Rooikoppie areas

Area 1:
Area 1 has the highest elevation Rooikoppie for the farm portion Wouter, which is found between 1015 & 1030 mamsl on the south-western area of Wouter. The topography, on which this Rooikoppie is found, has a north-westerly dipping slope. This slope dips towards the main channel that crosscuts both Wouter and Stofdraai.

[15] This section is taken from reports provided by Richard Horn and Petronella Nyelisani, Rockwell geologists, 2017

The Rooikoppie situated this slope is pebble dominant (**Plate 6.7**). The pebble content ranges from 45% to 85%, with 70% being the average. The cobble and boulder content is low.

Plate 6.7 Area 1 is defined by a fine Rooikoppie (Pebble to Pebble-Cobble)

Cobble content varies from 15% to 65%, with the average being 30%. Boulders are rare. This is a fine Rooikoppie that is well sorted. This is not an ideal characteristic of high grade Rooikoppie gravel.

The lithologies are consistent with BIF being the dominant lithology; comprising from 65% to 80% of the Rooikoppie. The remainder is a mixture of chert, quartzite, Ventersdorp Lavas (5-20%), with accessory phase (<5%) of white quartz, agate and Jasper. The Ventersdorp Lavas have a burnt exterior to them, and have been observed weathering out of the calcrete. This is indicative of a weathered calcretised tillite. The white quartz is typically angular to sub-angular, in some cases euhedral quartz crystals can be observed. BIF and agates exhibit percussion marks indicating that this material experience high energy fluvial action.

The average thickness of the Rooikoppie is 0.65 metres and has visual similarities to the Rooikoppie gravels identified and sampled on the C terrace of the Wouters portion of the WP Project.

Area 2:
This area is defined by the main channel which cuts across the Wouter portion from the north-east to the south-west (**Ref. Fig.6.2**). The elevation varies from 1005 mamsl on the NE to 995 mamsl on the SW. The average gravel thickness is 0.19m.

The gravel observed varies from well-sorted to poorly sorted (**Plate 6.8**). The gravel is a pebble to cobble gravel with a dominance of pebbles, an average of 65% for pebbles, 30-35% of cobbles and <5% for boulders. The gravel consists of BIF, Chert, VL, Quartzite, Quartz, Dolomite and small percentage of agate observed. The VL and Dolomite are dominant between the cobbles to boulder size fractions. Sub angular clasts were dominant. Highly angular pieces of slate were rarely present within the gravel. The matrix is generally sandy with high content of clay compared to Area 1. The gravel appears to be a mixture of

Rooikoppie gravel and Dwyka tillite drop stones. The gravel is not continuous throughout this area due to large patches of sand or clay, this is typically towards the south-west of the area. The Rooikoppie varies greatly from the MOR Rooikoppie gravel seen on other portions of Wouterspan.

Plate 6.8 Coarse Rooikoppie gravels located on Area 2

Area 3:
Area 3 (East) is comprised of one north-south striking second, order channel. This channel intersects with the main channel in the south-western most part of the Wouter portion. The channel has an elevation of 1020 mamsl on the North-East and drops to 1,000 mamsl towards the South-West. Drilling data covers 294 ha with a total of 64 holes drilled. The average gravel thickness is 0.29m.

At Area 3 (West), a total of 45 holes were pitted and average Rooikoppie gravel thickness is 0.08m.

This area consists of scree gravel, which is derived from the Asbestosberg Ridges to the north. A high percentage of drop stones which have weathered out of the surrounding calcretised tillite are also prominent. Gravel is pebble to boulder sized, low clast content. Matrix is clay. Clasts are angular. The gravel also varies from previously sampled MOR gravel.

Geological Model
The Rooikoppie between 1015 & 1030 mamsl (Area 1), is a fine Rooikoppie which is found on top of a calcretised tillite. The lack of fluvial-alluvial gravel beneath the Rooikoppie indicates that this Rooikoppie may have been derived from a higher terrace and has undergone colluvial movement.

The fine nature of the Rooikoppie is the result of the continuing effects of colluvial movement; all the coarse material has undergone colluvial movement in the downslope direction (Area 2), towards the main channel (Area 3). Area 3 is a catchment area for all material through the property.

6.2 Mineralisation

6.2.1 Nature of Mineralisation

Mineralisation in the Middle Orange River is, typically, confined to alluvial fills preserved on perched terraces. A terrace is formed by the deposition and subsequent erosion of as an alluvial-fill package of sediments, leaving them perched above current river level. Where incision takes place in the centre of the valley-fill, terraces may be developed on both banks of the river. If incision is accompanied by lateral migration, as is often the case, the terrace is restricted to one bank only. The term “terrace” is, therefore, simply a morphological term, and any number of typical stream features can be displayed on the terrace - such as splays, chute bars, point bars, channels, and sand banks (Jacob, 2005). The terrace initially preserves the morphology of the braided river deposits, but later erosion can dissect or totally remove the terrace. On a regional scale, terraces tend to have an elongated sheet-like shape, with an overall gentle gradient downstream, but this gradient can be stepped at barriers across the river valley, such as lithological changes in bedrock, cross dykes, etc. Consequently, contemporaneous terraces can be deposited at differing elevations, and, conversely, terraces at the same elevation were not necessarily deposited during the same cycle, at the same time.

Several attempts have been made to correlate terraces along the Vaal and Middle Orange Rivers using elevations, either above sea level or above the present river level, of the various deposits. These attempts at correlation have met with limited success. In addition to the problem of stepping, no allowance can be made for post-depositional regional warping and faulting. Subsequent differential incision of the river into the terrace platform can, further, complicate the issue. The most widely preserved gravel packages are:

Lowest (D) Terrace:	-20m Orange River Cycle
Lower (C) Terrace:	+20m Orange River Cycle
Middle (B) Terrace:	60-90m Orange River Cycle
Upper (A) Terrace	+110m Orange River Cycle

Alluvial diamond deposits along the MOR reflect cyclical development and preservation through a series of palaeodrainage events preserved at different elevations above the present riverbed. The cyclical development of the Orange River system reflects phased incision interspersed with periods of alluvial plain deposition. With continued downcutting of the Orange River with time, the oldest diamondiferous gravels deposited by the Orange River were recycled and re-deposited repeatedly down to the lowest level gravels as preserved today (Gresse, 2003). Although described here as specific events, based on elevation above present river bed, these events are linked by the process of continuous channel migration and incision.

The higher terraces may even reflect late Cretaceous – early Miocene deposition. The MOR terraces are younger at lower elevations and vary in age from Mio-Pliocene for the middle terraces to Plio-Pleistocene for the lower terraces. Diamondiferous gravel remnants, such as those preserved at Waaihoek (some 11km from the present river, at an elevation of 230m above the present river), suggest that even older (Eocene?) palaeodeposits were present and have, subsequently, been mostly removed by erosion. Few deposits exist along the MOR that are correlatable with the highest Vaal River (Nooitgedacht or A0) terraces. Rooikoppie gravels and basal calcreted basal gravels of this age have, however, been prospected by THO in 2005 on White Waters (a portion of Lanyonvale 276). The Kwartelspan property (portion of Rockwell’s Saxendrift operation) also occurs at this elevation.

Cainozoic (Miocene to Pliocene) diamondiferous fluvial gravel deposits (A, B and C terraces) occur as braided palaeochannels. The principal targets consist of coarse boulder gravel, typically resting unconformably on Dwyka age sediments. This basal gravel is usually overlain by pebbly gravel in a sandy matrix. The Cainozoic succession is capped by up to 2m of hard calcrete on which a lag deposit (almost exclusively comprised of very resistant clast types in a matrix of unconsolidated red sandy soil, and locally termed *Rooikoppie* gravel) may be developed. The latter was extensively worked by the old-time diggers. The sedimentary sequences overly an undulating bedrock topography of Dwyka tillite and shale. Sedimentological characteristics of the alluvial deposits indicate that they were laid down during reasonably high energy flows within a braided river environment (not, however, the very high energy environments often associated with the lower Orange River at Baken, for example). In general, the sedimentary packages (a total of 6-8m thick) are seen to comprise a basal boulder-gravel (1-6m thick), overlain by an alluvial sequence (typically 5-6m thick) of gravels lenses (upper gravels or middlings) and sands and capped by a thin colluvial/eluvial gravel deposit (*Rooikoppie* gravels). The upper 0.5-3.0m of the alluvial package may be intensively calcreted or silcreted whereas the basal gravels are, typically, only loosely cemented. Downstream of Lanyonvale (Wouterspan) BIF makes up +60% of the clast assemblages. Clast-rounding is moderate and packing is moderate to poor, both of which impact negatively on diamond entrapment potential.

Very little is known regarding the lowest (D) terraces. Although they have been identified on various properties, they have only been prospected (historically) on Brakfontein and Reads Drift, for which very limited geological or production data is available. The lowest terrace does not appear to be as calcreted as the upper two terraces and mining is, therefore, easier. Lowest terrace deposits are generally covered by 1 - 4 m of sand, whereas the upper terrace deposits are capped by a hard calcrete layer some 2 - 3 m thick which protected the gravel deposits from erosion and prevented exploitation in the past.

6.2.1.1 Alluvial Fill

An alluvial fill is the record of a set of superimposed floodplains, reflecting an interval of net, but not necessarily continuous or homogenous, deposition along a river valley. The unconformities between alluvial fills record erosional phases when the main stream and its local tributaries incised earlier alluvium and bedrock surfaces, removing part of that alluvial record and leaving behind limited, and usually transitory, fill on eroded surfaces, destroying earlier terraces.

The alluvial sequences of the middle Orange River record many such erosional and depositional phases. The interpretation of complex alluvial fills is difficult because the processes of sediment supply and those of erosion and transport are interrelated, not only to each other, but also to other factors in the wider geomorphic environment. In addition, the processes responsible for a cumulative history of incision and floodplain aggradation have variable magnitude, frequency, spatial location and temporal context (Germanoski & Schumm, 1993). Such changes, further, do not occur with constant intensity through time; may have been accomplished by an assortment of events with variable magnitudes, durations and frequencies; and may not be uniformly distributed across the river valley at any particular time.

Phases of floodplain incision and deposition can occur in both arid and humid climatic settings. Under more arid conditions, such as appear typical of the palaeo middle Orange River, low stream flow typically results in wide, shallow channel sections. The valleys display moderate sinuosity and braiding may be frequent. Braided stream segments are highly transient environments. The braided channels are unstable through time and gravel bars are formed and destroyed continuously. Shifting bars and channels cause wide variations in local flow conditions resulting in varied depositional assemblages. Common features in braided stream deposits (Germanoski & Schumm, 1993) include irregular bed thicknesses, restricted lateral and vertical variations within the sediments, and abundant evidence of erosion and re-deposition. On a broad scale, most deposits are complex with units of no great lateral extent. The coarser-grained (gravel) units are commonly elongate and are surrounded by finer-grained units (**Fig. 6.5**).

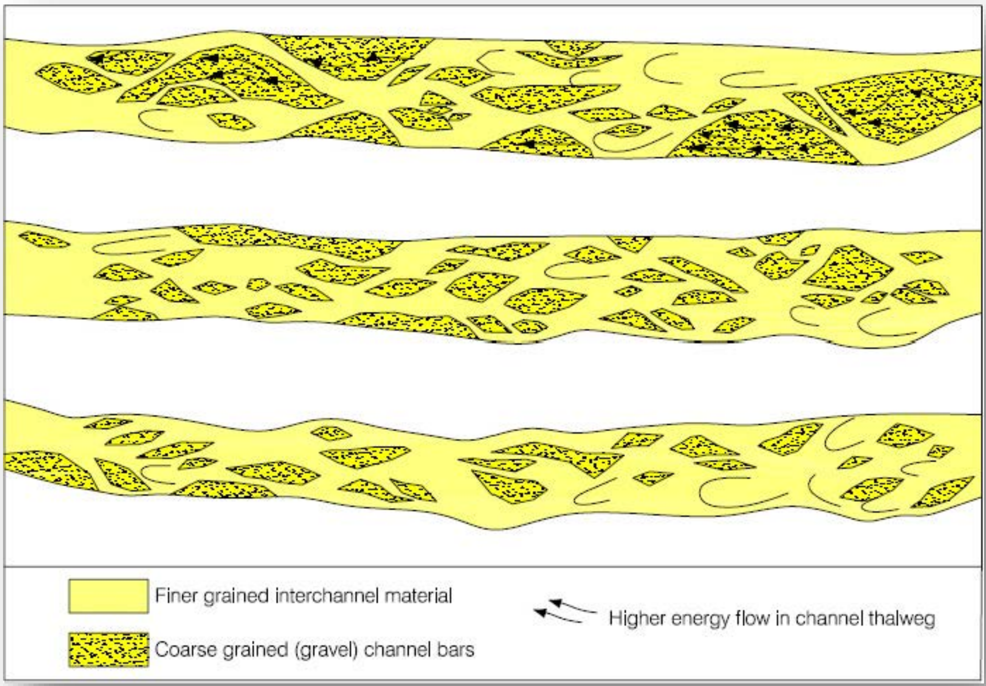


Figure 6.5 Schematic view of coarser gravel channel bars in a braided river system

The coarser units are, typically, the higher-priority diamond targets, but are generally too small to be targeted for selective mining techniques. The preferred mining method is to bulk mine both the coarse gravel bars and the intervening finer material. Consequently, the ratio of coarse- to fine- material is an important issue for sample representivity and grade estimation.

Post-depositional erosion of fluvial-alluvial deposits results in the formation of colluvial and eluvial derived or Rooikoppie deposits. Since these are simply reworked alluvial fill deposits, they are composed of the same coarser gravel-boulder clasts. The eluvial (calcreted) variety of derived gravels is found in the same locality as the underlying fluvial-alluvial units whereas the colluvial variety is spread out over much of the surface (covering pre-existing deposits or directly on top of bedrock (Marshall, 2004).

In general, the sedimentology of all Orange River terrace alluvial fill is similar, reflecting similar depositional environments. However, since the higher, older terraces typically, have higher overall grades, they form preferential exploration targets.

6.2.2 Fluvial Model

The fluvial history of the Orange River can be traced back to the early Cretaceous. At that time, the Lower Orange River appears to have been in place (Kalahari River of de Wit, 1993). Further to the south of the present-day MOR, the Karoo River (De Wit, 1993) (de Wit, 1999) (de Wit, Ward, Bamford, & Roberts, 2009) was the transport system for the detrital diamonds in Namaqualand (**Fig. 6.6)**

African Landscape Cycle

The Gondwana cycle of landscape development was interrupted by uplift associated with the breakup of Gondwanaland. By halfway through the Upper Cretaceous (Partridge & Maud, 1987), the African landsurface had attained an advanced state of planation which resulted in the establishment of a well-integrated drainage net and the late Cretaceous rivers were able to tap the crater facies of the Group1 diamondiferous kimberlites (in Lesotho and Kimberley) and the diatremes (?) of the Group 2 kimberlites pipes and dykes.

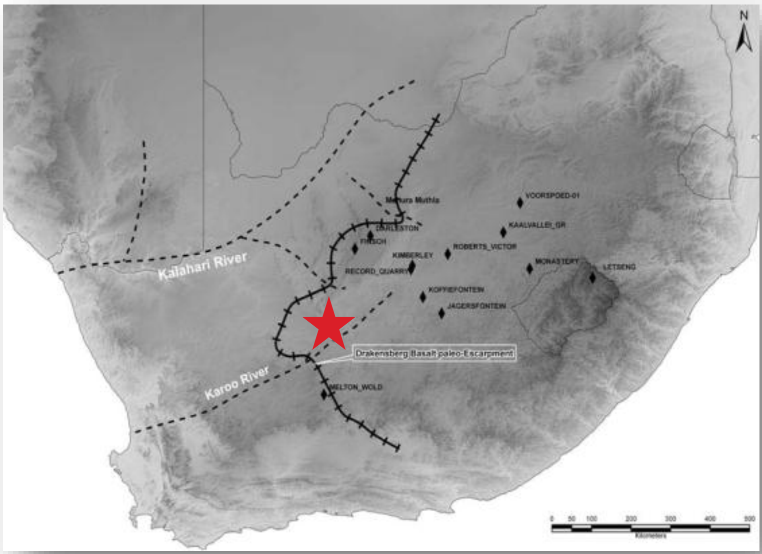


Figure 6.6 Location of the Karoo and Kalahari Rivers on the Early Cretaceous Gondwana landsurface and (de Wit, 2009)

The red star indicates the approximate location of Rockwell's MOR project)

A very wide MOR meander plain (**Fig. 6.7**), the middle reaches of the Karoo River, is proposed to be responsible for all of the very high-level deposits that are, today, only preserved in small discontinuous patches. It is expected that the fluvial component of these gravels will be relatively sandy, with typical point-bar characteristics (as seen at Waaihoek and Kwartelspan); elsewhere (as at Whitewaters, for example) only completely deflated Rooikoppie gravels have been preserved. The African landsurface is known to be polycyclic (Partridge & Maud, 1987) and this would likely account for the fact that remnant patches occur at different elevations.

Towards the end of the African landscape cycle in the Late Cretaceous (de Wit, Ward, Bamford, & Roberts, 2009), the Upper Karoo River had been pirated by the Kalahari River near Prieska (and the lower Vaal River by the Kalahari River, closer to Douglas) and the "present" Orange-Vaal River system was established (**Fig. 6.8**).

Post African I Landscape Cycle

The long-lived African cycle of landscape development was interrupted during the mid-Miocene by uplift along the east and southeast coastal areas and basining of the Kalahari (Partridge, 1998). During this (Post-African I) and succeeding erosion cycles, drainage patterns became increasingly controlled by the pre-Karoo topography exposed by Cretaceous stripping. Along the MOR, as the pre-Karoo landscape was exhumed, the Orange channel was forced through the "gorge" between Katlani and Makoenskloof to emerge as an extensive braid plain (**Fig. 6.9**). This braid plain was potentially in the order of some 90km long (from Makoenskloof to Uitdraai) and, potentially, 10-15km wide.

A feature of this model is that it postulates semi-continuous deposition of fluvial sediments at a range of elevations, covering a wide braidplain with large, laterally accreted, diachronous deposits. As a result, braidplains with more than one "main" channel can be depositing coarser material in one part of the plain and finer material in another, simultaneously. These features negate the traditional concept of individual terraces, as many of these deposits are genetically linked through continuous cycles of migration and incision.

Figure 6.7 An example of how the proposed MOR meander plain may have looked during the African landscape cycle during the late Cretaceous

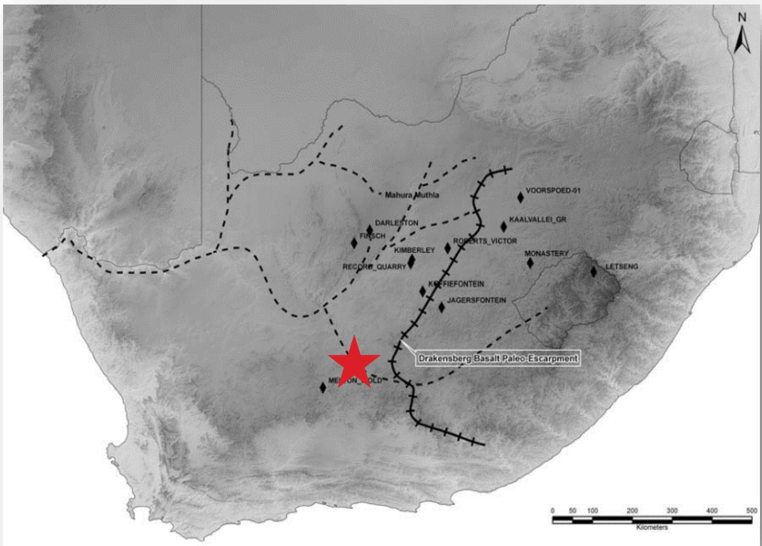


Figure 6.8 Location of the Karoo and Kalahari Rivers by the end of the Cretaceous (de Wit, 2009).

The red star indicates the approximate location of Rockwell's MOR project).

In the MOR region, here are distinct cycles of more pronounced sediment deposition, which are probably linked to specific regional geological events – the Post African erosion cycle likely experienced minor readjustments during that period, which may account for differences in elevation of the various different individual "terraces". It might also account for the fact that there are no major sedimentological differences between the gravel deposits on all of the A, B and C terraces.

By the end of the Post-African I cycle, the confining knick-point had migrated upstream to near its present position. As the landsurface aged and flattened, decreasing gradients and increased bank stability is expected to have caused the MOR drainage system become more meandering in nature (**Fig. 6.10**). This would result in deposits with a basal gravel (point bar), overlain by a thick accumulation of sandy units and overbank deposits, such as are described from portions of Wouterspan and the SHC portion of Saxendrift.

Figure 6.9 ***An artist's impression of the type of complex braidplain that may have existed along the MOR during the Post African I landscape cycle***

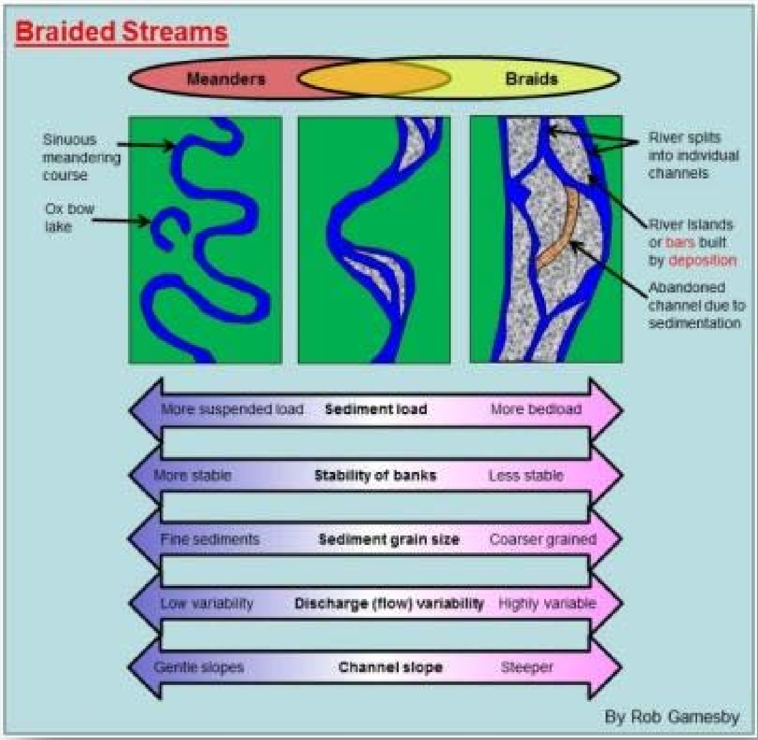


Figure 6.10 Schematic diagram illustrating how a braided river channel may become meandering through, inter alia, the flattening of the landsurface and the stabilising of the banks.

The Younger (C) Terraces are the most widespread of the deposits and display a much more complex internal morphology than the upper terraces (Gresse, 2003). Where these terraces have been prospected, numerous phases of mutually discordant gravel deposits have been identified – reflecting continuous channel migration, switching and loop migration within a relatively wide, alluvium-filled floodplain, causing continuous erosion and recycling. These deposits likely represent the more meandering portion of the stratigraphy, as described above.

Mio-Pliocene climates became progressively more arid ((Partridge, 1998), resulting in the calcretisation of pre-existing sediments. Associated deflation during this and later erosion cycles is thought to be responsible for the development of the extensive Rooikoppie gravels – not as a single stage, but as multi-cycle events.

Uplift during the Post African I and II erosion cycles was probably associated with syn- and post-depositional faulting, as seen on many of the MOR terrace complexes, e.g. Saxendrift (BHC, SRC, and SHC terraces), Niewejaarskraal and Wouterspan (Northcoate, 2014).

The late Pliocene saw renewed asymmetrical uplift along the south and southwest coastal regions, resulting in major westward tilting of the previous landsurfaces (*op. cit*.). Rejuvenation of inland drainages as a result of this Post-African II uplift as well as during the subsequent landscape cycle (especially during the middle and late Pleistocene, as a result of climatic oscillations and glacio-eustatic sea-level changes) resulted in progressive downcutting of terraces and to give the present river morphology (meandering) and account for the preservation of the higher braided river "terraces".

It is possible that the asymmetrical uplift may also have been responsible for the pirating of the Upper Orange/Modder River system at Douglas and the establishment of the present river channel.

Deposition at the end of this uplift event is assumed to be related to the **Rietputs Formation** (Helgren, 1979). Along the middle and lower Vaal River, the Pleistocene (<1.6My) terrace deposits (Rietputs Formation) are comprised of three distinct units – A, B, C (that occur generally lower than 14m above present river level, in many locations along the Lower Vaal River (*op. cit*.), Rietputs C gravels are known to underlie the present Vaal River channel). These units may all be reasonably thick and record primary depositional structures with significant facies variations (**Fig. 6.11**). Episodes of erosion and pedogenesis intervene between the units

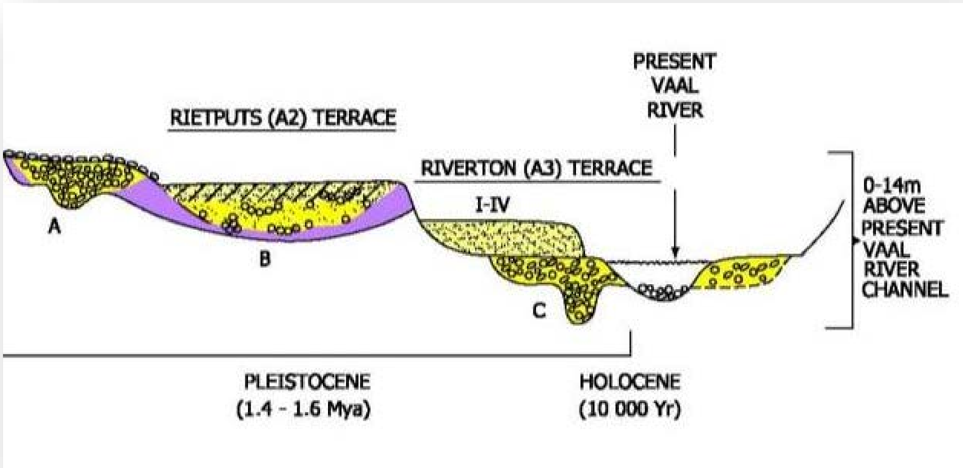


Figure 6.11 Schematic representation of the Rietputs formation gravels as developed along the lower Vaal River (Marshall, 2004)

The Rietputs A gravels comprise a crudely stratified granule-boulder conglomerate with a pale brown sandy matrix. This unit is, typically associated with a well-developed and, often, cemented, cambic palaeosol and/or a rudaceous winnowed lag (young Rooikoppie). Total thicknesses may have been in the order of 25m. Rietputs A gravels are known and mined along the Vaal River from Windsorton to Winters Rush. Calculations of possible river volumes suggest that the Rietputs A Vaal River had a discharge four to five times that of the present river under which conditions rivers will produce locally over-deepened (unusually deep potholes) channels

Rietputs B gravels comprise crudely horizontally bedded granule-coarse cobble conglomerate with a pale brown silty-sand matrix. Silty-sand, sand and calcrete overbank deposits are also known to occur. The sequence is typically cemented and thicknesses are in the order of 3-10m.

The Rietputs C gravels are a 1-6m thick sequence of typically massive gravels in which no/few lenses of fine material or overbank deposits are known to occur. Rietputs C gravels are nearly always found in or near the present river channel and have mostly been completely mined out along the Vaal River, where old diggers actually built coffer dams to access the gravels. Matrix colours reflect oxidation/reduction states relative to the present river.

The Rietputs gravels, in turn, have been overlain by the **Riverton Formation** (Helgren, 1979) – a series of finer-grained sands and silts with minor gravel lenses deposited within the present river channel (**Plate 6.7**).

Plate 6.9 Riverton formations sands and silts along the MOR at the bridge between Saxendrift and Wouterspan (Photo courtesy of R Horn, Rockwell 2016).

6.2.2.1 Source of the diamonds

The primary source of the MOR diamonds is projected to be the kimberlites in the catchments of the Vaal and Orange Rivers (Marshall, 7 Nov 2014). This supposition is supported by size frequency distributions ("SFD's") of alluvial deposits located on these rivers. As can be seen from **Fig. 6.12,** the diamond population from the MOR (as typified by the +35,000ct recovered from the Brakfontein Hill Complex ("BHC") of the Saxendrift Mine), can easily be derived from a combination of the Orange and Vaal river populations.

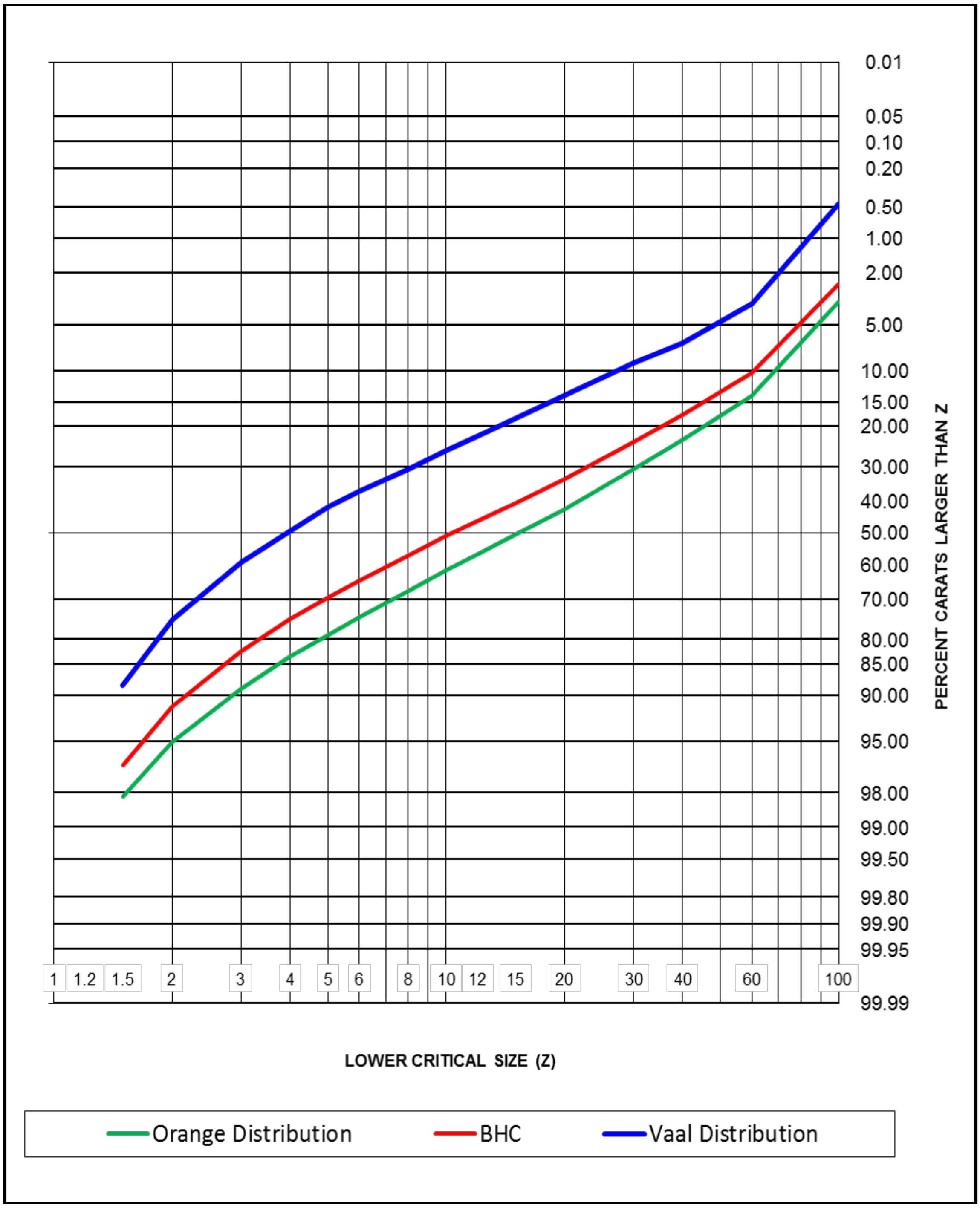


Figure 6.12 SFD of the Orange and Vaal River alluvial diamond populations, in comparison with BHC

The implication of this data is that the general SFD's of all of the MOR alluvial diamond deposits (downstream of Douglas) would be expected to be broadly similar, since no primary (kimberlite) sources feed diamonds into the MOR fluvial system downstream of the confluence of the Orange and Vaal rivers at Douglas. This assumption has been borne out by diamond recoveries by Rockwell on various terraces mined/prospected along the MOR. Minor variations will occur due to differences in local depositional environments as well as the specific percentage of Orange River vs Vaal River influence.

Significant differences in the composition of the sediments reflect on their provenance and show a direct correlation with diamond grade. The composition of the gravels and sands that show a much more pronounced Drakensberg basalt and zeolite sand content, reflect a much higher sediment contribution from the Orange as opposed to the Vaal River. Where the sediments exhibit a predominance of Ventersdorp lava clasts and a high percentage of red agate and BIF, the source is expected to be the kimberlites of the Vaal River catchment.

The dominance of an 'Orange River' source usually reflects negatively on diamond grade because of a dilution factor through the introduction of a larger sand component. Although fewer kimberlites are known from the headwaters of the Orange River than the Vaal River, the Orange River is thought to have played a key role in the transportation of some of the larger, high quality diamonds that are found downstream of Douglas and which may have had their source in the Lesotho highlands.

Previous studies (Gresse, 2003) had suggested that specific terraces were more Orange or Vaal dominated. However, more detailed studies on Rockwell's MOR operations indicate that Orange or Vaal dominance can be on a much smaller scale and can even vary within any given stratigraphic unit.

6.2.3 Geological Controls

1. In the Northern Cape, numerous kimberlite pipes and fissures are known to exist. Grades of these kimberlitic intrusions vary dramatically from barren to highly economical. Erosion of these primary kimberlites as well as of older alluvial and colluvial/eluvial deposits has resulted in hundreds of thousands of carats being eroded into surrounding alluvial gravels. As the diamonds entered the alluvial system, a natural attrition process resulted in the destruction of poorer quality stones. These diamonds were deposited along the course of the river in favourable trap sites (Jacob, 2005) either in bedrock-traps or in point-bar complexes and within-channel bars, particularly in meanders, scour pools and areas of divergent flow (**Fig. 6.13**).

2. Post-Miocene faults, as observed in numerous localities along the MOR (**Plate 6.10**), are probably a reflection of crustal adjustments (Northcoate, 2014) and space problems generated by Cainozoic (Post African I and II) crustal warping (Neotectonic activity). These structures are known to affect present-day drainage patterns and the general geomorphological development of southern Africa as described by various authors (Partridge & Maud, 1987) for example).

   In a few instances, small dolerite intrusions may be associated with these features which often have a displacement in the order of 1 - 3 metres (both normal and reverse displacements have been noted). In some places, slices of Dwyka sediments have even been thrusted over the gravel (van de Westhuizen, 2007 Pers. Comm.). With a dip of less than 30^{o}, these are classified as lag faults. A prolonged life is indicated for these lineaments, by the fact that they were old enough to offer accommodation sites for intrusive dolerite at c. 182 Ma. and young enough to have displaced Miocene-aged gravel.

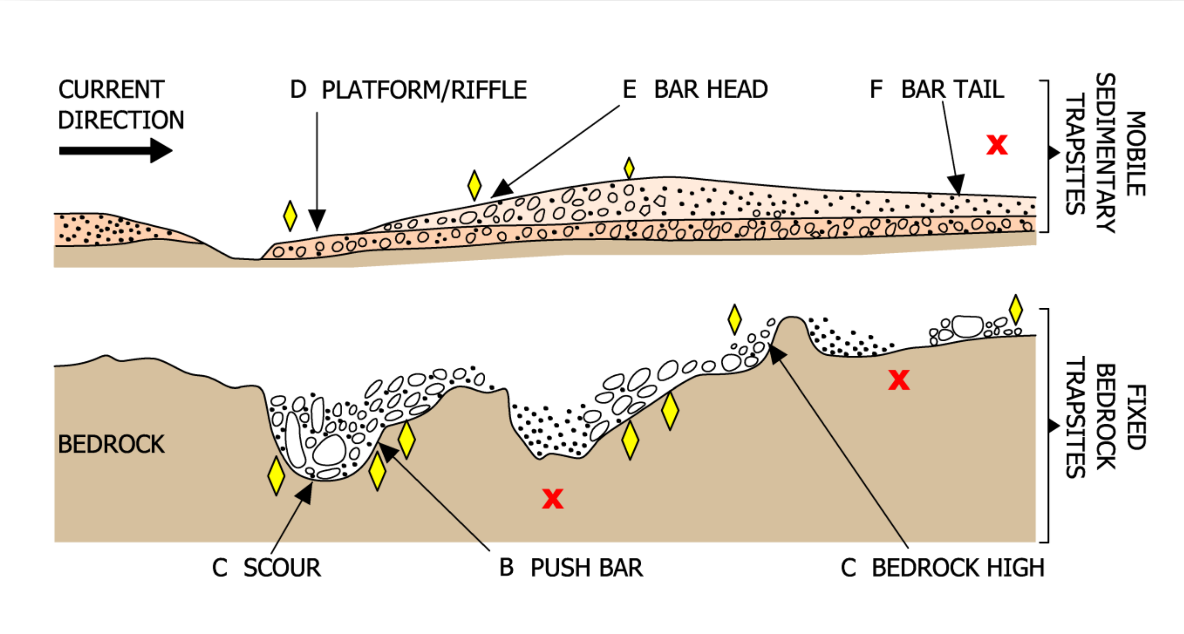


Figure 6.13 Fixed and mobile trapsites and their depositional environments (redrawn after Jacob, 2005)

3. Locally, bedrock geology and structural features play an important role in diamond concentration of the basal alluvial deposits. As has been described above, the bedrock is comprised primarily of Dwyka tillite. This is a friable, flat-lying sedimentary rock that does not, generally, form extensive trapsites. However, local bedrock structures and regional bedrock textures contribute to heavy mineral concentrations within the middle Orange River (**Plate 6.11**). Similar controls are expected to have been in place during the Cainozoic, resulting in localised enrichment of diamonds.

6.2.4 Mineralisation on the Wouterspan properties

Both Upper and Lower terraces have been identified on the Wouterspan properties. The lower (C) terrace, which is the largest of those currently identified on the property, covers an area of approximately 1,000ha. Fluvial alluvial gravel units are often in excess of 15m thickness and overlain by less than 1m of Rooikoppie deposits.

Diamonds have been recovered throughout the entire fluvial-alluvial and Rooikoppie packages. As a result, mining and processing strategies are not fundamentally different depending on which terrace gravel is being mined. Issues that impact on these strategies are limited to thickness (and hardness) of the calcrete carapace and the amount of sand lenses developed in the sedimentary profile – these typically influence whether the entire profile is mined or whether the upper (fluvial-alluvial) units are stripped off as overburden.

Surface mapping has shown that the Rooikoppie deposits vary quite significantly across the Wouterspan property – such differences have been attributed, primarily, to the nature of the underlying fluvial-alluvial units. Bulk-sampling should be planned to determine whether grade varies with the lithological differences.

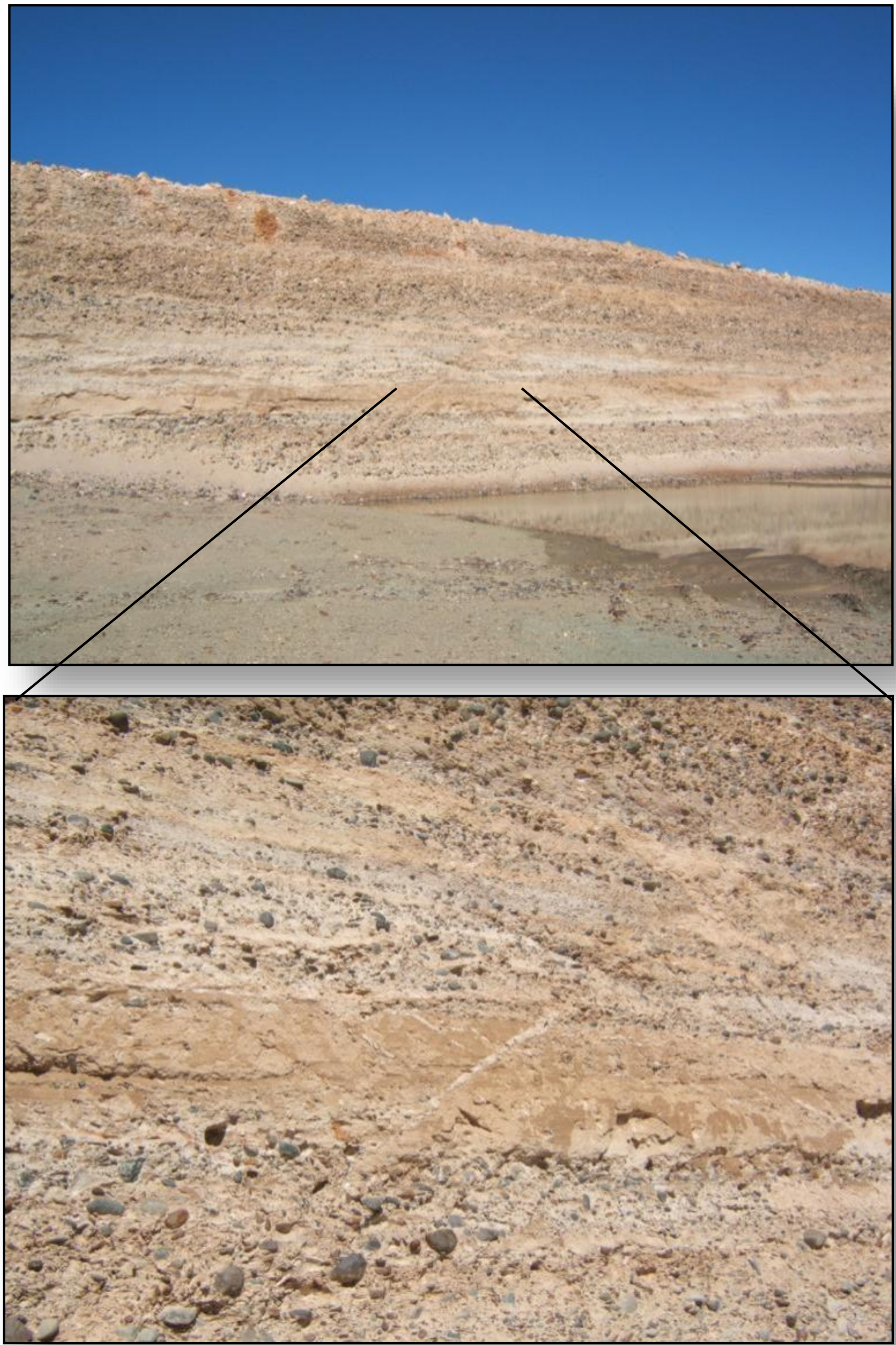


Plate 6.10 Low-angle, Neotectonic fault exposed in mining on the Wouterspan C terrace

Plate 6.11 Local structures and regional bedrock fabric contribute to diamond concentration within the Middle Orange River gravels

The small B terrace remnant located close to the Orange River has been shown to be draped with diamondiferous colluvial (Rooikoppie) gravels (see section 8.4.3 for bulk-sample results). Although colluvial gravels have been shown to exist on the northern side of Wouterspan (at the B terrace level and higher, located on the Stofdraai section of the Wouterspan project), it is unknown to what extent they may be diamondiferous, as terraces that far from the river have never been mined previously and there is, therefore, nothing to compare it with.

7 DEPOSIT TYPES

Numerous studies have shown that the majority of the alluvial diamonds in gravel deposits along all the terraces along the Orange River are derived from two distinct gravel horizons. These comprise an upper deflation deposit (Rooikoppie) and an underlying (Primary fluvial-alluvial) gravel unit (**Plate 7.1**).

Plate 7.1 ***Typical stratigraphy of the fluvial alluvial gravels with a basal gravel overlain by a "middlings" fluvial unit and separated from it by a widespread sandy unit. Overlying the fluvial unit are the deflation or Rooikoppie gravels*** (Saxendrift Mine)

7.1 Primary Fluvial-alluvial Gravel Deposits

The primary palaeo-fluvial succession comprises various proportions of gravel, sand and silt, typically with a basal gravel unit of up to 2m in thickness and an overlying finer-grained unit of up to 6m (the so-called "middlings" gravels). Cross-bedded, fine-grained to granular sand layers and lenses reflect lateral stream migration and gravel bar build-out. Stacked, upward fining sand to pebbly sand to gravel cycles generally represent channel fill deposition. Very fine-grained silty sands reflect upper meander deposits that formed prior to channel abandonment. Massive, clast-supported gravel beds are generally chaotic without any visible gradation or layering. Most of the primary sedimentary features have been destroyed by the subsequent calcretisation. The poorly sorted gravels vary from pebble to cobble gravels, generally with a fair percentage of boulders (rarely + 1m diameter). Interbedded sandy or granule beds and lenses occur frequently in more sandy, matrix supported gravel successions.

The primary Cainozoic sedimentary succession underlying the calcrete represents ancient fluvial channel and gravel bar deposits of the palaeo-Orange River (Gresse, 2003). Individual bars may reach 11m in thickness and 500-600m in length. The overall sequence varies in thickness from 3 - 20m, increasing in thickness towards the last channel position before abandonment. Channel migration and switching is manifested by channel-in-channel incision and local unconformities at various places in the succession leading to complicated stratigraphic successions and internal variations in gravel thickness and distribution within terraces. Large-scale lateral facies changes, recorded by systematic drilling of the terrace deposits, reflect lateral channel migrations within the braided river system.

7.2 Deflation or 'Rooikoppie' Deposits

The higher terraces are overlain by *Rooikoppie* gravel. This clast-supported gravel almost entirely consists of siliceous lithologies such as quartz, quartzite, chert, agate, BIF, etc., in an unconsolidated, reddish, iron-stained sandy matrix. The *Rooikoppie* lies on an irregular karst surface of hard massive calcrete or hard calcrete-cemented gravel. Solution cavities or potholes in the karst surface, known as *makondos*, are filled with the gravel.

These deposits represent a derived gravel and consist mainly of well-rounded and polished siliceous pebbles and reddish coloured sand. The clastic material is believed to originate from the fluvial alluvial gravel units (Marshall, Rooikoppie Deposits of South Africa, 2004) and consists of its most resistant components, in particular chert, agate, jasper, quartzite and vein quartz. Due to the decomposition and winnowing of the less resistant clastic and matrix material there has been a substantial concentration of the more durable components in the original gravel, including diamonds. Iron has stained the entire assemblage, giving it a reddish colour and hence the name *Rooikoppie*, literally meaning 'Red Gravels on a Hill'. In the past, Rooikoppie gravel was mined throughout the region by small-scale prospectors using unsophisticated mining and diamond recovery techniques. Typically, Rooikoppie gravel may occur as both eluvial and colluvial varieties.

7.2.1 Eluvial Rooikoppie Gravel

A thin veneer of red oxidized soil with coarse cobble clasts and windblown sand overlies the calcretised sequence. In places, potholes in the surface of the calcretised layer host pockets of this material. Calcretisation of pre-existing sedimentary sequences, such as alluvial deposits, has been shown to develop according to a definite generic sequence. In fine grained sediments, as are generally found at the top of alluvial sequences, calcrete nodules coalesce to form a honeycomb calcrete, the voids of which are finally filled to form a *hardpan* deposit. In the underlying more sandy or gravelly sequences, calcification proceeds along similar lines, but more slowly. At the surface, all but the siliceous or resistate clasts including diamonds, become calcreted to form a *hardpan* conglomerate at the surface (**Fig. 7.1**).

If calcretes are covered by soil for any length of time, the uppermost layer undergoes a form of decomposition resulting in the formation of *makondos* – a type of solutional weathering feature that has the appearance of a pothole (**Fig. 7.1**). These *makondos* may be infilled with diamond-bearing resistate alluvial gravels and later surface material and the whole sequence may or may not be subsequently calcretised. Where diamond-bearing resistate gravels (in reality a concentrate) infill *makondos*, the eluvial deposit will be richer in diamonds than the original alluvial deposit (**Plate 7.2).**

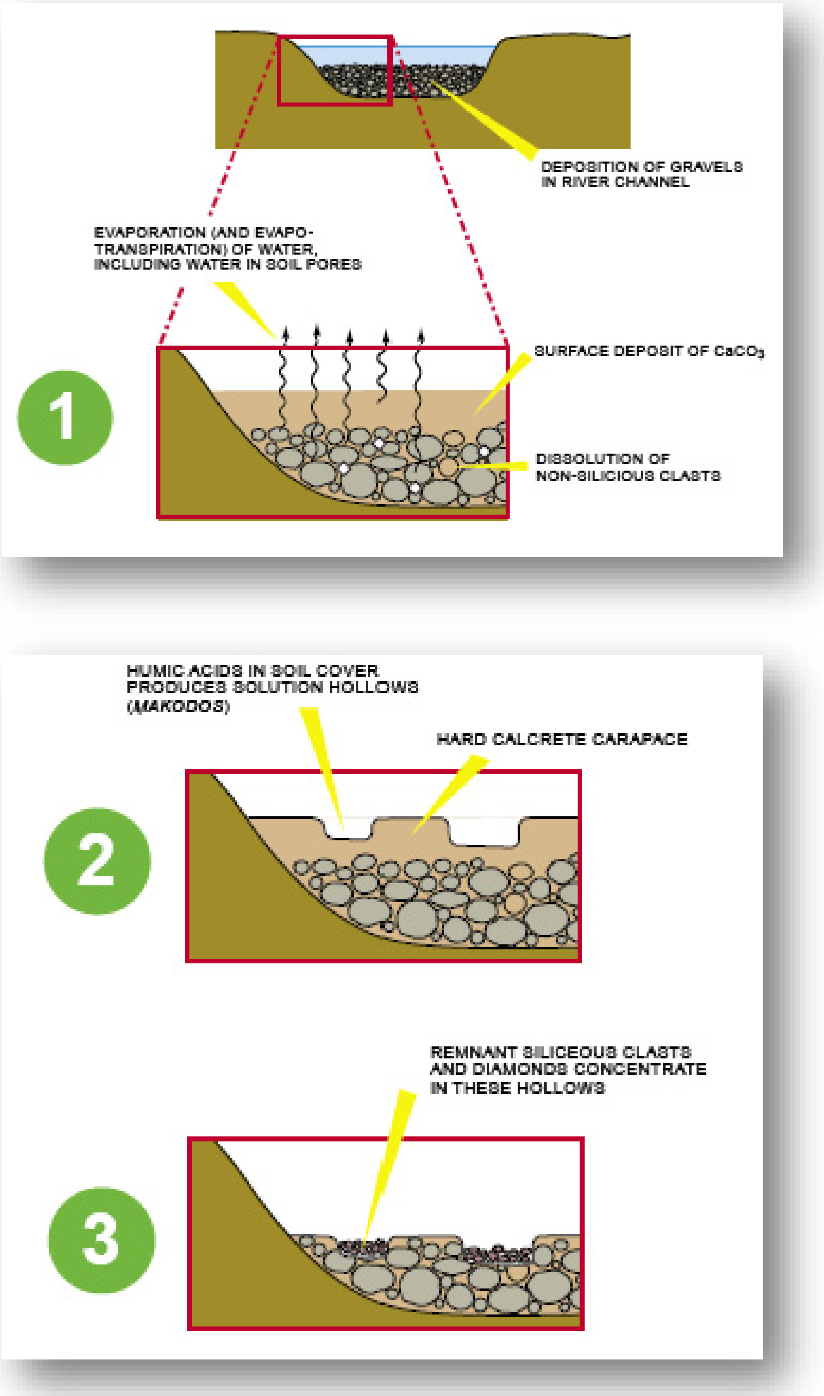


Figure 7.1 Formation of eluvial gravels (Marshall, 2004)

Plate 7.2 Calcrete makondos infilled with gravel concentrate (seen in profile (above) and at the surface (right)). Saxendrift Mine

7.2.2 Colluvial Rooikoppie Gravel

These deposits are typically 10 – 20 cm thick and consist of uncemented, granular-to-pebbly, resistant clasts, composed mainly of quartz, quartzite and agate set in a matrix of dark red, fine-to-medium sand. All the larger clasts are of locally derived material (typically Ventersdorp lava), which contains large core-stones at the base of its weathering profile. The deposits are very extensive (often covering many square kilometres) and drape bedrock irregularities with uneven thicknesses. The gravels, in turn, may often be overlain by thin layers of Kalahari Sands. These derived deposits are best preserved as matrix-supported gravels in pockets in deeply weathered Ventersdorp lavas where the palaeosurface has produced pseudokarst features by laterization processes.

The main driving forces behind the formation of these types of deposits appear to be the processes associated with laterite and or ferricrete development as well as slope down-wearing and back-wearing. Laterite is generally formed as a ferruginous cementing precipitate. In one model of laterite formation, the original precipitates form within the narrow depth range of fluctuation of the groundwater table, which sinks as the landsurface is reduced by erosion. These precipitates accumulate as an increasingly thick layer in the lower parts of the soil profile. When down-wasting ceases and the water table stabilises, the residuum is hydrated and transformed into a massive variety of laterite. A pallid zone develops beneath the laterite as a result of leaching of the saprolite during subsequent landscape cycles. Crustal uplift causes additional leaching which depletes the underlying saprolite to form pseudokarst features. During leaching and pseudokarst development, retreat of the slope permits older armoured, diamond-bearing alluvial gravels to move downslope and to concentrate as resistate particles within the pseudokarst solution cavities.

As the landscape is lowered by weathering and deflation resulting from more than one episode of post-Cretaceous uplift or sea-level lowering the original alluvial gravels are eroded and distributed over the surrounding surface to form thin, laterally extensive, [derived] deposits that have been formed or modified by colluvial or hill-slope processes (**Fig. 7.2**). This complex process of redistribution of pre-existing, diamondiferous alluvial units may result in significant thicknesses of commercial deposits (**Plate 7.3**).

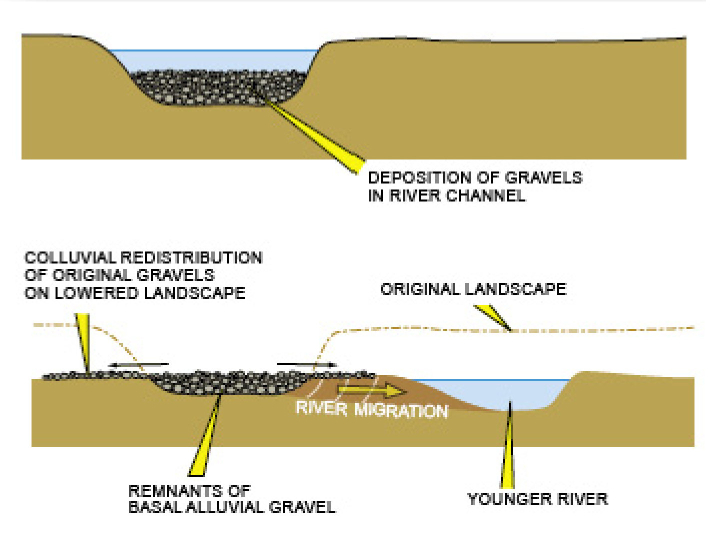
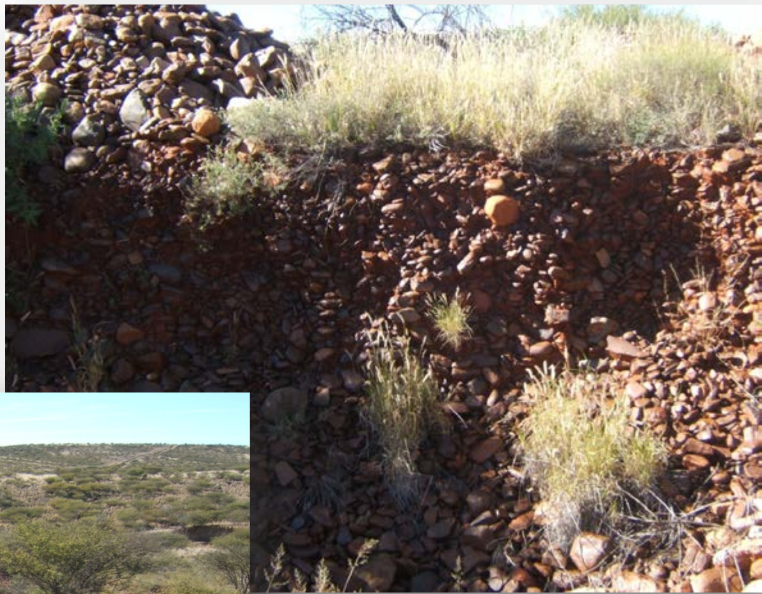


Figure 7.2 Formation of colluvial gravels (Marshall, 2004)

Colluvial *Rooikoppie* deposits can be formed during any cycle of landscape formation and any pre-existing deposit may be remobilised several times. Consequently, it is possible to have similarly looking colluvial *Rooikoppie* deposits developed across terraces of different ages and in different locations. As a result, they are not time specific deposits. Their main use in geologic interpretation is twofold; primarily as an indicator of a hiatus at the end of a depositional cycle, and secondarily as a climatic indicator since the better-developed colluvial deposits are more likely to have formed under warm, humid conditions.

Plate 7.3
Significant thicknesses of colluvial gravels can accumulate downslope from the original fluvial deposit
(as seen downslope of the B2 terrace on SHC on Saxendrift Mine)



8 EXPLORATION

8.1 Satellite Imagery

The lower lying terraces along the MOR are farmed extensively by means of centre-pivot irrigation systems. In addition, much of the area is blanketed by younger Kalahari sands which support scattered vegetation. As a result, aerial photographs and satellite images are of limited use for delineating potential gravel target areas.

8.2 Geophysics

Some use has been made of magnetic surveys in an attempt to delineate channels which have high BIF content. However, the resolution of the available (regional) airborne is insufficient to delineate individual channels and the cost of ground surveys does not justify their use, when more accurate and detailed information can be obtained from drilling/pitting. Further, the mostly shale bedrock, combined with extensive post-depositional calcretisation of the gravels makes it difficult to identify bedrock channels on the terraces using other geophysical surveys. Consequently, geophysics is not used extensively as a primary exploration tool along the MOR.

8.3 Structural Studies

During 2014, C L Northcoate completed a study on the neo-tectonics in the Dwyka tillite and the tertiary diamondiferous gravels of the Mid Orange River (Northcoate, 2014), in partial fulfilment of a B.Sc. Hons degree. The following description is taken directly from this work.

The project area is situated on the south-western edge of the Kaapvaal Craton. The south-western edge of the craton has experienced major deformation during the formation of two Proterozoic orogenic belts namely the Kheis Belt and the Namaqua-Natal Belt. The faults resulting from the formation of the Kheis Belt and the Namaqua-Natal Belt strike north east to North West which bares similarity to the Neotectonic faults of the project area. Although these faults formed 1000 Ma apart, the orogenic belts faults would remain weak lineaments in the cratons edge that could reactivated due to a North to South major compressional stress resulting in the Neotectonic faults present in the project area. The structural data analysis suggests the presence of low angle reverse faults and high angle reverse faults ranging in dip direction from Northeast to Northwest. The difference between the maximum compressional stress between the two dip directions is only 53˚ which still suggests one deformational event with the major stress axis orientated as σ_1=201˚→01˚, σ_2=290˚→02˚, and σ_3=153˚→87˚. There is northward vergent folding that predates the southward vergent faults although this is still one deformational event with sigma one orientated north to south.

The faulting and folding affects the tertiary sediments of terraces A and B, which suggests that the faulting occurred post terrace B formation and pre-terrace C formation. This indicates the age constraints of the Neotectonics around ±5-4 Ma. This observation offers up the possibility that probable fault diamond trap sites exist in the change from terrace B to terrace C. Although most faults that occur are nearly parallel to the rivers palaeodrainage direction, there may be the few exceptions, i.e. perpendicular to the palaeodrainage. Notwithstanding, the Dwyka tillite is soft and readily decomposes (McCarthy, 1983), and as such if a trap site formed from a fault, it may not have lasted due to the constant abrasive flow of the river. There is a Neotectonic uplift of the Griqualand Transvaal Axis which is suggestive of a horizontal compression that is orientated roughly north to south. There could be a link between the reverse faults in the project area and the evolution of the Griqualand Transvaal Axis.

8.4 Bulk Sampling

Sampling on Wouterspan has taken place in three distinct phases:

- A bulk-sampling programme (2005-2007), during which gravels from the C-terrace only were processed through rotary pan-plants, led to the estimation of Inferred and Indicated Diamond Resources (at a bottom cut-off of 2mm). During this programme, Rooikoppie and underlying fluvial-alluvial gravels were processed together as a bulk-mining plan was envisaged for the project. This programme was followed by:
- A limited trial-mining programme during May to November of 2008. This programme was designed to convert the Indicated Diamond Resources to Probable Diamond Reserves. However, the collapse in the rough diamond price following the global economic meltdown of 2008 resulted in the property being put on Care and Maintenance until 2016.
- During 2015/2016, an entirely new approach to operations on Wouterspan was developed – following the success of the Rooikoppie programme on the Remhoogte project, it was initially decided to progress a mining plan involving the mining of Rooikoppie gravels only. At a later stage, a much larger plant would be developed to process the underlying fluvial-alluvial units separately. However, since the previous bulk-sampling programme had not processed Rooikoppie gravels and fluvial-alluvial material separately, the existing bulk-sampling and trial-mining results did not support a Diamond Resource classification. In addition, the processing method selected during 2016 included bulk X-Ray technology (and not rotary pan-plants) and with a bottom cut-off of 5mm (this had previously been at 2mm). Since diamond grades are a "recovered grade" and not an "*in-situ*" grade, the confidence in the previous resource grades was downgraded. Consequently, a second phase of bulk-sampling was initiated to determine the grades of the Rooikoppie gravels separate from the underlying fluvial-alluvial unit.

In order to simplify the different programmes, this Technical Report will describe each programme separately:

8.4.1 Bulk-Sampling Programme 2005-2007

8.4.1.1 Location

During the period June 2005 to October 2007, a total of 2,648,300.95m^3 of gravel (excluding tailings) was sampled from the Wouterspan C terrace (**Fig. 8.1**)[16]. During the period prior to February 2006, however, volumes processed were often estimated and not surveyed accurately. As a result, the reported figures for these volumes have been shown to be grossly inaccurate – typically resulting in overestimation of grades. Consequently, the production data for this period was not included for grade estimation purposes. However, since all the diamonds were recorded and sold, this information was included in average diamond size and value estimations.

8.4.1.2 Mining and Processing of Samples

8.4.1.2.1 Excavation

The upper 2-3m of the fluvial-alluvial sequence is calcreted to varying degrees – usually to laminar or hardpan levels. As a result, prior to excavation, the sample block was blasted, typically on a 5x5m grid. This has the effect of breaking up the hard calcrete carapace without damaging diamonds. The broken calcrete material was then stripped off using hydraulic excavators. Varying depths of calcretisation means that some of the upper gravel layers are also highly cemented. If this material was simply excavated and

[16] The location of the bulk-samples, relative to the gravel deposits can be seen on Fig. 8.5.

then loaded, large amounts of calcreted gravel chunks would be sent to the plant. Due to the nature of these chunks, unknown numbers of diamonds would be locked up and lost to the recovery system.

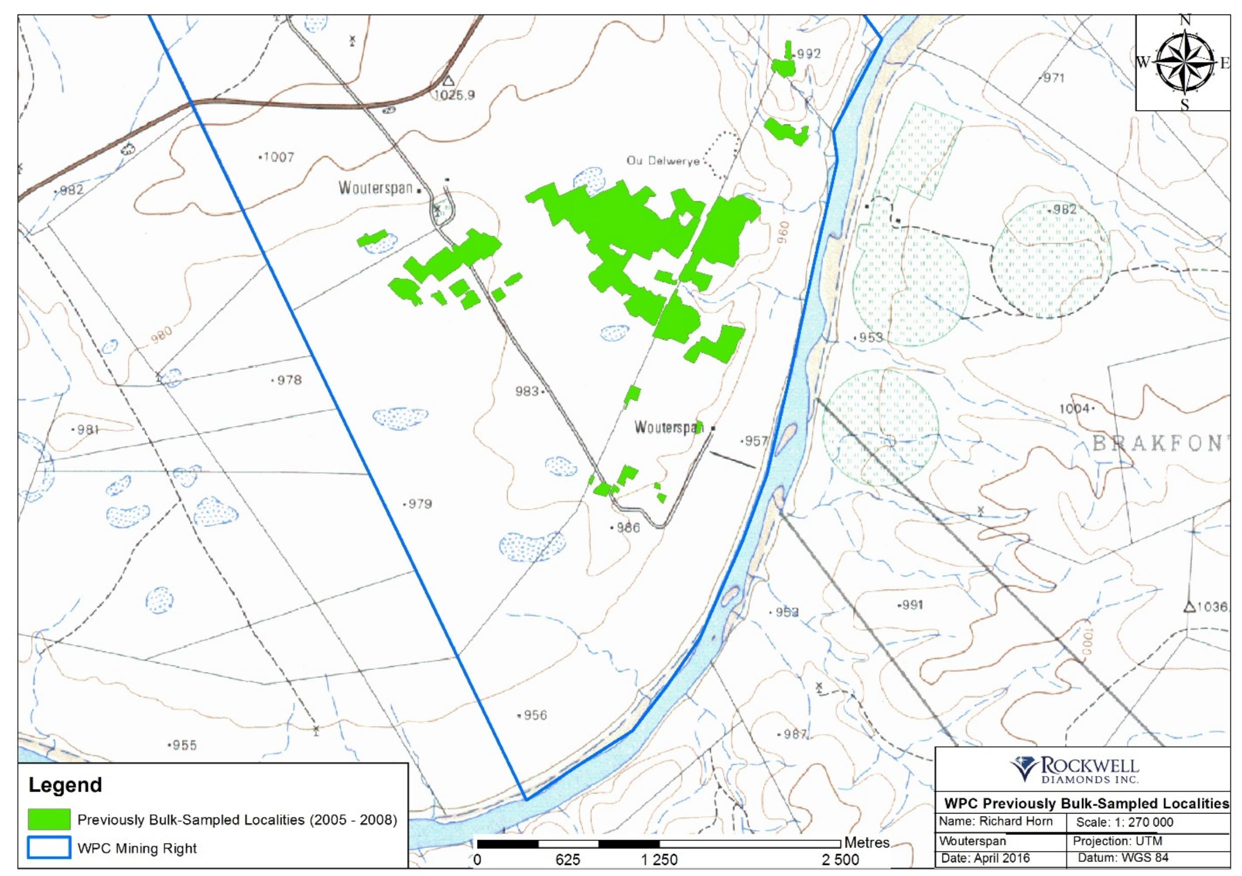


Figure 8.1 Location of 2005-2008 sampling by Rockwell (2005-2007)

However, in order to mitigate against this problem, prior to excavation, the gravels were ripped by two D475 (Komatsu) bulldozers. This effectively liberates the gravels and the diamonds from the calcrete matrix. The disaggregated material was then loaded by excavator onto articulated dump trucks (ADT) and transported to the plant site for further processing.

During this sampling period, in-pit screening was not possible due to the lack of sufficiently robust screens (able to handle the throughput of calcreted gravels) available on the market.

8.4.1.2.2 Sample Processing

Twelve 16 ft. rotary pan-plants were used to process gravels on Wouterspan. Processing capacities (ROM) on these plants is approximately 312 tph. The screened gravels (-70mm) were stockpiled and processed according to standard operating procedures (**Fig. 8.2**). Material for the rotary pan plants was fed into the plants by front-end loader. Magnetic separation of the iron-rich component of the plant feed is of crucial importance to successful diamond recovery when using rotary pan plants in the Middle Orange River region due to the fact that the predominant BIF component of the gravels has a high density and can displace the diamonds. Magnetic separation was through a static magnet suspended above the individual pan feed belts (**Plate 8.2**). This process is capable of removing in the order of 60% of the BIF component of plant feed.

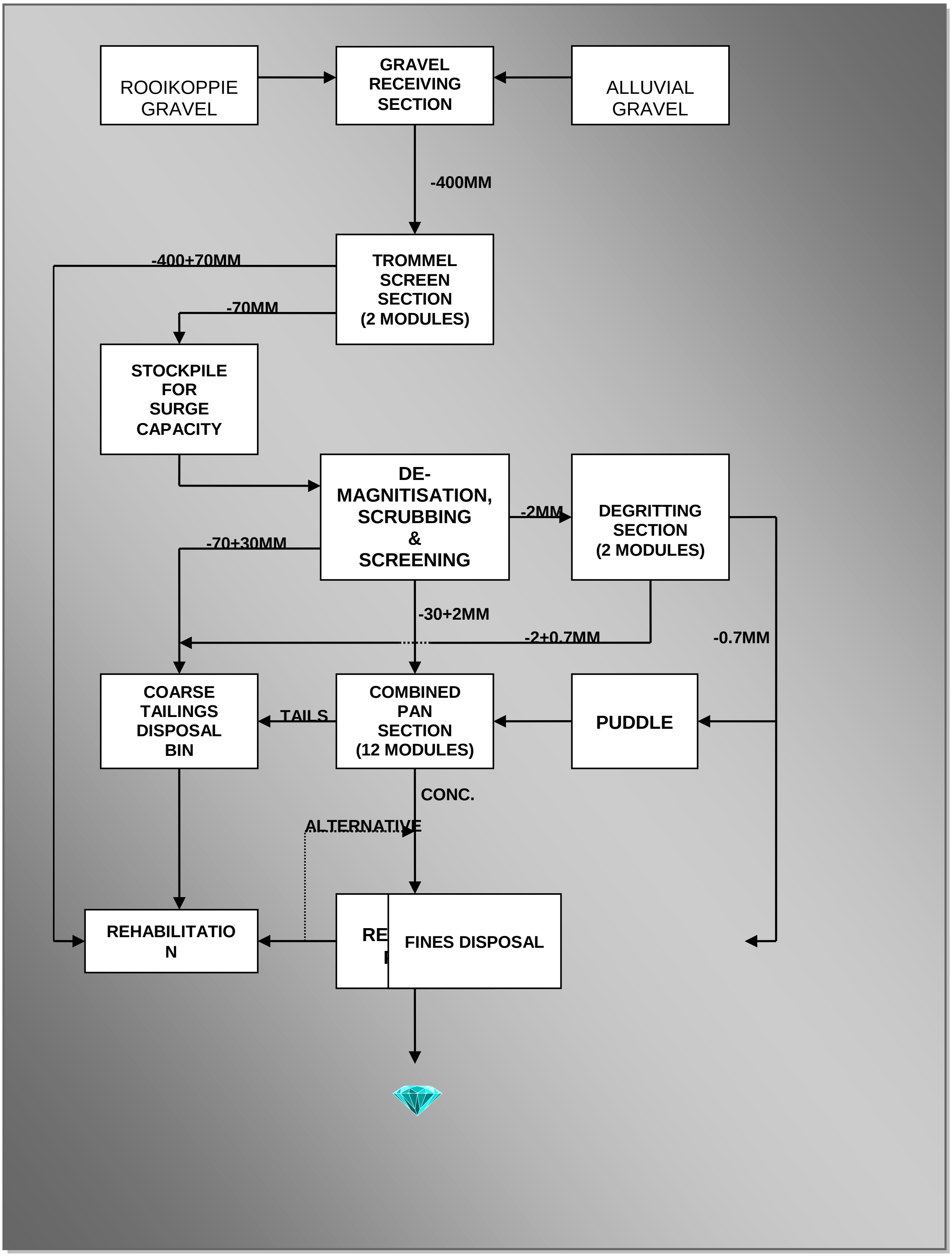


Figure 8.2 Flowsheet for the Wouterspan sampling (Rockwell, 2007)

The plant feed bin feeds into the primary, "Trommel" screen, which both disaggregated the gravel and screened it at 30mm. All oversize material was trucked away from the plant site and dumped into open excavations as part of the rehabilitation process. The undersize material (-30mm) was fed directly into the rotary pan plants. The float fraction (light material) was discharged onto a double deck screen, the top deck of which is utilised as a relieving deck allowing for more efficient screening on the bottom deck which removes -2mm material.

Plate 8.1 Magnet suspended above plant feed belt to separate out the BIF clasts

Undersize material and slurry from the screen was pumped to a separator cyclone situated above the pan tailings conveyor. The cyclone underflow discharged on a single deck screen directly onto the tailings conveyor, whilst the cyclone overflow discharged into a sump, which was then pumped directly to the mine residue deposit. The oversize tailings were transported via conveyor belt to the pan tailings bin where it was combined with the separator cyclone underflow, after which it was trucked to the relevant tailings dumps.

The concentrate from each pan was removed as a batch from the pans using individual screw conveyors. The concentrate from each pan was then combined and transported along a conveyor belt to a dewatering screen. Screened oversize material discharged onto a conveyor belt which transported the material to a concentrate bin. Screened undersize gravitated to the central sump where it was de-gritted. The -2+0.6mm fines were pumped to the coarse tailings residue disposal bin (and used for rehabilitation, along with the light tails from the pan plants). The -0.6mm fraction was pumped to the mine residue facility. Pan concentrate was withdrawn from the bin using vibrating feeders onto conveyors to the classifier, and from there to the seven X-ray FLOWSORT recovery units (**Plate 8.2**). The waste from the FLOWSORT recovery units was fed to an attrition mill, via a classifying screen, to the Grease plant, which comprises a coarse and a fine stream.

The FLOWSORT machines operate simultaneously, each processing a specific fraction for purposes of efficiency and optimisation. The fractions that were treated during the sampling programme were +2-5 mm, +5-10 mm, +10-20mm, +20-30mm.

Plate 8.2 Three of the seven X-Ray recovery FLOWSORT machines

8.4.1.3 Results

All of the bulk-samples were processed the entire gravel sequence in bulk – not separating Rooikoppie or basal and overlying alluvial (suspended/middlings) gravels. As a consequence, average diamond grades and sizes (**Table 8.1**) represent bulk values. Based on this data an average global grade of 0.71ct/100m^3 was accepted as an average sample value.

Table 8.1 Production data from Wouterspan for the period March 2005 to 31 October 2007.

Production Date	Volume (m^3)	Total Carats	Number of Stones	Grade (ct/100m^3)	Size (ct/st)
Mar 2005	Tailings	16.67	11		1.52
April	Tailings	120.36	67		1.80
May	Tailings	261.62	124		2.11
June	56,000.00	357.77	255	0.64	1.40
July	32,643.81	280.5	176	0.86	1.59
August	44,717.14	550.42	300	1.23	1.83

September	45,678.57	301.72	168	0.66	1.80
October	71,717.14	599.3	268	0.84	2.24
November	95,160.00	630.85	303	0.66	2.08
December	46,414.29	312.68	188	0.67	1.66
Jan 2006	11,763.00	432.68	230	3.68	1.88
February	85,368.50	509.71	289	0.60	1.76
March	67,134.00	676.25	280	1.01	2.42
April	104,693.00	438.56	229	0.42	1.92
May	84,820.00	721.66	229	0.85	3.15
June	118,938.50	820.42	257	0.69	3.19
July	155,180.00	943.89	426	0.61	2.22
August	159,100.50	1,023.53	475	0.64	2.15
September	165,224.00	1,094.66	395	0.66	2.77
October	158,199.00	893.35	410	0.56	2.18
November	108,452.50	971.44	423	0.90	2.30
December	59,002.00	367.42	151	0.62	2.43
Jan 2007	56,732.00	439.27	183	0.77	2.40
February	86,092.00	651.27	356	0.76	1.83
March	110,614.00	864.18	462	0.78	1.87
April	60,438.00	318.43	167	0.53	1.63
May	113,744.00	438.86	269	0.39	1.63
June	119,635.00	791.98	353	0.66	2.24
July	110,343.00	1,118.48	505	1.01	2.21
August	124,514.00	684.15	345	0.55	1.98
September	94,602.00	700.87	308	0.74	2.28
October	45,144.00	354.86	165	0.79	2.15
Total (Feb 2006 - Oct 2007)	2,187,970.00	14,823.24	6,677	0.71	2.22

Grey highlighted months represent volume data for which the accuracy is suspect and, therefore, has not been included in the sample grade estimation.

8.4.1.3.1 Diamond Grade Estimation

The average sample grade, after processing 2,187,970m^3 of C terrace gravel (combined basal, suspended and Rooikoppie units) and recovering 14,823.24cts, (6,677stones) was 0.71ct/100m^3 (at 2mm bottom cut-off). Moreover, as evidenced in **Fig.8.3** on a monthly basis, the grade varied little – from 0.39ct/100m^3 to 1.01ct/100m^3. These minor variations were seen to compare well with sedimentological variations in the terrace deposits – it is apparent that there is a direct correlation between sedimentology and grade with higher grades being recovered from gravels which have fewer sandy lenses, better clast packing and larger cobbles/boulders in the oversize fraction, as would be expected.

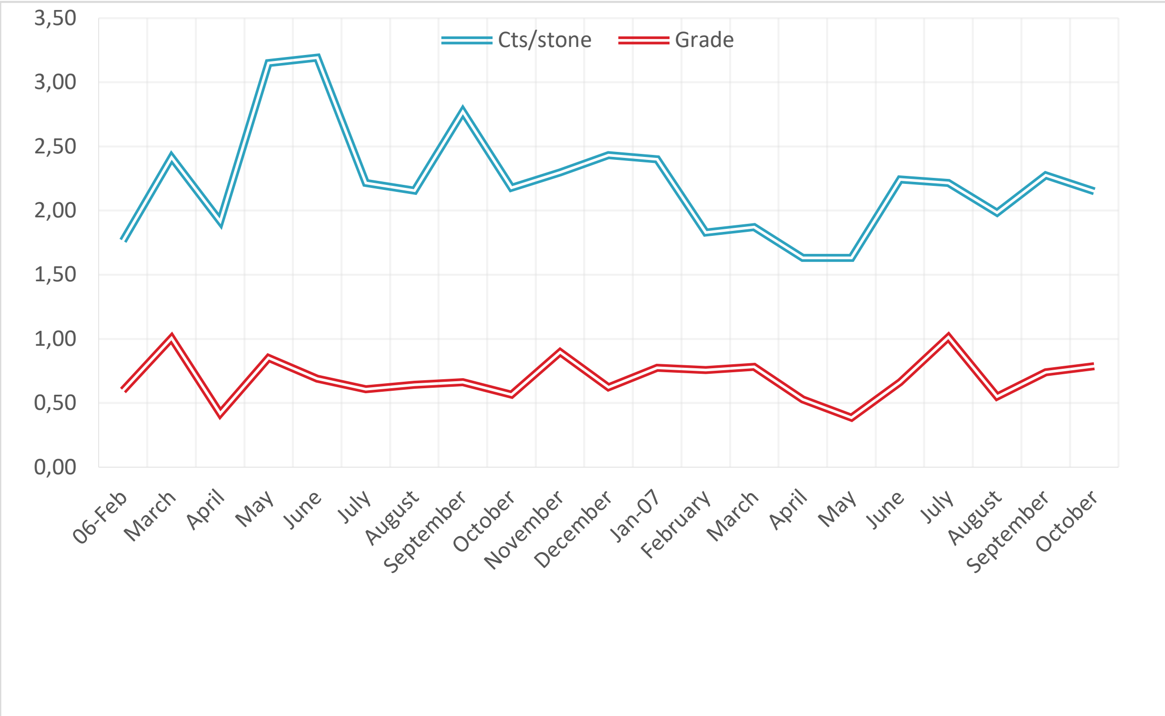


Figure 8.3 Variation of average grades and diamond sizes

8.4.1.3.2 Diamond Value Estimation

8.4.1.3.2.1 Diamond Size-Frequency Distribution (SFD)

The sampling programme recovered a total of 8,767 stones (18,703.51 carats) from March 2005 to 31 October 2007, giving an average stone size of 2.13ct/stone. The top and bottom diamond cut-off for the sampling programme was 30mm and 2mm respectively. The upper limit of 30mm, which allows for the recovery of diamonds of approximately 280cts in size, is as a direct result of the theoretical and practical expectation of large stones.

The SFD showed that that the Wouterspan diamond population is comprised of a relatively large stone size and a well sorted diamond population, generally similar to that of the other MOR deposits, if somewhat finer. The production history of Wouterspan (**Table 11.2**), further, showed the frequency with which large stones have been recovered, with 14 out of the total of 8,767 stones being over 50cts in size.

Table 8.2 Large Stones (+50ct) recovered from Wouterspan March 2005 – 31 October 2007

156.95	78.65	57.33
152.11	78.62	50.98
132.20	71.80	50.86
98.24	62.90	50.65
86.35	61.33	

8.4.1.3.2.2 Diamond Sales

Small diamond samples (less than 2,000 carats) are not likely to be truly representative in terms of their average recovered sales values. Nowhere is this more apparent than for samples where large diamonds are recovered intermittently, such as is the case here on Wouterspan. However, the total carats sold from Wouterspan prior to 2008 exceeded 17,000 – 13,116.50 of which have been recovered by Rockwell during the period March 2006 – October 2007 (**Table 8.3**). Over 5,000cts were sold previously, but sales figures are incomplete and so this data was not included in the sample results.

Table 8.3 Diamond sales data for March 2006 to October 2007

Date of sale	Carats sold	USD value	USD Fx rate	USD/ct
March 06	532.58	557,721.45	6.26	1,047.21
April 06	421.57	591,713.65	6.12	1,403.60
May 06	590.12	778,944.66	6.42	1,319.98
June 06	458.82	1,061,264.96	7.15	2,313.03
July 06	898.73	2,136,364.14	7.01	2,377.09
Aug 06	959.88	1,127,805.38	6.94	1,174.94
Sept 06	444.87	463,381.02	7.31	1,041.61
Oct 06	1,123.07	6,454,273.06	7.60	5,746.99
Nov 06	1,154.26	2,554,578.64	7.13	2,213.17
Jan 07	796.14	3,901,090.99	7.33	4,900.01
Feb 07	721.57	676,727.24	7.25	937.85
March 07	565.23	490,424.89	7.33	867.66
May 07	1,149.19	1,654,822.47	6.98	1,439.99
June 07	777.95	1,551,781.07	7.21	1,994.71
July 07	418.85	969,172.16	7.00	2,313.89
Aug 07	621.88	2,474,388.65	7.27	3,978.88
Oct 07	1,481.79	2,006,149.02	6.43	1,353.87
TOTAL	**13,116.50**	**29,450,603.46**	**6.35**	**2,245.31**

8.4.1.4 Sample Quality

Grade variation in alluvial deposits has always been a contentious issue – however, practical experience has shown that the larger the sample, the more it is possible to mitigate against such variability:

- In 2006, De Decker had reported preliminary expected grades of 0.4-0.5cpht (*estimated 0.5-0.8ct/100m^3*). This was based on regional averages as well as from just over 500,000m^3 of gravel processed by HCVWD, which returned a sample grade of 0.55ct/100m^3.
- In March of 2007, Clay & McKenna reported an average grade of 0.63ct/100m^3, as determined from 14 months of bulk-sampling. The increase in sample grade is assumed to be due, partly to improvements in processing methods and partly to variations introduced by a significantly larger sample.
- The average sampled grades in 2007/2008 had increased to 0.7ct/100m^3. This increase was attributed to the improvements made by Rockwell in both mining and processing. For example,

- Using bulldozers to break up the gravel before it is loaded and sent to the plant has the effect of liberating many more diamonds from the calcrete matrix than was previously the case when mining only with excavators and;
- Initially the gravel was processed through a single magnetic-separator plant, comprising of four parallel belts above which a static magnet was suspended. This process was improved by doing away with the single plant and installing individual magnets on each of the 12 pan-plants, effectively trebling the efficiency of the removal of BIFs. This, in turn, lowers the density of the puddle and decreases the chance of losing diamonds with the lighter pan-overflow.

Since the grades reported are averages, with no distinction between basal units, suspended gravels or Rooikoppie deposits, nothing is known regarding the relative contribution of each of these different units. All of the bulk-samples were processed the entire gravel sequence in bulk – not separating Rooikoppie or basal and overlying alluvial (suspended/middlings) gravels. As a consequence, average diamond grades and sizes represent bulk sample values.

8.4.1.5 Representativeness

All the sampling during this period was completed on the C terrace only.

As can be seen from the Figure 8.1, the bulk-samples on the C terrace have not been taken along a systematic grid, neither are they sited so as to sample specific horizons. The key reasons for this are:

- The extremely large size of the sample (refer Section 8 for details on diamond distribution patterns).
- The anticipated mining plan for the properties was based on high volumes (and low grades) and, therefore, the samples have to address average recoveries. Consequently, samples were not sited so as to intersect areas of anticipated higher (or lower) grade.
- The prevailing mining plan combined both Rooikoppie (colluvial) and fluvial-alluvial gravels. As a result, these units have not been sampled separately.

Further, the sampling was concentrated only on Re/Portion 9. Historically, this was due to the thinner overburden and, subsequent, ease of access to the basal gravels. No samples were situated in the deeper sections of the central, large channel target (refer Figs. 6.2, 8.5 and 9.2). The same is true respecting the southern portions of the C terrace. Although gravels from this feature have been mined on an adjacent property, there are no results available from the company. It was planned for Rockwell to expand the sampling programme to include these gravels.

The gravels sampled for grade are all located within the northern portion of the property, in a relatively shallow channel feature. The drill data indicates that all of the identified channels may have similar broad sedimentology, but are likely to differ in detail. Consequently, additional sampling would be necessary in these areas before they could be included in the resource statement.

8.4.2 Trial-Mining Programme (2008)

This section summarises the trial-mining which was initiated on the Wouterspan project during May to November of 2008 (after which the mine was put on Care & Maintenance as a direct result of the collapse in the rough diamond price). The excavation of the gravel as well as the method of processing and the final recovery of diamonds were identical to that employed during the 2005-2007 bulk-sampling process. These have already been described in Section 8.4.1 above and will not be repeated here. Up to November 2008, a total of some 552,293m^3 of gravel was sampled during the trial-mining programme (**Fig. 8.4**)[17].

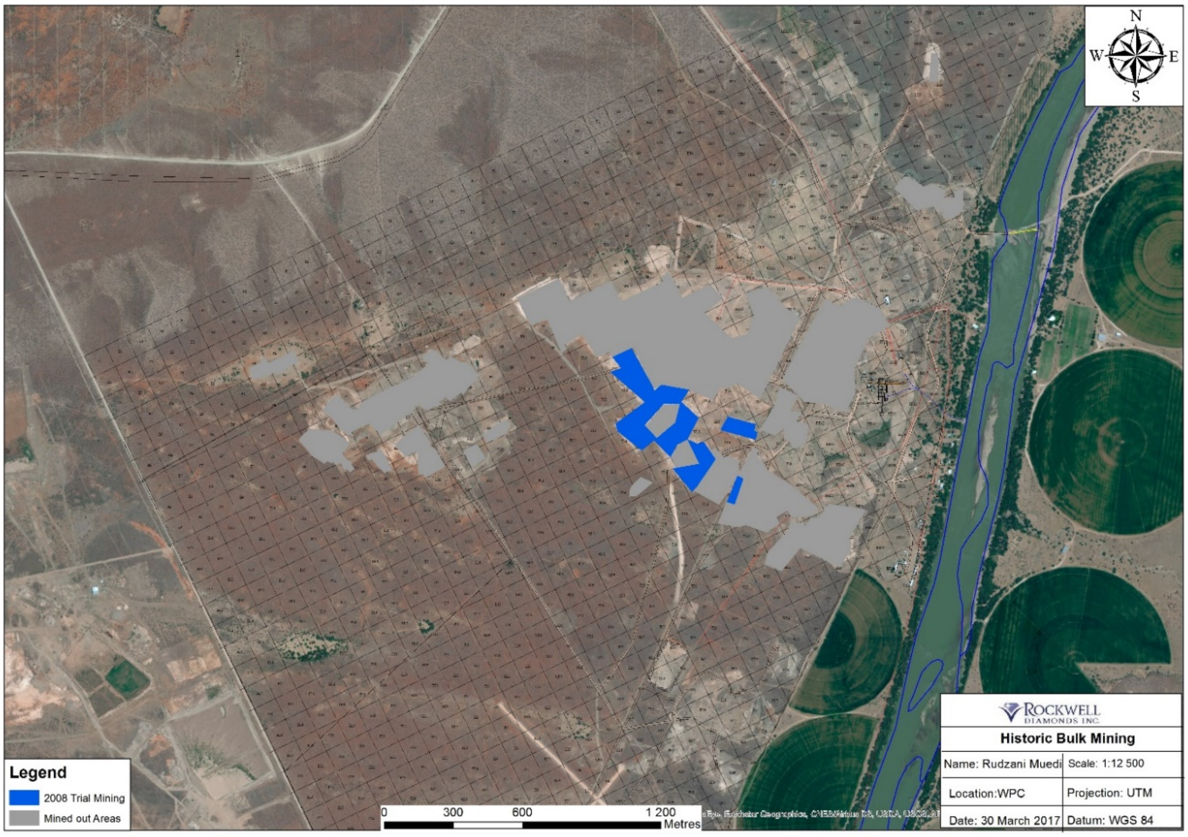


Figure 8.4 Location of May-November 2008 Trial Mining programme

8.4.2.1 Results

8.4.2.1.1 Grades

During the period March - November 2008, the resources on Wouterspan were depleted by trial-mining activities (**Table 8.4**). All of the gravels mined during this period were from previously identified Indicated Diamond Resource areas. Some 100,000m^3 of Rooikoppie and 452,293m^3 of calcreted fluvial-alluvial

[17] The location of the bulk-samples, relative to the gravel deposits can be seen on Fig. 8.5.

gravel (for a total of 552,293m^3) was processed[18] to recover 3,896.42ct at an average grade of 0.70ct/100m^3, which compared very well with the bulk-sample grade of 0.7ct/100m^3).

Table 8.4 Production results for Wouterspan March-November 2008

2008	Volume (m^3)	# of Carats	Grade Ct/100m^3	Stone Size
Mar	77,087	473.11	0.61	2.40
Apr	87,931	578.59	0.66	2.14
May	77,222	568.60	0.74	2.16
Jun	48,798	257.92	0.53	2.03
Jul	44,563	248.96	0.56	1.72
Aug	27,468	201.24	0.73	2.61
Sep	51,285	355.08	0.69	1.76
Oct	74,365	567.85	0.76	1.67
Nov	63,574	645.07	1.01	1.58
Sub-Total	**552,293**	**3,896.42**	**0.70**	**2.15**

8.4.2.1.2 Diamond Size Distribution

During October 2008, Dr M M Oosterveld was asked to compare the diamond distributions of Wouterspan over the years of production and also to compare it with the rest of Rockwell's mines/operations along the MOR. Except for 2005 when a smaller average stone size was apparent across the property, the results showed distinct similarities, with the large stone size end of the distribution showing the normal irregularities caused by the incidental recovery of large stones (Oosterveld, 2008). The general impression was that the overall diamond size frequency for Wouterspan was fairly constant, although local variations would be expected to exist.

To forecast the number of large stones to be expected, the cumulative number of stones in the classes larger than 6ct/st were used. The forecast was obtained by fitting a straight line to the observed values between in the 6ct and 30ct classes (>6cts/st to <40cts/st). It is apparent that for the 2005 to 2008 period only two stones larger than 100 carats were observed while the forecast indicates that five stones should have been recovered. On average, the largest stone recovered in 22,039ct could have been in the order of 250ct. In a normalized production of 50,000ct, Wouterspan would have recovered 13 stones larger than 100 carats while only five were observed. This deficiency of large stones was considered (Oosterveld, 2008) to be caused by the non -recovery of these stones due to the treatment plant characteristics.

8.4.2.1.3 Diamond Values

During 2007, the average sales value was USD2,290/ct. The high average diamond value was attributed, in part, to the worldwide increase in the value of gemstones as well as to the recovery of a number of

[18] As with the bulk-sampling programme, the Rooikoppie gravels and the fluvial-alluvial units were not processed separately.

large (+50ct) stones during the production period. During March – October 2008, however, over 2,000cts were sold from Wouterspan for an average of only USD1,511/ct (**Table 8.5**). During this period, there was a decrease in average diamond value of some 33% from the previous year –reflecting a drop in the average size of the diamonds recovered from the Wouterspan operation, combined with general decreases in international diamond prices towards the end of 2008.

Table 8.5 Sales data for the Wouterspan operation (2007-2008)

	Carats sold	**USD/ct value**
Mar-08	-	-
Apr-08	790.98	1,559.13
May-08	475.92	1,566.33
Jun-08	659.12	1,130.98
Jul-08	-	-
Aug-08	434.44	1,462.45
Sep-08	269.70	1,886.20
Oct-08	43.70	3,960.00
TOTAL	**2,673.86**	**1,511.39**

8.4.2.1.4 Representivity

As can be seen from **Fig. 8.4** above, the trial mining was only located on a portion of the C terrace. This information is thought to be representative of the area sampled, but it cannot be representative of areas which have been neither drilled nor sampled, or of any other terraces. In addition, the resultant grade was derived from the processing of combined Rooikoppie and fluvial-alluvial gravels from all sample areas and did not reflect potential differences in Rooikoppie and fluvial-alluvial domains.

8.4.3 Bulk-Sampling (2016/2017)

During early 2016, an entirely new approach to operations on Wouterspan was developed – following the success of the Rooikoppie programme on the Remhoogte project, it was decided to progress a mining plan involving the mining of Rooikoppie gravels only. It was proposed that, at a later stage, a much larger plant would be developed to process the underlying fluvial-alluvial units separately. However, since the previous bulk-sampling programme had not processed Rooikoppie gravels and fluvial-alluvial material separately, the existing bulk-sampling and trial-mining results did not support a Diamond Resource classification. In addition, the processing method selected during 2016 included bulk X-Ray technology (and not rotary pan-plants) and with a bottom cut-off of 5mm. Since diamond grades are a "recovered grade" and not an "*in-situ*" grade, the confidence in the previous resource grades was downgraded. Consequently, a second phase of bulk-sampling was initiated to determine the grades of the Rooikoppie gravels separate from the underlying fluvial-alluvial unit.

However, from late 2016 / early 2017, a re-evaluation of the Wouterspan project led Rockwell management to implement an updated prospecting programme based on a *"selective, bulk-mining"* plan. This called for the processing of selective units within the fluvial-alluvial stratigraphy and also only specific Rooikoppie facies.

8.4.3.1 Location

During the 2016/2017 programme, gravels were sampled from three areas (**Fig. 8.5**). Some of the Rooikoppie gravels from sample blocks on Terrace B and RK1 and were processed separately, however, some material from blocks RK1, RK7 and block FA were mixed, both in terms of gravel types and in sample location.

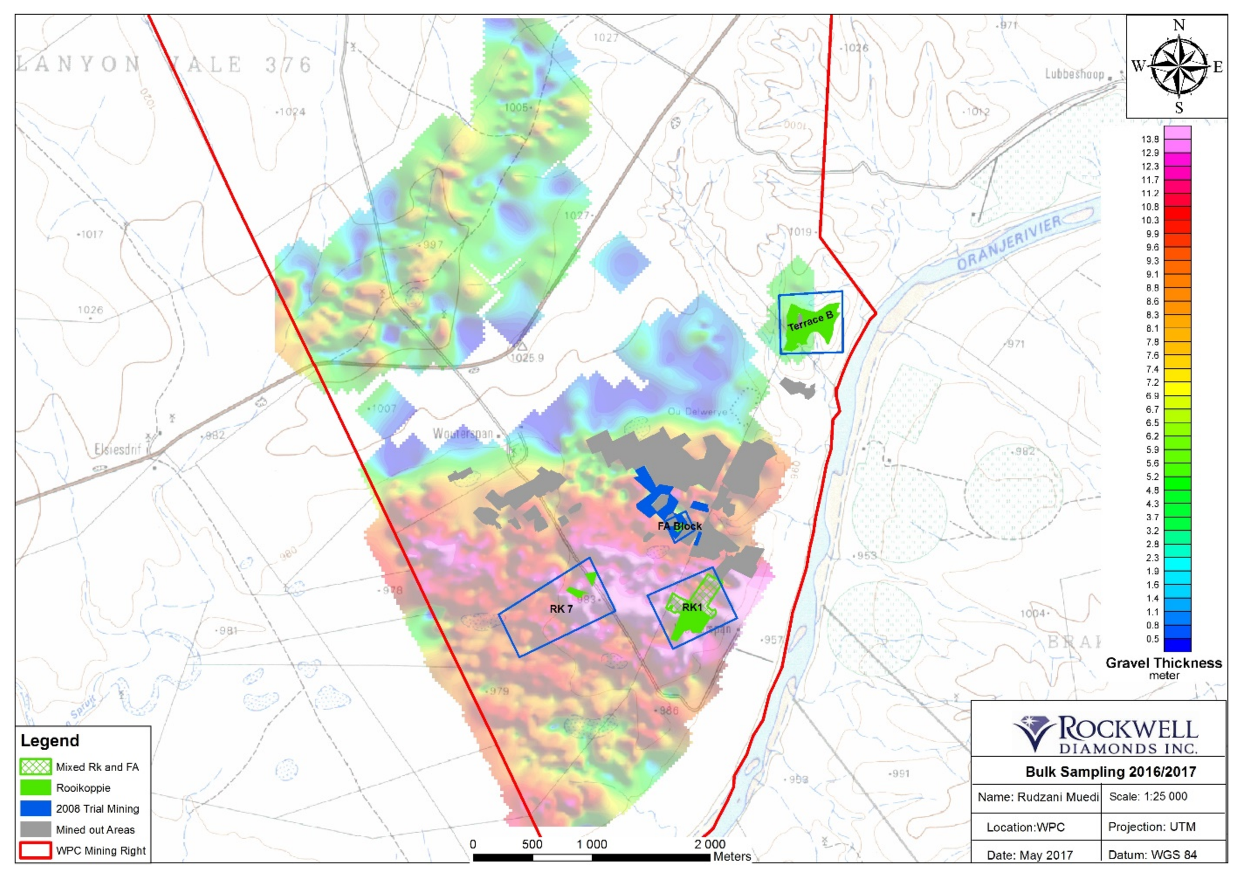


Figure 8.5 Location of the 2016/2017 sample blocks

8.4.3.2 Mining & Processing

8.4.3.2.1 Excavating

Mining and rehabilitation is being done using owner-operated Earthmoving Machinery, in a manner not dissimilar to previous sampling programmes. This will not be described here again.

8.4.3.2.2 Processing

The +40mm fraction is removed by in-pit screening. An In-Field Screen ("IFS") capable of supporting 200,000m^3/month through the wet plant has been constructed at the plant site. The plant design (**Fig. 8.6**) will allow for the 100T trucks transporting product from the pits to directly tip into the bins. Vibratory feeders will feed the material by means of conveyor belts from the bins to scrubber. The washed material from the scrubber will then be sized by vibratory screens; the fines screen will remove any misplaced material and the coarse/mid screen will split the feed into two size fractions. The vibratory screen will split the screened product into coarse and medium size fractions. The bottom cut-off for the mid-stream is +10mm and the top cut-off is -20mm. The coarse stream bottom cut-off is +20mm and the top cut-off is -40mm. Over- and under-size material is loaded onto ADT's and transported to open pits to be rehabilitated.

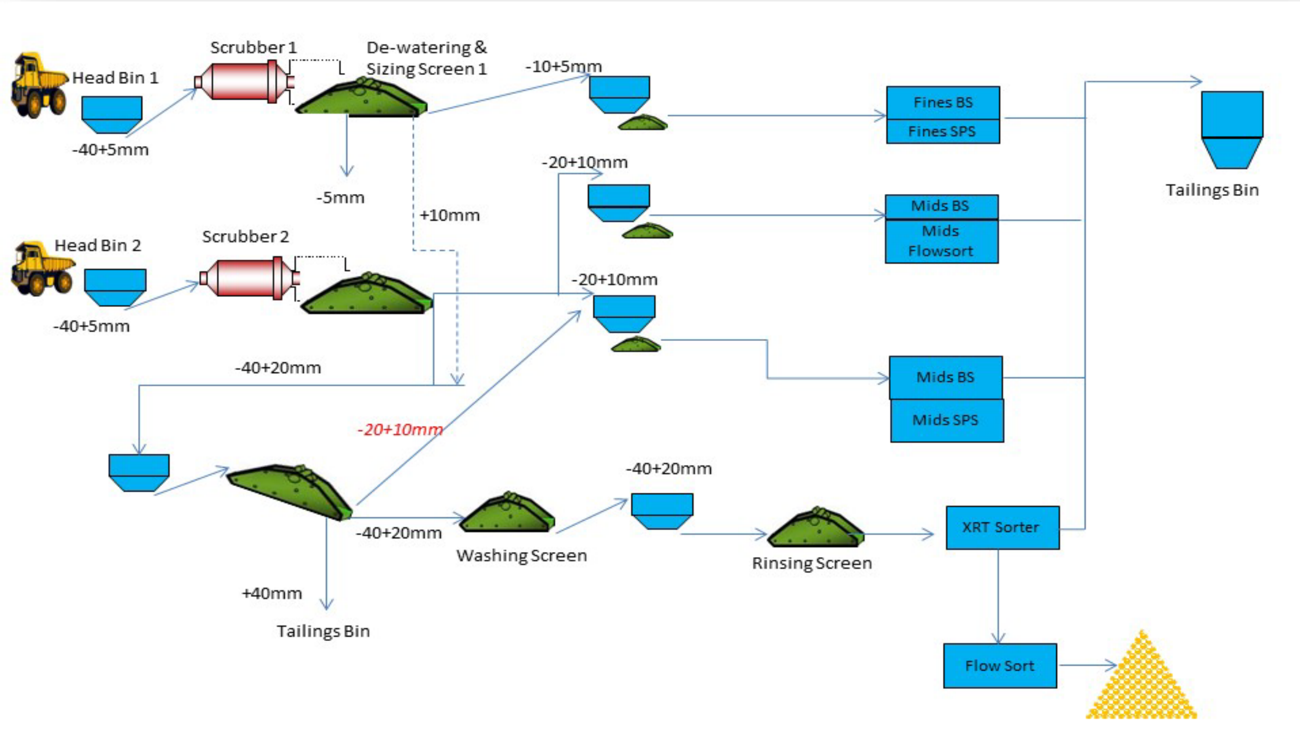


Figure 8.6 Flowsheet of Wouterspan wet plant

The misplaced material on the fines stream (+5-10mm) will be transported by means of conveyor to the coarse/mid vibratory screen. The product from the mids- and fines- screens will then be transported by means of conveyor belts into surge bins above the bulk-reduction Bourevestnik X-ray sorters (BV's). The product from the bulk reduction BV's will be transported to the surge bins above the re-concentration BV's; the material from the bins will go over a wash screen before reaching the re-concentration BV. The reason for placing wash screens is to ensure a clean product reporting to the final concentration.

A similar process from the product of the vibratory screen will be followed on all streams, with the exception of the coarse stream where final recovery will be by means of an IMS machine ("IMS"), which is a Steinert, sensor-based high capacity X-Ray Transmission ("XRT") Sorter, supplied by IMS Engineering of Johannesburg, RSA. The system, similar to the Swedish TOMRA system, uses X-Ray transmission to distinguish between various minerals and waste rock.

8.4.3.2.2.1 Plant QA/QC

In order to determine the level of accuracy of the concentrating and final recovery plants, density tracers are used extensively during bulk-sampling operations. Density Tracers are plastic particles which incorporate powders or other materials to impart suitable combinations of properties including density and colour. They are used to determine partitioning characteristics of density separators and other units accurately, rapidly and at low cost. Density tracers with densities spanning the range of interest are added to the circuit feed and retrieved from the product and rejects streams, manually or with the assistance of magnets or X-ray sorters. After retrieval, they are sorted into their various densities, and the resulting data are used to plot a partition curve. The form of the curve can indicate whether the metallurgist should take actions such as adjust medium density, replace a worn circuit component, or correct an overload or medium instability situation.

On a daily basis, and more often when problems were identified, 3-10 tracers are fed, at random, into different parts of each processing plant to test the recovery efficiencies of the system. The tracers were fed primarily into the feed bins of the IMS and BV, but also directly into the X-ray Flow Sort itself. The recovery of the tracers is noted in the daily production report and incorporated into the final database. The recovery of the tracers was done by the diamond sorters and all inconsistencies are reported immediately.

8.4.3.2.3 Results

During the period under review, some 139,627m^3 of gravel was treated to recover 996.29ct (134 stones) at an average sample grade of 0.71ct/100m^3 and stone size of 7.44ct/st (**Table 8.6**).

Table 8.6 Production results from August 2016 to February 2017)

	Volume processed (m^3)	Carats (ct)	Stones (st)	Average grade (ct/100m^3)*	Average Stone size (ct/st)*
August 2016	12,031	96.26	18	0.80	5.35
September 2016	22,481	439.58	41	1.96	10.72
October 2016	19,737	88.09	15	0.45	5.87
November 2016	8,534	4.8	1	0.06	4.80
December 2016	12,541	94.30	20	0.75	4.72
January 2017	35,715	63.74	19	0.18	3.35
February 2017	28,588	209.52	20	0.73	10.48
TOTAL	**139,627**	**996.29**	**134**	**0.71**	**7.44**

* Bottom cut-off size varies from 5-8mm

8.4.3.2.4 Diamond Grade

These results were based, for the most part, on total gravels processed during the month with limited separation of samples by type or locality.

The gravels from Terrace B were expected to have a grade higher than the previous average of 0.6ct/100m^3 (at 5mm bcos). Where unmixed results were available (42,900m^3 processed to recover 72 stones to a total of some 585ct), this gravel appears to have delivered 1.36ct/100m^3, which included the recovery of a number of large stones (76.83ct, 64.03ct, 45.08ct, 44.66ct, 29.21ct, 27.41ct and 26.98ct).

During much of this period, gravels were screened at an effective 8mm bcos, resulting in the higher average stone sizes (8.12ct/st). This has been corrected and a standard 5mm bcos going forward (much of the -8+5mm material has been stockpiled and will also be reprocessed in the future, along with other Terrace B material to allow for realistic grade reconciliation).

The gravels from RK1 block (**see Fig. 8.5**) is a combination of pebble-cobble and cobble-pebble Rooikoppie gravel. The gravel is generally of poor quality, with not all clast size fractions being present). The clasts are generally angular, indicating a predominantly local source. The RK1 block generally had poor recoveries (**Table 8.7**). The diamonds were generally fine, with only a single stone above 20ct recovered (27.79ct). In addition to the lack of gravel maturity, processing problems were encountered resulting from rain (the damp material formed clay balls), carryover at the screens and overfeeding of gravel – all of which issues have been subsequently addressed by Rockwell.

However, given the low number of stones recovered, the results from both the B terrace and RK1 cannot be considered representative.

Table 8.7 Recoveries from RK1

	@ 5mm BCO
Volume	44,000
Grade	0.23ct/100m^3
Carats	101
Stones	18

Material from the RK7 and FA blocks have all been mixed and no individual results can be presented.

8.4.3.2.5 Diamond Value

During the period under review, 965.1ct (116 stones) were sold for an average of USD1,884/ct (**Table 8.6**).

Table 8.8 Diamond sales value per size class (2016/2017)

Description	Carats	Stones	USD/ct	% Dollar	% Carats
< 0.88 ct				0.0	0.0
0.89 - 1.19 ct	3	3	200	0.0	0.3
1.19 - 1.79 ct	25	16	281	0.4	2.5
1.80 - 2.49 ct	38	17	383	0.8	3.9
2.50-4.79 ct	148	44	745	6.1	15.4
4.80-9.80ct	103	16	1,619	9.1	10.6
9.80ct + 20	114	9	1,392	8.8	11.9
20 – 30ct	115	5	2,164	13.7	11.9
30 – 40ct	28	1	1,500	2.3	2.9
40 – 50ct	90	2	3,995	19.7	9.3
+50ct	302	3	2,356	39.2	31.3
TOTAL	**965.1**	**116.0**	**1,884**	**100.0**	**100.0**

A number of large and/or high value stones were recovered during this period, all except the 161ct being recovered from the Terrace B remnant (**Table 8.7**).

Stone (ct)	USD value	USD/ct
161.56	296,794.91	1,837
76.83	307,320.00	4,000
64.03	108,367.00	1,692
45.08	135,240.00	3,000
44.66	223,300.00	5,000

8.4.3.2.5.1 Diamond Size Frequency Distribution ("SFD")

The SFD of the diamonds recovered during 2017/2017 is shown in **Figure 8.7**. A distinctly coarser distribution is indicated; however, this is thought to be due to the larger bcos as well as a paucity of smaller stones recovered due to initial processing problems.

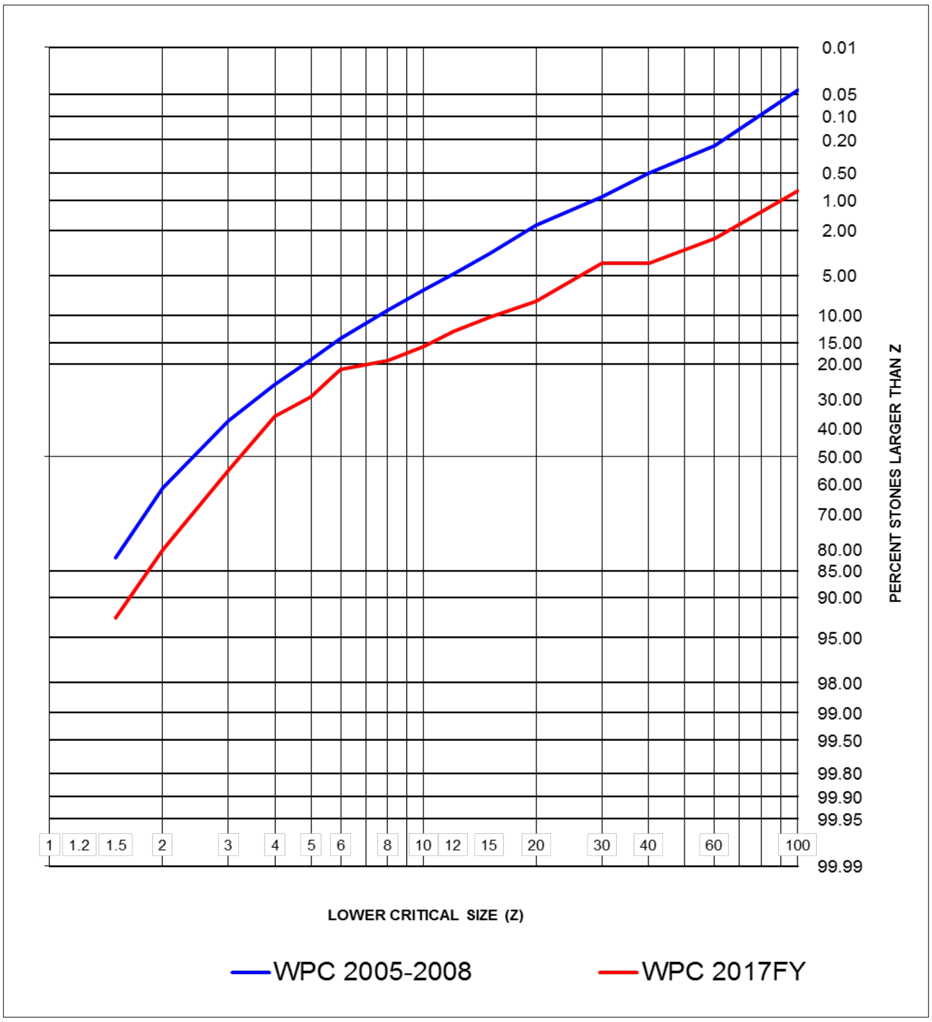


Figure 8.7 SFD of diamonds from Wouterspan 2016/2017 programme compared with the 2005-2008 programme

The comparison with the previous programme is not realistic as this programme has recovered only 965.1ct (116 stones) in contrast with the +15,000ct recovered from the 2005-2008. In addition, any comparison has to take into consideration that the current plant is still experiencing numerous teething problems and is still to be properly commissioned. This exercise will be repeated once a more representative sample has been processed.

Similar issues can be seen in the stone density plot (**Fig. 8.8**). A paucity of small stones (<10ct) is thought to be the result of an erratic bcos and plant inefficiencies. As these issues are sorted out and the number of stones recovered increases, it is expected that better correlations will be noted.

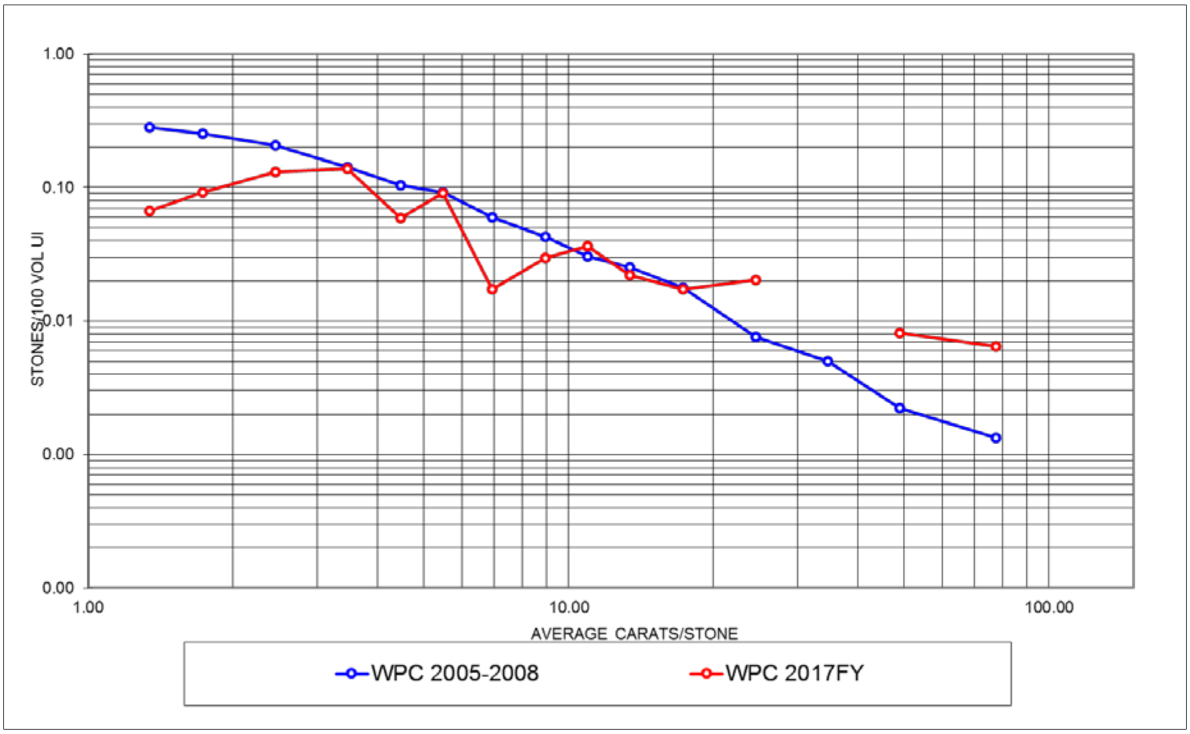


Figure 8.8 Stone density plot of current results compared to the 2005-2008 data

9 DRILLING

Since regional gravel grades are very low (generally less than 0.5ct/100m^3) and average diamond sizes typically >1ct/st, boreholes are not sampled for diamonds. Furthermore, no other minerals or elements that can be assayed are known to show positive (or negative) relationships with diamonds in alluvial deposits. Consequently, borehole samples are not collected for assay.

All drilling on Wouterspan was done in accordance with procedures and protocols which were drawn up by both Rockwell and the independent QP. Such are reviewed and audited by the independent QP on each site visit. All drilling was carried out using conventional Reverse Circulation (RC) machines. Champ Drilling CC (a local drilling company that has many years of experience drilling for alluvial gravels) was by Rockwell. Champ Drilling uses a 76mm (diameter) bit and a 28bar compressor. The level of contamination of the samples was kept to a minimum – minor amounts of soap may sometimes be added to assist with penetration. Samples representing every 1.0m advance are collected for observation. The drill was under constant observation and, as a result, the depth estimates of lithological contacts could be noted to within 0.50m. Each sample was logged by a geologist based upon macroscopic examination of the drill cuttings. The results were noted in a field notebook. Observations in the field include grain-size, colour, degree of roundness (especially of quartzite and chert clasts), and end-of-hole lithology (bedrock). The logs were later summarised and gravel deposit types were assigned based upon their stratigraphic and sedimentological characteristics. All drill hole positions were surveyed and elevated. This method of drilling was found to be successful on Wouterspan.

9.1 Location

Drilling has been completed on Wouterspan in four distinct phases (**Fig. 9.1**):

- Over the period April through October 2007, 488 holes drilled (5,371m), were drilled on Re/Portion 9 and Ptn 16 (Ptn/Ptn 9) of Wouterspan (on the C terrace).
- During 2008, minor infill drilling 130 holes (1,574m) was completed along the western edge of Wouterspan, also on the C terrace.
- During 2007/8, reconnaissance drilling (1,129 holes and 7,135m) was completed in the northern section of Wouterspan, on the B and C terraces. In addition, some 16 holes were drilled on the B terrace.
- During 2015, 1,695 prospect pits were excavated into the Rooikoppie gravels on terrace C (Wouterspan operation) – these were only excavated down to the top of the calcrete. They were dug specifically to determine the thickness and nature of the Rooikoppie gravels.
- During 2016/2017, 2,049 prospect pits were excavated into the Rooikoppie gravels on the Stofdraai project area (1,081 on Ptn Wouter and 968 on Ptn Stofdraai) – these were only excavated down to the top of the calcrete. They were dug specifically to determine the thickness and nature of the Rooikoppie gravels.

9.1.1 C Terrace

Much of the C terrace was covered by a drilling grid of 200x100m intervals. Infill drilling reduced selected areas to 50x100m. The drill data indicates that significant thicknesses of gravels are located on the property, the thickest of which (up to 18m) occurs within the central large channel. Rockwell's re-evaluation of the original drilling database has highlighted inadequacies within the logged data. Inconsistencies between the early borehole logs and the Rockwell drilling programme make it difficult to separate out the details of the fluvial-alluvial sequence in a systematic manner (the lack of non-digital data for the original logs compounds this problem).

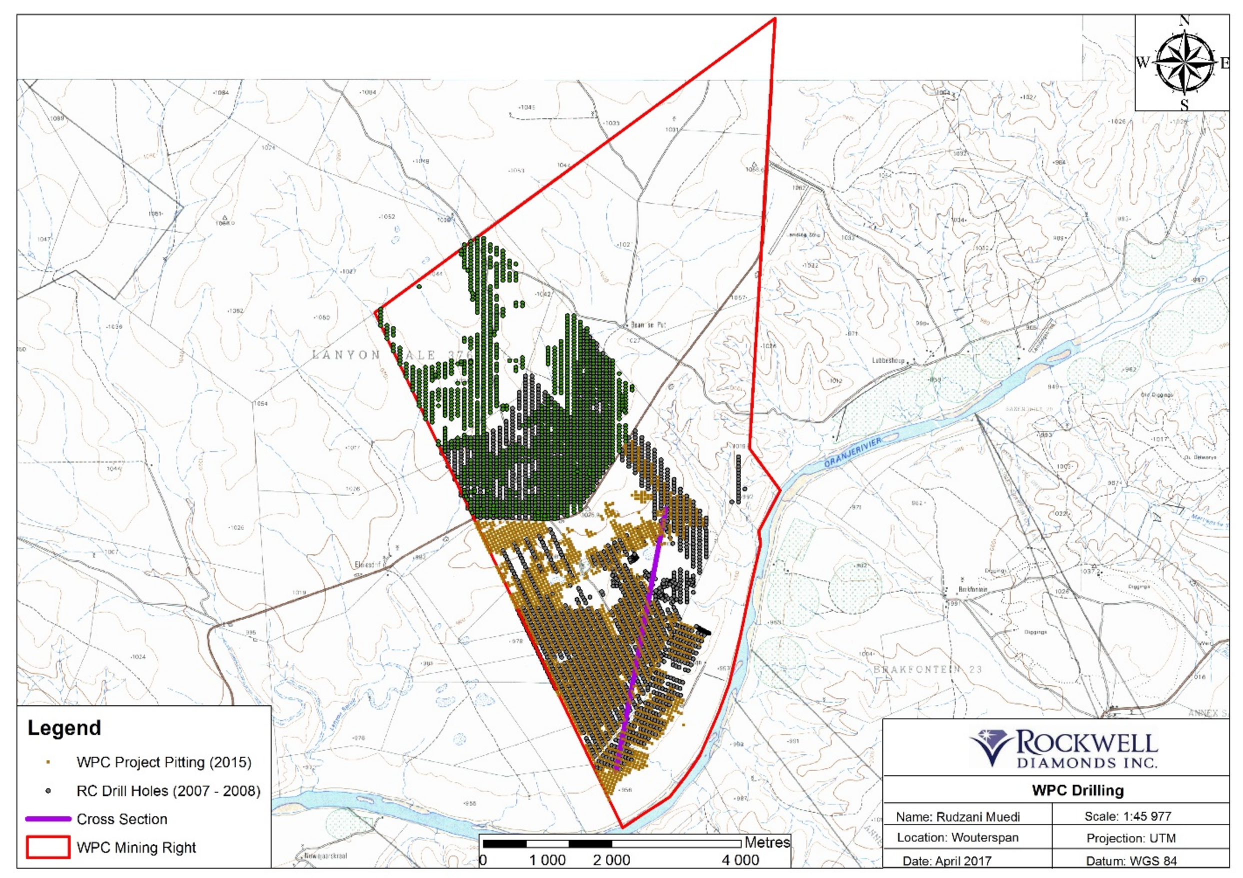
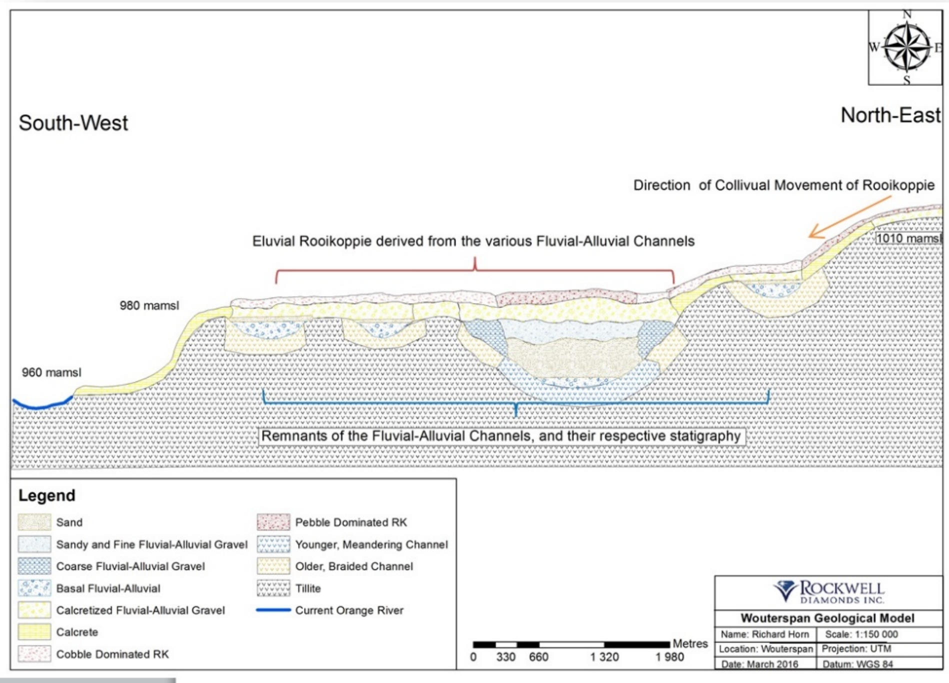


Figure 9.1 ***Drilling and pitting localities on Wouterspan*** (the purple section lines refer to Figure 6.2, shown below)



As a result, the gravel volumes only distinguished between Rooikoppie gravels and the total alluvial unit. The drilling, further, indicates the presence of a number of E-W channels. The largest of these channels is some 1,500m wide (**cf. section 6.2**). The areas where detailed drilling exists highlight a complex pattern of braided river channels, indicating the probable presence of a wide braidplain within an overall meandering river system. It is in this major "channel" feature that the fluvial sequence attains its maximum thickness (on Wouterspan) of 15-18m. Drill logs indicate that the sequence comprises thick sequences of sandy gravel units overlying basal gravels containing boulders.

To the north of, and parallel to, the large "channel" is a secondary feature some 350-400m wide. The gravel package here is of the order of 10m thick. This is the feature that was the subject of Rockwell's 2005-2008 bulk-sampling programme. Although there is a bedrock high between the large and secondary channels, both gravels (although attenuated) and the sandy, marker horizon is still present indicating that the two features are part of the same fluvial system. Some 1,500-2,000m to the south of the large channel limited drilling indicates the presence of another channel complex. Once again, there is a bedrock high between two channels onto which gravels lap. At this stage, very little is known regarding this channel and its gravel infill, except that Sonop Mining CC recovered diamonds from fluvial-alluvial deposits along strike on the adjacent (to the west) portion of Lanyonvale during 2007.

9.1.2 B Terrace

Two B terraces are known from Wouterspan:

9.1.2.1 Wouter Section

A small terrace remnant is located on the Wouter section of the project. During late 2007/2008, reconnaissance drilling took place on the B terrace (only 16 holes drilled, with a total of 76m).

9.1.2.2 High Terrace (Stofdraai Section)

The Stofdraai section of the project comprises elevations similar to, and higher than the B terrace on Wouter. These terraces were prospected in in two phases. The initial phase (2007-2008) comprised the drilling of 931 holes (5,561m) on a 100x50m grid. This programme was confined to the south-western portion of the project area. Only limited fluvial-alluvial gravels have been identified here and an integrated geological model has not yet been developed for this area.

The second phase of prospecting comprised some 2,049 pits on a 50 x 50m infill grid - only the Rooikoppie gravels were pitted during this programme. Prospecting was only located on the western half of the project area. This programme was initiated in late 2015, but has only been concluded in early 2017. The preliminary geological model has been described in section 6.1.3.2.

9.2 Results

Drill results are used, primarily, to define the presence of gravel units in the stratigraphy and to estimate their thicknesses (**Figs. 9.2 and 9.3**). The boreholes are all vertical and the gravel deposits are horizontal (since they are very young, geologically, and are not affected significantly by large scale tectono-structural upheavals). Therefore, the thicknesses of the entire fluvial-alluvial profile (as determined from drilling) are true thicknesses.

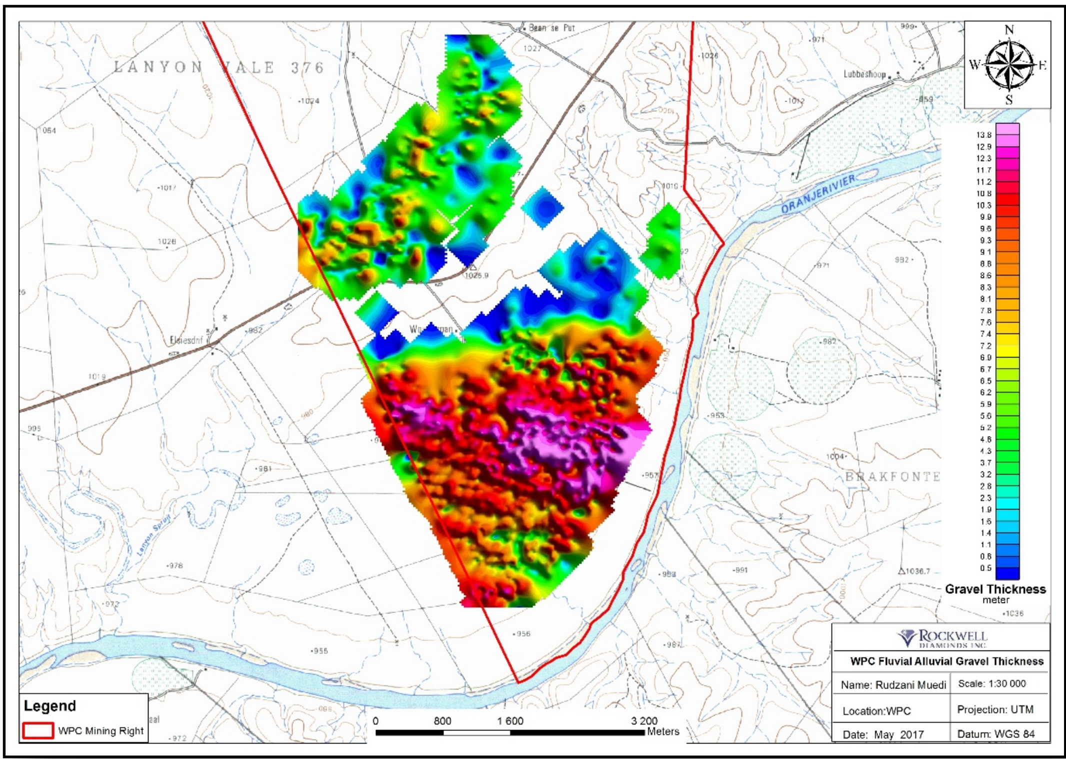


Figure 9.2 Gravel thicknesses (fluvial alluvial) as determined by drilling

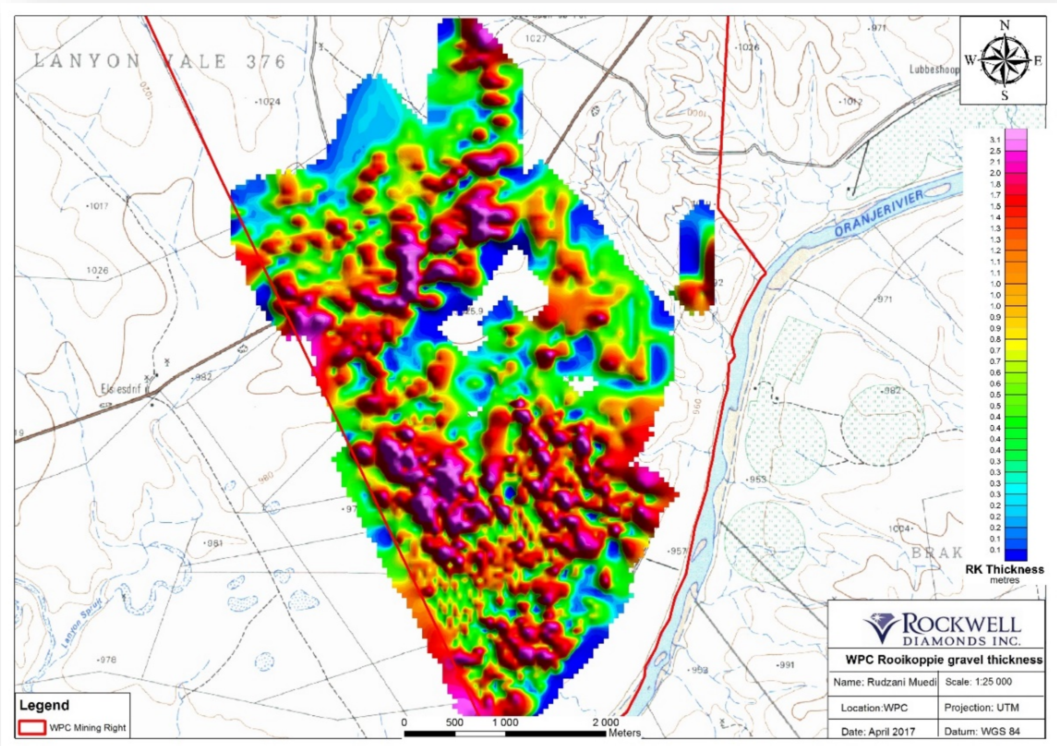


Figure 9.3 Gravel thicknesses (Rooikoppie) as determined by drilling and pitting

9.3 Representativeness

Wide-spaced drilling (100x50m grid) covers much of the B and C terraces on the Wouter section and the south-western portion of the Stofdraai section. These holes were all drilled to bedrock and were designed to intersect Rooikoppie as well as the underlying fluvial-alluvial gravels.

Subsequent detailed pitting, on a 50x50m grid, only covers the same areas on the B and C terrace on the Wouter section, but has increased coverage of the Stofdraai section to include much of the entire western portion of Wouterspan. The pitting programme only penetrates the Rooikoppie gravels, however.

No drilling or pitting has yet taken place on the north-western and eastern portion of the Stofdraai project. The pitting is planned for the rest of 2017 (see section 17.1).

10 SAMPLE PREPARATION, ANALYSES AND SECURITY

Due to the nature of alluvial diamond deposits (Marshall, 2013), samples are not taken for assay as would be normal for precious or base metal prospects. Further, the diamond distribution pattern (grade) of alluvial deposits is such that there is no repeatability of sample results, even from adjacent samples of tens of thousand cubic metres in size. Consequently "check-samples" such as are standard in the precious and base-metal industries, are not possible.

All of the gravel bulk-samples described in section 8.4 above were processed through Rockwell's plant (on the Wouterspan property) to determine average sample grade. Consequently, no samples were dispatched to any analytical or testing laboratories. Further, sample splitting and reduction methods were not employed. Since the samples were processed through Rockwell plant, Rockwell personnel were involved from the excavation of the gravels through to the final recovery of the diamonds.

With respect to drilling results, it is important to note that the borehole material is not sampled for diamonds (or any other mineral) as a result of the very low grades and high average diamond sizes expected on the Orange River. Consequently, intersections are not composited with respect to diamond results.

10.1 Sampling Issues

A number of issues peculiar to alluvial diamond sampling have been identified which impact on the size of the samples and the complexity of statistical estimations (Marshall, 2013).

<u>Low grades</u>
The grade of a diamond deposit is the estimated number of carats contained in one hundred tonnes (cpht) or hundred cubic metres (ct/100m^3) of gravel and, typically, averages ≤ 1cpht (roughly equivalent to 0.001 -0.0001ppm) for inland South African alluvial deposits (Lock, 2003).

<u>Large individual diamond size</u>
Diamonds constitute discrete units of varying size (weight). In all of the inland alluvial deposits of South Africa, average diamond sizes are in the range of 0.2-2.0ct/st. Consequently, they form discrete particle deposits as opposed to disseminated particle deposits. Often the size and value distribution from stone to stone is erratic and it is possible that the majority of the value of a parcel is attributed to a single stone.

<u>Grade variation</u>
In a single gravel unit (or even within a few metres), diamond grades may vary from barren to over 100cpht, due to the development of localized trap-sites under favourable bedrock conditions, or hydraulic fractionation within a channel or bar. Consequently, the diamond distribution pattern (grade) of alluvial deposits is such that there is no repeatability of sample results, even from adjacent samples.

<u>Depositional environments</u>
Alluvial streams are highly transient environments. The braided channels are unstable through time and gravel bars are formed and destroyed continuously. Shifting bars and channels cause wide variations in local flow conditions resulting in varied depositional assemblages. Common features in braided stream deposits include irregular bed thicknesses, restricted lateral and vertical variations within the sediments, and abundant evidence of erosion and re-deposition. On a broad scale, most deposits are complex with units of no great lateral extent. Locally, bedrock features play an important role in diamond concentration of the alluvial deposits, with diamonds occurring preferentially in natural traps such as gullies, potholes and gravel bars and, typically, reworked through one or more post-depositional colluvial or eluvial.

Low homogeneity of diamond distribution

Individual diamonds are not evenly or uniformly distributed throughout an alluvial deposit; neither are they randomly distributed. Rather, their distribution has been described as a random distribution of clusters of points **(Fig. 10.1**), where the clusters are both randomly distributed in space, and the point density of each cluster is also random (Rombouts, 1987).

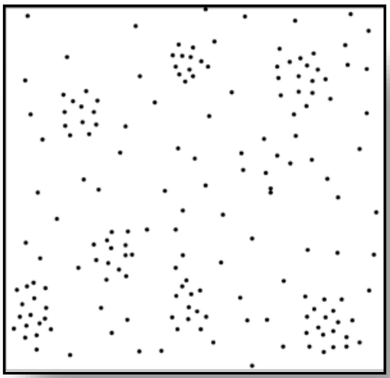


Figure 10.1 Schematic distribution of alluvial diamonds within an alluvial deposit – random distribution of clusters of points (Rombouts, 1987).

Lack of associated minerals or geochemical signature

In contrast to kimberlite deposits, alluvial diamond deposits are not characterized by any standard (or deposit-specific) satellite/indicator mineral assemblage that may occur in higher, more easily measurable, concentrations than the diamonds. Neither do the deposits have any associated geochemical signatures that can vary according to diamond grade (or any other geological characteristic).

In order to account for all of these issues, alluvial diamond deposits can only be sampled through bulk-samples comprising tens-hundreds of thousands of cubic metres of gravel. Bulk-sampling is completed in much the same manner as the production mining would be, except on a smaller scale. With positive results, bulk-sampling naturally progresses to trial-mining, during which all of the modifying parameters are determined to allow a decision of whether to proceed to full production.

Diamond recovery is dependent on mechanical recovery through the application of physical properties of both diamond and gravel – density and size variation (to concentrate the heavy mineral portion from the bulk gravel) and fluorescence and wettable properties of the diamond during final recovery. The processing and recovery plants are affected by various issues such as the nature and amount of calcrete in the gravels as well as the amount of sand in the matrix.

It is, further, important to note that diamond grades are "processed grades" and are not absolute "in-situ grades". The nature of the technology used to process the samples and the efficiency of the processing plant plays a fundamental role in the actual recovered grade of the deposit.

10.1.1 Sample Security

Since the grades expected on the mine are so low (<1.0ct/100m^3) and the sampling process is all mechanised, it is extremely improbable that diamonds will be picked up during the excavation process. In addition, the bedrock is composed of weathered Dwyka tillite and some 10-20cm is excavated along with the gravels. Consequently, bedrock sweeping is unnecessary and no security is employed at the mining face.

At the sample processing plant-site, although it is unlikely that diamonds can be seen, all conveyors are routinely covered with grating to prevent possible theft and as a safety precaution. It is only at the final-recovery or sort-house that sample security as a potential issue. In order to mitigate against possible interference, the areas around the sort-houses were declared Red Zone and enclosed with high-security fencing and monitored by surveillance equipment.

Within the final recovery room, all concentrates are sent directly to a twin-locked secure box before being hand-sorted in a glove box. Access to all areas of the final recovery is controlled and monitored by protection personnel. A minimum of two Rockwell personnel are present whenever diamonds were sorted. The sorted diamonds were weighed, labelled and stored in a secure "zip-lock" bag. Each bag has a uniquely numbered seal which has to be broken when opened. All bag numbers are recorded in a logbook. The final product is then transported to Johannesburg for sale using a variety of secure methods.

In the opinion of the independent QP, the procedures taken by Rockwell, with respect to sample preparation and security, are reasonable and within accepted industry standard.

11 DATA VERIFICATION

Procedures and protocols govern every phase of data collection – from drillhole location, through bulk-sampling and processing, to final recovery and sales. The independent QP was involved in the drafting up of these protocols and they are reviewed, updated and audited regularly – during each site visit, during the compilation of the technical report and prior to the initiation of a new phase of exploration or mining. Spot checks are carried out by the independent QP on various aspects of the operation during site visits and, in the opinion of the independent QP, the procedures, as applied on Wouterspan, are adequate and well executed by Rockwell staff and are adequate for resource estimates.

As part of the data verification and resource estimation processes the independent QP and Rockwell personnel work closely together at each step. Prior to the initiation of new procedures and protocols which may impact on resource estimation results, discussions are held on the potential implications for both short and long term gravel volume, and diamond grade and value assessments. Further, the independent QP audits (both interactively and independently) the procedures used by Rockwell to produce the resource estimates and models.

It is, however, important to note that, although every data verification and resource estimation process is reviewed and audited by the independent QP, Rockwell also evaluates these issues in parallel, as part of their internal corporate responsibility. Any discrepancies, as well as potential issues, are thus identified by both parties, separately and combined, and are dealt with before they can become problems. While Rockwell geologists have overall control and responsibility for the resource evaluation programme, QA/QC for individual portions of the project are the responsibility of designated individuals. The standard of record keeping within the geological division was found upon inspection to be very high and there was sufficient evidence to show that the internal checks referred to above were being carried out on a regular basis.

Among the internal audit protocols developed by Rockwell (and reviewed annually by the independent QP) to ensure that data is complete and accurate are:

- Drill-logs are checked and signed off by two different individuals;
- Gravel volumes are reconciled by exploration/survey and operations personnel;
- The production records are examined by the management for inconsistent or unexpected data;
- Management reconciles the data from the diamond recovery log, mine registry, production records, register of diamonds recovered, and sales slips and;
- Management regularly audits the buyers' records of transactions to ensure that they agree with the sales slips received. In addition, the audit firm also reviews these records annually.
- Advanced computer/network security and backup measures are applied regularly, ensuring minimal disruption in the case of computer failures.

The geological database is the critical starting point to effective resource and reserve estimation and maintaining the integrity of the database is fundamental. In order to verify the integrity of the data and to ensure compatibility across all of Rockwell's properties, the database is routinely processed through DatashedQAQC™, a database programme which enforces compliance through various protocol levels. All drill data is captured by the Database Manager to ensure continuity and verified by the geologist who logged the hole. The independent QP has audited the borehole drilling and logging process from beginning to end, and regularly makes spot checks on the operation during each site visit.

During July 2009, a data audit was completed for the Rockwell Diamonds Inc. Database by Maxwell GeoServices of Australia. This audit was conducted on the data that had been added to the database up to July 2009. Not only was the audit performed on the data, but the data was moved to the Maxwell

MDM 4.4.2, which includes a number of new tables to better capture future data. This database has all the statutory triggers and foreign keys in the database. During the database audit, a number of minor issues were identified which needed attention. In response to this audit, Rockwell's database manager updated and verified all recommendations (completed January 2010). A copy of both the Maxwell audit and the Rockwell update documents were forwarded to the independent QP.

Mined volumes are sent to Rockwell under certificate from an independent professional surveyor and subsequently captured onto the production database by the Database Co-ordinator and verified by the geologists. The procedures and protocols of the surveyor have been reviewed by the independent QP and found to be in accord with industry standard. In addition, the surveyor provides a DTM of the area surveyed to Rockwell. This DTM is imported into SURPAC, which then calculates the volume of the mined area. If the computer calculated volume differs from the surveyor's volume by more than 5% then the area is re-surveyed. Further, if subsequent mine grades are unexpectedly high or low, the volumes are re-checked for potential errors. This is routinely done by Rockwell staff and reviewed by the independent QP.

All diamond data (total carats and total stones as well a list of every individual stone recovered) is recorded on the relevant mine and forwarded to the Database Co-ordinator who adds it to the database. Verification and change reports are used to track changes to the digital database by the Database Co-ordinator; copies of which are forwarded to the geology department. The independent QP receives and reviews this data regularly.

Payment for diamond parcels is always received by electronic transfer and a formal broker's note is provided from the buyer and this also serves to indicate compliance with the Kimberley Process. This data is, subsequently, added to the production database. The author has examined each brokers note and found them all to be present and correct.

As has been described in section 11 of this document, alluvial diamond deposits can only be sampled through bulk-samples comprising tens-hundreds of thousands of cubic metres of gravel (often referred to as trial-mining). Further, the diamond distribution pattern (grade) of alluvial deposits is such that there is no repeatability of sample results, even from adjacent samples of tens of thousand cubic metres in size. Consequently "check-samples" such as are standard in the precious and base-metal industries, are not possible. As a result, the author has had to rely substantially on the production and sales data collected by all the operational personnel. Random sample data have, however, been verified by the independent QP who has audited the information from drilling to modelling. The author has, furthermore, examined all of the original production and sales data files used in the resource estimation process.

12 MINERAL PROCESSING AND METALLURGICAL TESTING

Although a Prefeasibility study ("PFS") was initiated on Wouterspan during 2007/2008, the operation was put on Care & Maintenance, primarily as a result of diamond prices during the international economic slowdown of 2008. During 2015, a decision was made to review the potential economic sustainability of the Wouterspan project. However, due to changes in processing techniques and mine plan, the 2007/2008 PFS was no longer valid – mention is only made of this study for completeness.

A current technical study has not been embarked on for the present stage of operations. This will be described in a forthcoming Technical Report.

13 MINERAL RESOURCE ESTIMATES

Resource estimation of diamond deposits is different from that of other commodities in many ways (NAPEGG, 1997), (SAMREC Code, 2016 Edition) as a result of:

- The widely differing nature of diamondiferous deposits and their associated forms of mineralisation and the estimation relevant to these;
- The low diamond content of primary and placer diamond deposits and their variability;
- The particulate nature of diamonds;
- The specialised field of diamond valuation; and
- The relationship between average diamond value and the underlying diamond size distribution.

CIM definitions do not deal specifically with the peculiarity of alluvial diamonds deposits when it comes to Mineral Resource or Reserve estimations. The SAMREC Code, however, has separate definitions for Diamond Resources and Reserves. The Indicated and Inferred Mineral Resource categories used in this Report follows the CIM definition[19]. The resultant estimations are materially similar to those set out in the SAMREC Code[20]

CIM Standards define ***Inferred Mineral Resources*** as:

> *"…. that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity."*

The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. Due to the uncertainty that may be attached to Inferred Mineral Resources, it cannot be assumed that all or any part of an Inferred Mineral Resource will be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration. Confidence in the estimate is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure. Inferred Mineral Resources must be excluded from estimates forming the basis of feasibility or other economic studies.

For comparison, the SAMREC code defines an ***Inferred (Diamond) Resource*** as:

> *"….An 'Inferred Diamond Resource' is that part of a Diamond Resource for which quantity, grade and average diamond value are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply, but not verify, geological and grade continuity. The diamond parcel may be too small to be a reasonable representation of the diamond assortment. "*

This category, which has a lower level of confidence than that applying to an Indicated Mineral Resource is intended to cover situations where a mineral concentration or occurrence has been identified and limited measurements and sampling completed, but where the data are insufficient to allow the geological and/or grade continuity to be confidently interpreted. Due to the uncertainty which may be attached to some Inferred Mineral Resources, it cannot be assumed that all or part of an Inferred Mineral Resource will necessarily be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration. Further, confidence in the estimate is insufficient to allow the meaningful

[19] (CIM Standing Committee on Reserve Definitions, 10 May, 2014)
[20] (SAMREC Code, 2016 Edition)

application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure.

CIM defines ***Indicated Mineral Resources*** as:

> *"…. that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation."*

An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve. Mineralization may be classified as an Indicated Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralization. The Qualified Person must recognize the importance of the Indicated Mineral Resource category to the advancement of the feasibility of the project. An Indicated Mineral Resource estimate is of sufficient quality to support a Preliminary Feasibility Study which can serve as the basis for major development decisions.

The SAMREC code defines ***an Indicated (Diamond) Resource*** as:

> *"….that part of a Diamond Resource for which quantity, grade, or value, density, shape and physical characteristics of the deposit are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade continuity between points of observation. The sampling and/or testing locations may be too widely or inappropriately spaced to confirm geological and grade continuity but are spaced closely enough for continuity to be assumed, and sufficient diamonds must have been recovered to allow a reasonable estimate of average diamond value."*

The confidence level associated with the Indicated Mineral Resource is sufficient for this information to be applied to global mine design, mine planning; to allow the appropriate application of technical and economic parameters; and to enable an evaluation of economic viability.

13.1 Previous Mineral Resource Estimates

13.1.1 Venmyn Rand (2007)

In 2007, Venmyn Rand (Pty) Ltd (Venmyn) completed a resource estimate for Rockwell (Clay & McKenna, 2007), with categories as prescribed by NI43-101. This report was based upon production records from 14 months of full-scale production on Wouterspan, but with no additional drilling. On this basis, a Mineral Resource Statement as of 30 May 2007 was compiled for the Wouterspan project and included as an update to the De Decker report.

Production and revenue records for the period January 2006 to February 2007 (reflecting production of in excess of 8,900cts), showed that the diamonds from Wouterspan gravels had an average value of USD2,253/ct and a weighted average global grade of 0.63ct/100m^3. It was noted by Clay & McKenna (2007) that:

- The production figures were not specified per mining block, and as a result grade estimations reflected a global average (based on mixed production from several sources on the Farhom and Okapi Properties rather than reflecting local grade variations with respect to mining blocks);

- No grade distinction was made between the resources of the Rooikoppie, Suspended and Basal Gravels as these were not mined or processed separately. The estimated global average grade therefore reflected the average grade recovered from all three gravel types in the proportion in which they were mined and processed;
- Only drilled areas of the Farhom and Okapi properties were considered in the resource classification;
- Volumes of the different gravel types classified as Inferred and Indicated Resources were calculated (and certified correct) from the Rockwell geological model by F.J. van der Merwe (Pr. Mine Surveyor (Plato) SA); and
- The resource figures were categorized as inferred and indicated, as defined by the SAMREC Code and National Instrument 43-101F requirements (CIM standards).
- High quality gemstone diamonds were identified at Wouterspan. An average diamond value of +USD2,200/ct was established from sales of over 8,900 carats.

This technical report by Venmyn (Clay & McKenna, 2007) reported a total of 15,814,000m^3 of Indicated Resources and 20,748,000m^3 of Inferred Resources over the Wouterspan Terrace (average global grade of 0.63ct/100m^3).

13.1.2 Explorations Unlimited (2008)

During late 2007, Rockwell and the author re-evaluated the geological and production data on which this resource estimation is based and highlighted certain inadequacies in the sample data (see the technical document entitled *"Revised Technical Report on the Wouterspan Alluvial Diamond Project, Herbert District, The Republic of South Africa"*, for Rockwell Diamonds Inc. dated February 2008). The resources estimated to be present on Wouterspan as at 28 February 2008 are summarised in **Table 13.1** (these figures represent volumes available in the ground, fully depleted of material removed by the bulk-sampling programme). They were estimated by Rockwell's Manager, Resources, G. A. Norton, (Pr. Sci. Nat.), a qualified person who is not independent of the Company and reviewed by Dr T.R. Marshall, (Pr. Sci. Nat.), a qualified person who is independent of the Company and is responsible for the estimate.

Table 13.1 Resource statement as at 28 February 2008

	Inferred Resources!	Indicated Resources!	Ave Grade (ct/100m^3)*	Ave Value (USD/ct)
Rooikoppie	5,911,000	737,100	0.7	2,290
Fluvial-alluvial	31,863,000	4,528,200		
TOTAL	**37,774,000**	**5,265,000**	**0.7**	**2,290**

* At a bottom cut-off of 2mm
! Inferred Resources do not include Indicates resources ("Total" figure rounded off)

During the period March - November 2008, the resources on Wouterspan were depleted by mining activities. All of the gravels mined during this period were from Indicated Resource areas. Some 100,000m^3 of Rooikoppie and 452,293m^3 of calcreted fluvial-alluvial gravel (for a total of 552,293m^3 was processed to recover 3,896.42ct at an average grade of 0.70ct/100m^3. Although the volume of Rooikoppie and Fluvial-Alluvial gravels are estimated separately, the processing combines them, so separate grade estimation is not possible. Since Indicated Resources are estimated, *inter alia*, by defining an envelope of 250m around/ahead of the mining face, given suitable geological conditions and drill spacing, after mining of the above gravel from a previously identified indicated resource block, a new envelope was modelled to contain an estimated 313,000m^3 of gravel derived from forward modelling), which would be added to the final depleted resource estimate.

13.1.3 Explorations Unlimited (2009)

The Wouterspan mine was put on Care & Maintenance at the end of November 2008, so no additional mining took place during the period November 2008-August 2009; consequently, there was no change to the February 2008 Diamond Resource.

13.2 Current Estimates (2017)

As part of the re-evaluation of the Wouterspan project, Rockwell has also proposed an updated mining plan based, not on bulk-mining of the entire gravel profile, but based on the mining of selective units within the fluvial-alluvial stratigraphy and also only specific Rooikoppie units. Subsequently, Rockwell geologists have re-examined the original borehole logs to extract particular coarse units, resulting in volumes which are significantly different from previous estimates. Although the volumes are reduced, it is expected that the resultant grades should be higher, due to only the coarser gravels being processed as well as an increased bcos to 5mm (up from the previous 2mm). Consequently, a re-sampling programme was initiated (since previous resource estimation programmes had been based on the entire gravel profile).

Since this sampling programme has only just been initiated, the sample sizes are not sufficiently large to support a Diamond/Mineral Resource classification. The values of the diamonds recovered from the current re-sampling programme are based on small samples which are insufficient to support a Diamond/Mineral Resource classification.

As a result, no current Diamond/Mineral Resources are estimated for the Wouterspan project.

14 ADJACENT PROPERTIES

Diamonds have been mined from a number of properties around Remhoogte/Holsloot (**refer Fig. 5.1)**. Historically, over 144,527cts were recovered from properties in the immediate vicinity (Van Wyk, 1998). Current/recent operations include (**Fig. 14.1**):

- Saxendrift Mine, previously owned and operated by Rockwell.
- Niewejaarskraal Project, previously owned and operated by Rockwell.
- Brakfontein terrace "A" was mined by Steyn Diamonds, as a contract miner to the landowner during 2012.
- Steyn Diamonds also mined on a portion of Kwartelspan (adjacent to that held by Rockwell) in the early-middle 2000's.
- The farms Silverstreams and Uitdraai (downstream from Remhoogte), were previously (prior to 2008) owned/operated by BRCDiamondCore and, subsequently, KIG Mining PLC.
- In 2007, SouthernEra prospected a kimberlite fissure on the farm Sanddrift on the north-bank of the Orange River downstream of Remhoogte.
- KIG Mining PLC has obtained the BRCDiamondCore properties on the farms Silverstreams, Muishoek and Uitdraai (downstream from Niewejaarskraal) that have been on Care & Maintenance since 2008.
- Reho Mining / Sonop Diamante were mining on Elsiesdrift (a portion of Wouterspan), adjacent to Wouterspan. This operation was closed in 2008 as a result of the depressed diamond price.

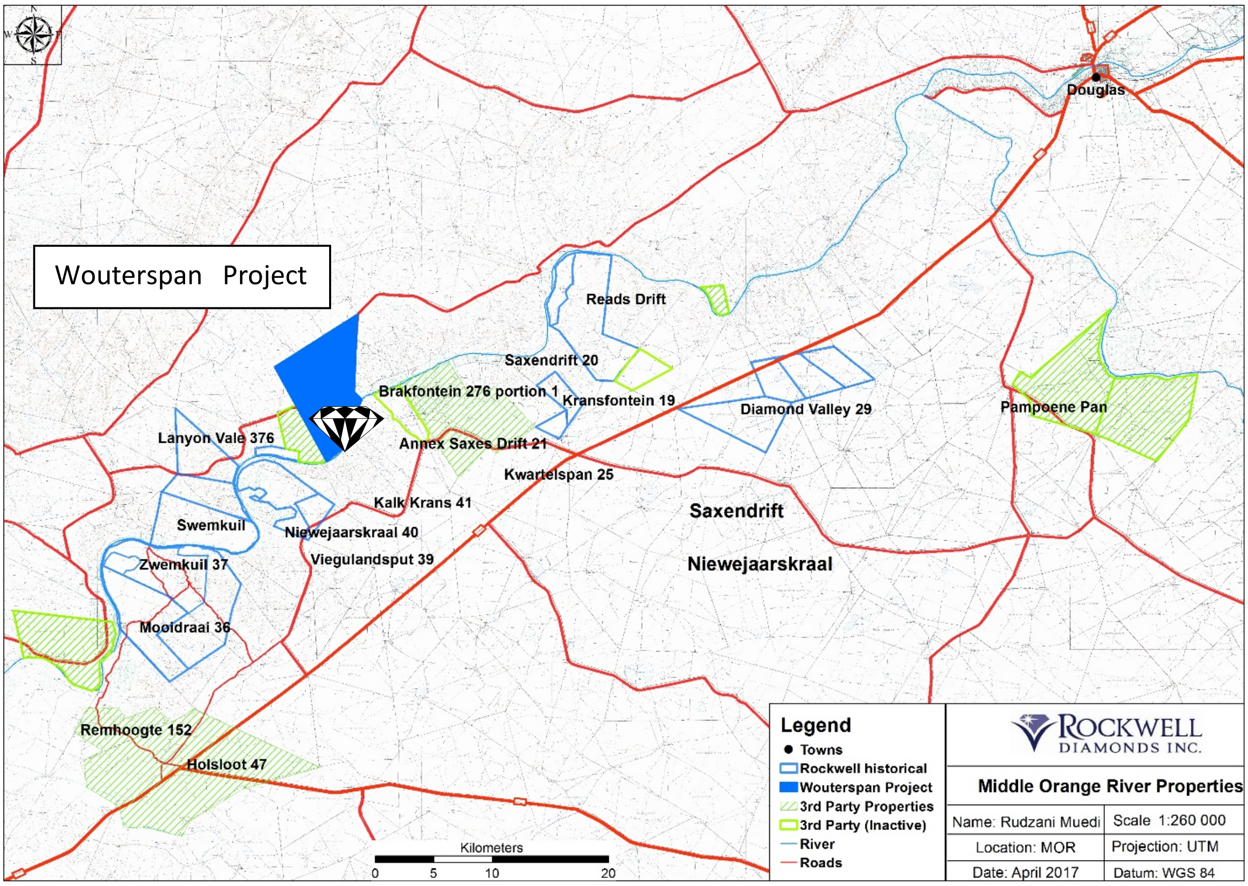


Figure 14.1 Numerous properties along the MOR have been prospected for diamonds

14.1 Elsiesdrift (Lanyonvale portion of Wouterspan)

During 1925 - 1950, portion of the farm Wouterspan (Portion Lanyonvale) was proclaimed as State Diggings. During this period, according to the South African Diamond Board, diggers processed Rooikoppie gravels developed in *makondos* on the lower and middle terraces, totalling some 30,000cts. Exploration on the adjacent farm Beatrys (another portion of Lanyonvale) was completed by African Selection Trust Exploration (Pty) Ltd ("AST") in 1982. AST treated 11,864 tonnes of gravel from seven bulk sample sites situated on the lower terrace. This sampling programme was limited to treatment of the Rooikoppie gravel and the upper part of the lower terrace. Only in one sample did AST manage to reach bedrock. This was also the sample (except Rooikoppie samples) which produced the highest grade (0.48 cpht). This information, which was reported by De Decker and Associates (2006), has not been independently verified by the author and is not necessarily indicative of the mineralisation on the property that is the subject of this report.

During 1997, Mr. Sakkie Smit, a local digger operating as Quattro C, worked on a small portion of the lower terrace on Beatrys, ±25m above and 200m from the Orange River. He reportedly recovered a 201ct stone from a small excavation (some 50 m x 30 m) which sold for R17 million, as well as several other stones totalling some 100 carats.

Reho Mining (Pty) Ltd, in conjunction with Gemrock Exploration and Mining (Pty) Ltd, and Sonop Delwery CC, were prospecting (bulk-sampling) on two portions of Lanyonvale (Elsiesdrift), downstream from Rockwell's holdings (**Plate 14.1**). According to their 2007 Prospectus, Reho planned a detailed evaluation of their property through drilling and bulk-sampling expecting to cost some R4 million. During the second half of 2008, this operation was shut down, as a result of the global economic slowdown and Reho went into liquidation in July 2009.

Plate 14.1 Reho Mining / Sonop bulk-sampling operation downstream adjacent to Rockwell.

A visit to the property indicates the presence of gravels (**Plate 14.2**) that look similar to the gravels previously mined by Rockwell on the Wouterspan C-terrace. No resource, diamond grade or value information is publicly available from this property. Personal discussions with the operator indicated that grades/values were similar to that recovered on the adjacent Wouterspan bulk-sampling operation. This information has not been independently verified by the author and is not necessarily indicative of the mineralisation on the property that is the subject of this report.

Plate 14.2: Gravels on the C terrace on Elsiesdrift portion of Wouterspan

15 OTHER RELEVENT DATA AND INFORMATION

15.1 Exploration Targets/Potential

Exploration Results (CRIRSCO[21], 2014; SAMREC, 2016), also called Exploration Information (CIM, 2014), include data and information generated by exploration programmes that may be of use to investors. The Exploration Results may or may not be part of a formal declaration of Mineral Resources or Mineral Reserves. However, in Public Reports, that part of Exploration Results' data and information relating to mineralisation not classified as a Mineral Resource or Mineral Reserve must be described as an Exploration Target and must contain sufficient information to allow a considered and balanced judgement of the significance of the results. Such reporting must not be presented so as to unreasonably imply that potentially economic mineralization has been discovered. Reporting of isolated values without placing them in perspective is unacceptable. Any such information relating to Exploration Targets must be expressed so that it not misrepresented or misconstrued as an estimate of Mineral Resources or Mineral Reserves. The term Resource(s) or Reserves(s) must not be used in this context. In the situation where tonnes and grades have been estimated for an exploration property for the purposes of justifying additional exploration, but on insufficient data to define a Mineral Resource, this information must not be presented in Public Reports in such a way that it might be misrepresented or misconstrued as an estimate of a Mineral Resource.

NI43-101 allows for the discussion of potential tonnes and grade, expressed as ranges, of a target for further exploration only if the disclosure is subject to certain qualifications.

The currently identified Exploration Targets highlighted on the Wouterspan project are (**Fig. 15.1**):

15.1.1 Wouterspan Section

The volume of fluvial-alluvial gravel targeted on the Wouterspan section is in the 30-40Mm^3 range, with expected average grades of 0.4-0.6ct/100m^3 (at bcos of 5mm) and values of USD1,600-2,000/ct. The Rooikoppie Exploration Target in the same area is some 2-3Mm^3 at grades of 0.2-0.6ct/100m^3 and values of USD 1,300-2,000/ct. These target grades/values are based on limited recoveries within the prospecting area.

It is important to note that these statements of potential quantity and grade are conceptual in nature, that there has been insufficient exploration in these areas to define a mineral resource and that it is uncertain if further exploration will result in the targets being delineated as a mineral resource.

15.1.2 Stofdraai Section

Although an additional 2-3Mm^3 of Rooikoppie gravel has been outlined by 50x50m pitting, no samples have yet been processed. Grade and value targets of 0.2-0.4ct/100m^3 (at bcos of 5mm) and USD900-1,600/ct are based purely on geological interpretation of the gravel quality as no sampling has taken place on these gravels to date. *It is important to note that these statements of potential quantity and grade*

[21] The CRIRSCO (Committee for Mineral Reserves International Reporting Standards) template integrates the minimum standards being adopted in national reporting codes worldwide with recommendations and interpretive guidelines for the Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves. The definitions in the 2014 edition of the International Reporting Template are either identical to, or not materially different from, those definitions used in the countries represented on the CRIRSCO committee, one of which is Canada.

are conceptual in nature, that there has been insufficient exploration in these areas to define a mineral resource and that it is uncertain if further exploration will result in the targets being delineated as a mineral resource.

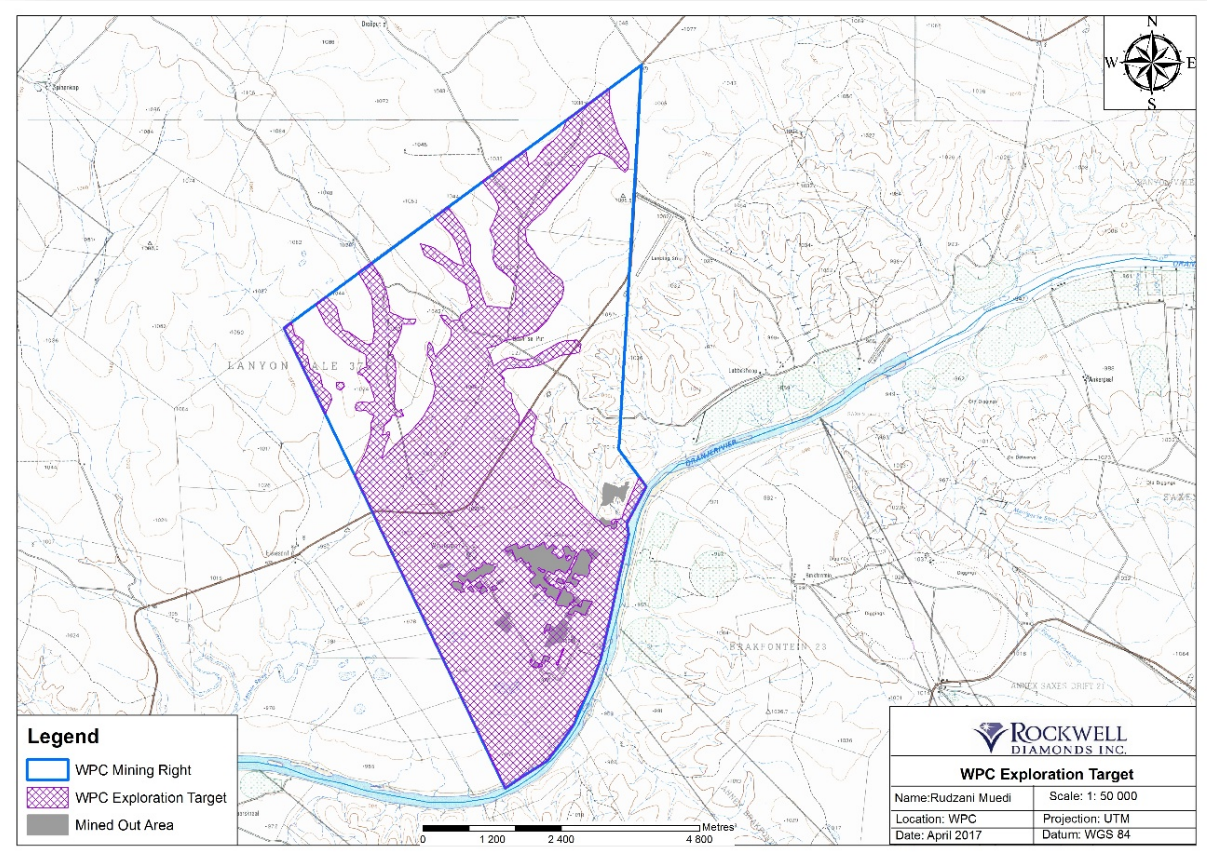


Figure 15.1 Current Exploration Target areas on Wouterspan

15.2 Material Risks

Underlying strategic risks for prospecting and mining companies do not vary significantly over time. However, the acuteness, and hence the priority of these risks, changes depending on the economic environment (PWC, 2011).

South Africa's mining sector will face persistent headwinds due to labour unrest, mineral price weakness, further divestments and retrenchments (BMI, 2016).

In addition to the general risks described above, the following mining-specific issues may also affect the Mineral Resource and/or Reserve estimate materially. One should note that most of these issues are very similar to gold and copper bulk tonnage mining as well:

- Since the typical alluvial diamond mining plan is based upon low grades and high volumes, the drilling grid does not identify every sand or clay lense that may occur in the gravel unit (since these lenses may occur on metre scale, detailed drilling to identify all such features is not considered feasible). Consequently, during production mining of a resource/reserve block, small non-diamondiferous (or lower grade) units may be excavated and processed along with run-of-mine gravels and result in a dilution in grade.

- Where the footwall rocks are highly decomposed, the industry standard calls for the excavation of some 10-20cm of the bedrock, since diamonds often sink into the soft, weathered surface. While drilling is able to identify the nature of the bedrock on a coarse scale, the amount of bedrock included in any mined unit may vary, causing dilution of the anticipated grade. This variation in the amount of bedrock included cannot be quantified.
- Where the bedrock is friable, more inexperienced excavator operators may, inadvertently, take more of the bedrock than necessary. This situation may be mitigated through extensive operator training and site supervision.
- Varying gravel clast or matrix composition may result in plant recovery issues (both in bulk-sampling and later in production mining). For example, if more clay occurs in the gravel matrix, then screens may blind and processing rates may have to be decreased in order not to lose diamonds. Further, uncontrolled sand throughput increases the rheology of the puddle medium, causing the diamonds to float and be expelled with the lighter fractions. Furthermore, an increase in BIFS may increase the local SG of the gravel, resulting in diamond loss. The percentages of each of these gravel/matrix components have been determined during the trial-mining exercise, but this is for the bulk gravel. Limited variations will occur over time and space and cannot be identified during testing.
- The regulatory authorities may introduce new legislation regarding new permits, rehabilitation requirements, additional BEE ownership or even (partial or total) resource nationalism.
- South Africa's electricity supply situation will continue to be tight in the short-medium term. Potential shortages of power, localised power outages and increases in power prices will need to be considered when planning and budgeting mine expansion.
- Although the mine carries a significant inventory of necessary spare parts and stringent maintenance is carried out on Rockwell's earthmoving fleet, unanticipated, major breakdowns could result in delays in production.

15.3 Marketing Parameters

Due to the nature of diamonds, marketing studies are of the utmost importance to an exploration/mining company. Diamonds are not all created equal and the marketing of the diamonds can be as important as Resource issues such as grade.

15.3.1 Rockwell Sales and Contracts

In compliance with government regulations to the local cutting/polishing market, Rockwell offers all of its diamonds to the State Diamond Trader ("SDT"). Each diamond parcel that is sent from the mine to Johannesburg is presented to the SDT to select which stones they would offer to purchase (to an agreed maximum of 10% of the production). The SDT then puts in a purchase offer for the stones, which Rockwell may refuse or accept. If Rockwell refuses the bid, then the Government Evaluator will examine the stones and refine the purchase offer, which Rockwell may accept or refuse. If Rockwell refuses the offer then a third party, independent valuator will value the stones and set a price that both parties must accept. Because of the market supplied by the SDT, the selected stones are generally at the smaller end of the spectrum and do not represent the run-of-mine production.

Diamonds not purchased by the SDT are sold through Flawless Diamonds Trading House ("FDTH") or Diacore (previously known as the Steinmetz Group).

15.3.1.1 Flawless Diamond Trading House ("FTDH")

FTDH is a private company with one director and one employee in common with the Company, namely, Messrs D M Bristow and J Brenner, respectively. FDTH was established, and is still run by, experienced and internationally recognized diamantaire, Jeffrey Brenner. FDTH is a registered diamond broker which provides specialist diamond valuation, marketing and tender sales services to the Company for a fixed fee of 1% of turnover which is below the market rate charged by similar tender houses. FDTH was established in the premises of South Africa's internationally recognized high security diamond trading and manufacturing hub known as Jewel City, located on Commissioner Street in Johannesburg. The facility is operated by a small and highly experienced marketing and valuation team which, collectively, has over 100 years of rough diamond valuation, marketing and sales experience. FDTH follows rigorous diamond handling, security, and Kimberley Process protocols, and all marketing and sales procedures are monitored and facilitated by a proprietary computer based system. This system provides independent and transparent verification of results for sellers and buyers, and is acknowledged in the industry as a leading standard for transacting diamond sales.

FDTH operates an independent, fully transparent "sealed-bid tender system" for the sale of diamonds from a number of public and private diamond producers. Key to the success of the FDTH tender sales is the software system, wherein the administrators and staff have zero knowledge of, and influence over, the prices tendered.

Prior to delivery to FDTH, Rockwell packages the diamonds according to their mine-of-origin. Although they are cleaned in Hydrofluoric Acid (HF) at the mine, no further enhancement techniques are employed. Prior to pre-arranged sales dates, Rockwell delivers the diamonds to FDTH, where they are cleaned again, sorted and divided into categories or parcels according to the different specialities of buyers (for example, Indian, Belgian or New York Buyers). The different category or parcels of diamonds are sorted, parcelled and labelled, with each parcel having a unique reference number. The parcels are added to a manifest of goods for sale and this manifest is made available to buyers. Reserve prices are set by FDTH but are not disclosed to bidders. An invitation is then sent to all buyers to make an appointment for viewing. Tenders, typically, run for six working days, dependant on the size of the parcels.

FDTH has eight private viewing and buying offices in Johannesburg in the Diamond Centre. As additional security measures, each office has 36 cameras (with a recording system) as well as three persons surveying the buyers from behind one-way protective glass to ensure no swapping of diamonds. Buyers spend, on average, some four hours viewing the individual parcels and then make their respective bids, directly into the computer. The systems administrator does not discuss and cannot view the prices offered by respective buyers. Once all sealed bids have been received from buyers at the end of the six-day viewing period, the bids are processed by computer and a printout of the results is obtained. This printout shows the prices bid for each parcel or category of stones by each bidder. The highest bidder per category or parcel is awarded the sale for that category of stones, subject to the bid price being above the reserve price. In the case that the reserve prices are not met, FDTH and the producer have the discretion to either sell or withdraw these parcels from the tender sale. Once the producer has decided to sell or withdraw the parcel, all results are sent to successful buyers by short message service ("SMS"). Payment to producer is within 48 hours of closure of tender and parcels are then released to the bidders, subject to funds having been received and cleared by FDTH, which ensures that all regulatory and VAT requirements are completed for the respective transactions.

15.3.1.2 Diacore

In October 2007 and July 2008, Rockwell entered into mutually non-binding agreements with Diacore, whereby Rockwell may offer to Diacore selected rough diamonds for beneficiation and onward sale.

Under the terms of the agreement, any stones selected by Diacore (typically good quality, clean stones +10ct in size), is paid for at 90% of their rough value. Diacore would, at their own cost, cut and polish the stone. If the stone shatters (due to internal flaws), no further payment is made to Rockwell. If, however, the stone cut/polished successfully and was sold, Rockwell would be paid the outstanding 10% of the rough value, plus 50% of the profit obtained on the cut stone.

In addition, Rockwell entered into a second marketing and/or beneficiation agreement in May 2011 whereby:

- Rockwell agrees to provide Diacore a right of first refusal on the marketing and/or beneficiation of all the diamonds (2.80-9.99ct)[22] from all its South African mining operations.
- Diacore shall beneficiate and/or market the (rough) stones provided by Rockwell at its South African beneficiation facilities.
- Diacore shall market and sell the manufactured (beneficiated) product through its local and international outlets.
- The commercial terms of the agreement state that Rockwell will receive 90% of the agreed valuation of the diamond upon presentation to Diacore. On successful sale of the diamonds, Diacore will pay Rockwell the remaining 10% of the valuation price. In addition, Diacore will be entitled to a marketing fee of 3% of the final sale price of the diamonds.

15.4 Country Profile

15.4.1 South African Economy

Data continues to suggest that weakness in economic activity persisted in the first quarter, following a GDP contraction in Q4. The economic outlook has also taken a turn for the worse after Fitch Ratings downgraded South Africa's sovereign rating from investment grade to junk on 6 April, following a similar move by S&P Global Ratings on 3 April. Both downgrades are the direct result of a cabinet reshuffle carried out by President Jacob Zuma on 31 March, when he ousted his respected Finance Minister Pravin Gordhan and four other ministers, replacing them with loyalists. The move suggests a potential retreat from fiscal prudence, a rise in spending and increased opportunities for patronage (Focus Economics, 2017).

The current key economic indicators are given in **Table 23.1**.

Table 15.1 Economic indicators for South Africa (March 2017) www.tradingeconomics.com

Interest Rate	GDP Growth Rate (YoY)	Unemployment Rate	Inflation Rate
7.00%	0.7%	26.50%	6.1%

15.4.2 The Mining Industry

Mining in South Africa has been the main driving force behind the history and development of Africa's most advanced and richest economy. Large scale and profitable mining started with the discovery of a

[22] The <2.8ct stones would be marketed through FDTH, as described above. The upper value of 9.99ct was chosen so as not to conflict with the +10ct agreement of October 2007.

diamond on the banks of the Orange River in 1867 by Erasmus Jacobs and the subsequent discovery and exploitation of the Kimberley pipes a few years later. Gold rushes to Pilgrim's Rest and Barberton were precursors to the Witwatersrand Gold Field.

Diamond and gold production may now be well down from their peaks, though South Africa is still no. 5 in gold but South Africa remains a cornucopia of mineral riches. It is the world's largest producer of chrome, manganese, platinum, vanadium and vermiculite. It is the second largest producer of ilmenite, palladium, rutile and zirconium. It is also the world's third largest coal exporter. South Africa is also a huge producer of iron ore; in 2012, it overtook India to become the world third biggest iron ore supplier to China, which is the world's largest consumers of iron ore.

15.4.3 South Africa's Mineral Legislative Environment

15.4.3.1 Mineral Policy

South Africa has endorsed the principles of private enterprise within a free-market system, offering equal opportunities for all the people. The state's influence within the mineral industry has, thus far, been confined to the goal of orderly regulation and the promotion of equal opportunity for all citizens. The Minerals and Petroleum Resources Development Act (MPRDA Act 28 of 2002) was introduced to legislate the official policy concerning the exploitation of the country's minerals. Previously, South African mineral rights were owned by either the State or the private sector. This dual ownership system represented an entry barrier to potential new investors. The new MPRDA was introduced with the objective for all mineral rights to be vested in the State, with due regard to constitutional ownership rights and security of tenure.

In an attempt to assist junior exploration/mining companies, in July 2009 the National Treasury introduced a tax incentive for investors through the introduction of venture capital company (VCC) funds. This is an attempt to assist bottom-end juniors (engaged in mineral exploration, mining and/or refining) in accessing equity funding, in a similar manner to that which the Canadian flow-through share system. The subsequent tax-break allows for both individual and listed company to invest in the junior; the individual is eligible for a 100% tax deduction of the amount invested, which is limited to ZAR750,000/year with a maximum of ZAR2.25M and listed companies (and their group subsidiaries) are eligible for a 100% deduction with no monetary limit. However, these corporate entities do not receive any deductions for share investments that push their holdings above a 10% equity share interest in a VCC. The VCC must be a South African resident company that is unlisted or a junior mining company and must not be a controlled group subsidiary. The VCC is, further, required to invest 80% of their funds in mining juniors with book assets of not more than ZAR100M after capital raising, and small non-mining companies with assets of not more than ZAR10M after capital raising. The junior would also be required to use all the money received for purposes of its trade within 18 months of receipt and would be required to be producing revenue within 36 months.

The current socio-economic crisis in SA is on a national scale. High unemployment, income inequality, slow land reform and poor service delivery are motivations for widespread protests and continued unrest in the country. These social evils and the discontent it engenders underpin the call for nationalisation, which is perceived to solve the issue of the inequitable distribution of wealth and provide increased employment opportunities, ultimately resulting in the economic emancipation that is so critically needed to remove millions of citizens from the debilitating grip of poverty. It was in light of these factors that the ruling ANC party appointed a team to research the practicality of nationalising the country's mines (Chamber of Mines Annual Report, 2012). The ANC-sponsored research report was released in 2012 and contained numerous proposals, some more favourable to the industry than others. Reassuringly, however, the report came out firmly against mine nationalisation, although there were other recommendations of concern. These include a super-tax on mining profits (during periods of high commodity prices), export levies on raw minerals (to encourage local beneficiation) and taxes on the proceeds from selling mining rights. The ANC SIMS (*State Intervention of the Mining Sector*) report also recommended increased state involvement in the sector, via an enlarged state-owned mining company, and the designation of some minerals as “strategic”, which could oblige producers to cut end-user prices (in the interests of wider economic development).

The general consensus among South African mining experts is that the sector is in for another bumpy ride as a range of challenges have aligned to create what has been described as a ‘perfect storm’ through which local mining companies will have to persevere. At the heart of this perfect storm is the lack of mineral policy certainty, an issue that has been troubling South Africa’s mining sector since 2013 (Davenport, 2015).

15.4.3.2 Mineral and Petroleum Resource Development Act 28 of 2002 (“MPRDA”)

The Mineral and Petroleum Resources Development Act (MPRDA), 2002 aims to:

- Recognise that mineral resources are the common heritage of all South Africans
- Promote the beneficiation of minerals
- Guarantee security of tenure for existing prospecting and mining operations
- Ensure that historically disadvantaged individuals participate more meaningfully
- Promote junior and small-scale mining.

A draft version of the amended MPRDA was made available to the general public after it was approved by cabinet on 27 December 2012. It has drawn numerous adverse comments from several lawyers (Legalbrief Today, 2013). Law firm Werksmans said the main concerns about the amendments relate to increased ministerial control and bureaucracy, the deletion of the first-come-first-served application procedure, the possibility of an export licensing regime and lack of administrative timelines (Stevens, 2013). Amidst ongoing controversy, the MPRDA amendment bill was approved by the SA parliament on 6 March 2014 (Mackay, 2014). However, it has not yet been enacted by President Zuma or enacted into law. The slow progress in reconsidering the Amendment Bill means that the regulatory uncertainties continue to have a negative impact on business and mining operations (James, 2016).

15.4.3.3 Broad Based Black Economic Empowerment (BBBEE) and the Mining Charter

The Broad-Based Socio-Economic Empowerment Charter for the South African mining and minerals industry was released first in 2004 and updated in September 2010[23]. The charter contains the concept of ‘meaningful economic participation’ – whereby historically disadvantaged South Africans (HDSAs) must, notwithstanding funding commitments to the vendor/third parties, receive a portion of any cash flow generated from the underlying mining asset. The sector is in desperate need of skills development to realise the government’s objective of sustainable transformation and development.

- To this end, a skills levy has been incorporated into the charter. For 2010, 3% of annual payroll must be contributed towards such levy. Thereafter, the levy increases by 0.5% a year until 2014.
- The charter also introduced clear procurement targets. Since 2014, mining companies have been obliged to procure 40% of their capital goods, 70% of their services and 50% of their consumer goods from BEE entities.

[23] As a result of extensive on-going discussions between the State and the Chamber of Mines, an updated version of the Charter is expected by midyear of 2017.

- Multinational suppliers of capital goods are also obliged to contribute 0.5% of their South African mining companies' annual income into a social development fund to be utilised for the socioeconomic development of communities.
- The above targets exclude any non-discretionary procurement expenditure.

Two of the most prominent social aims of the Charter are mine community development and housing and living conditions of mine workers.

All companies have been audited for compliance with the charter, the latest of which was in May 2015. The granting of mineral rights is based on compliance with the charter. Various unilateral changes to the mining charter have made compliance much more challenging and could see various companies lose their mining licences. This insecurity of title is a policy 'own goal' that is all the more damaging because it comes on top of the electricity crisis and a host of other obstacles to successful mining operations.

One of the biggest challenges to the Mining Charter is an on-going court battle over the 'once-empowered, always empowered' or 'continuous consequences' principle[24]. The DMR argues that mining firms should be required to re-empower themselves when their black-owned partners divest of their investments in order to continuously maintain 26% black ownership of either listed securities or units of production. This is being vigorously opposed by the Chamber of Mines as well as by law firm Malan Scholes – both of whom have very different expectations. Mr Scholes and his firm went to court in August 2015 to set aside the mining charters of 2004 and 2010, arguing that they were unconstitutional, vague and contradictory, allowing for abuse by the mineral resources minister and officials. By contrast, the Chamber of Mines seeks an amicable solution outside of the courts.

15.4.3.4 The Minerals and Petroleum Resources Royalty Bill

The royalty bill was introduced on May 1, 2009. In terms of the currently applicable formulae, the applicable royalty rates will vary according to the profitability of the mining company, subject to a minimum rate of 0.5% and maximum rate 9.0% for diamonds (unrefined minerals). The profitability parameter in the formulae is EBIT and it also allows for 100% capital expensing which is an acknowledgement of the high capital costs associated with mining.

Y (u) = 0.5 + {EBIT / (Gross sales x 9)}

Where:
Y (u) = Royalty percentage rate;
EBIT = Earnings before interest and taxes (but EBIT can never go below zero).

The formula contains four parameters: (1) an intercept term, 0.5, (2) EBIT, (3) gross sales and (4) 9 as a constant:

- The 0.5 essentially acts as a minimum royalty percentage rate (0.5%) in order to ensure that Government (as custodian) always receives some level of royalty payments for the permanent loss of non-renewable resources.
- EBIT essentially measures an extractor's net operating mining profits in relation to recovered mineral resources to be eventually transferred. Taxes and other Government charges, such as the royalty, are excluded because EBIT is part of the royalty determination. The exclusion of interest effectively neutralises how key methods of financing (i.e. debt or equity) mineral operations are undertaken. EBIT for mineral resources transferred is conceptually viewed as the aggregate amount of:

[24] By May 2017, this controversy has yet to be resolved.

(1) Gross sales for all transferred mineral resources;

PLUS

(2) Recoupment in respect of the disposal of assets used to develop mineral resources to the extent the depreciation on those assets offset EBIT;

LESS

(3) Operating expenditure incurred (and depreciation allowances applicable to capital expenditure) relating to the extraction and development of mineral resources to the extent those expenditures are both: (i) deductible under the Income Tax Act, and (ii) bring those minerals to a Schedule 1 or Schedule 2 condition (as applicable).

15.4.3.5 The Diamond Amendment Bill

The 2005 amendments to the Diamonds Act, viz., Diamonds Amendment Act, 2005 and the Diamonds Second Amendment Act, 2005 as well as the 2007 amendment to Regulations under the Diamonds Act took effect on 1 July 2007. These Regulations were also, subsequently, amended on 4 April 2008. The object of the Regulator (SADPMR) in terms of the Diamonds Act, 1986 (as amended) is to ensure equitable and regular supply of rough diamonds to local beneficiators. It makes provision for the establishment of the State Diamond Trader ("SDT") who would facilitate the supply of rough diamonds equitably and a Precious Metals and Diamonds Regulator to promote equitable access to rough diamonds to licensees. The objects of the amendments are to:

- Promote a culture of value addition of minerals by maximising the value of economic benefit of South Africa's mineral wealth;
- Recognise the fact that beneficiating our minerals locally contributes to South Africa's economy;
- Prevent and abolish restrictive and unfair practices with regard to accessibility and availability of minerals and access to markets; and
- Create an internationally competitive and efficient administrative and regulatory regime by means of national licensing system.

In this regard, the regulators functions include the implementing, administering and controlling all matters relating to the purchase, sale, beneficiation, import and export of diamonds; and establishing diamond exchange and export centres, which shall facilitate the buying, selling, export and import of diamonds and matters connected therewith.

The Act, which was introduced against strong opposition by diamond miners, appears to have failed to achieve its objectives (Mathews, 2013). Although South Africa has been exporting diamonds for more than 100 years, it had not been able to develop a local cutting and polishing jewellery industry – in fact, over the last few years the number of jobs in local diamond beneficiation has dwindled, not increased.

15.4.3.6 Diamond Export Levy Bill 2007

The Diamond Export Levy Bill was required to give effect to certain provisions of the Diamonds Act, 1986, as amended. The Diamond Export Levy Bill's main objective is to support the local beneficiation of rough diamonds. The beneficiation of rough diamonds is seen as important to encourage the development of the local economy, skills and employment creation. The Bill proposes a 5% export levy on rough diamonds that should contribute towards local beneficiation, but is low enough so as not to unduly encourage smuggling. The 5% levy applies to all rough (natural unpolished) diamonds that are exported, while synthetic diamonds are exempted. The levy amount will be equal to 5% of the value of a rough diamond exported, as specified on a return described in Section 61 of the Diamonds Act, 1986 or of the value as assessed by the Diamond and Precious Metals Regulator described in section 65 of the Diamonds Act, 1986.

The Bill contains relief measures that may offset the 5% levy in full or in part. A producer is entitled to receive a credit for imported rough diamonds. This credit will offset (in full or in part) a producer's export duty liabilities. The Minister of Minerals and Energy may also exempt a producer from the 5% export levy if a producer's activities are supportive of local diamond beneficiation, or the producer has an annual turnover of less than ZAR10 million, and such a producer has offered his or her rough diamonds for sale at the Diamond Exchange and Export Centre but there were no local buyers. However, the diamonds must subsequently be sold for an amount at least equal to the reserve price at which such diamonds were offered at the centre. These conditions preserve South African's "right of first refusal" with respect to bidding on any rough diamond intended for export.

15.4.3.7 Precious Metals Bill and the Beneficiation Strategy

The Precious Metals Bill amends Chapter XVI of the Mining Rights Act, No 20 of 1967, so as to eliminate the barriers to local beneficiation of precious metals and to rationalise the regulation of matters pertaining to the downstream development of precious metals. The objects of the Bill include:

- To allow for the acquisition and possession of precious metals for the local beneficiation;
- To regulate the precious metal industry;
- To repeal the legislations that create barriers to beneficiation; and
- To amend the over-regulation of the industry by centralising the issuing of jewellers' permits within the Department of Minerals and Energy.

In order to implement beneficiation strategies, mining licences may, in future, be granted with attached conditions, to ensure a supply of raw material for local industries seeking to further refine, or beneficiate, the extracted minerals (SAPA, 2011). However, for South Africa to succeed in its endeavours, it needs to create the necessary skilled labour force and to establish the necessary industrial development zones with attractive tax advantages and low tariff regimes. Customs systems would also have to be streamlined and harbours decongested to facilitate efficient trading conditions.

15.4.3.8 Kimberley Process

The Kimberley Process is a joint governments, industry and civil society initiative to stem the flow of conflict diamonds – rough diamonds used by rebel movements to finance wars against legitimate governments. The trade in these illicit stones has fuelled decades of devastating conflicts in countries such as Angola, Cote d'Ivoire, the Democratic Republic of the Congo and Sierra Leone. The Kimberley Process Certification Scheme ("KPCS") imposes extensive requirements on its members to enable them to certify shipments of rough diamonds as 'conflict-free'. The core mandate of the KPSC is to guarantee consumers that the organisation is aware of the origin of the diamonds that the consumers buy.

In essence, the participants in the KPSC have agreed that they will only allow for the import and export of rough diamonds if those rough diamonds come from or are being exported to another Kimberley Process participant. The KPSC requires that each shipment of rough diamonds being exported and crossing an international border be transported in a tamper-resistant container and accompanied by a government-validated Kimberley Process Certificate. Each certificate should be resistant to forgery, uniquely numbered and include data describing the shipment's content. The shipment can only be exported to a co-participant country in the Kimberley Process. No uncertified shipments of rough diamonds will be permitted to enter a participant's country. Once a certified shipment has entered its country of destination it may be traded – in whole or part – and mixed with other parcels of rough diamonds as long as all subsequent transactions are accompanied by the necessary warranties. Failure to adhere to these procedures can lead to confiscation or rejection of parcels and/or criminal sanctions. Any rough diamonds being re-exported will also require Kimberley Process Certificates, which will be issued in the exporting country. These re-exports can comprise any combination of rough diamonds that have been previously imported through the Kimberley Process Certification Scheme.

In order to strengthen the credibility of the Kimberley Process agreement, as well as to provide the means by which consumers might more effectively be assured of the origin of their diamonds, the World Diamond Council proposed that the industry create and implement a System of Warranties for diamonds. Trade in rough diamonds is permitted between Participants of Kimberley Process Certification Scheme only on the basis of authentic KP certificates. Under this system, which has been endorsed by all Kimberley Process participants, all buyers and sellers of both rough and polished diamonds must warrant that, for each parcel of diamonds "*The diamonds herein invoiced have been purchased from legitimate sources not involved in funding conflict and in compliance with United Nations resolutions. The seller hereby guarantees that these diamonds are conflict free, based on personal knowledge and/or written guarantees provided by the supplier of these diamonds.*"

In addition, each company trading in rough and polished diamonds is obliged to keep records of the warranty invoices received and the warranty invoices issued when buying or selling diamonds. This flow of warranties in and warranties out must be audited and reconciled on an annual basis by the company's own auditors. Failure to abide by the aforementioned principles exposes the member to expulsion from industry organizations.

The KPCS is open to all countries that are willing and able to implement its requirements. The KPCS currently has 54 participants, representing 81 countries (with the European Union, and its 28 Member States counting as a single participant, represented by the European Commission). Another seven countries have applied to join the KPCS, but have yet to meet the minimum requirements. KPCS members account for approximately 99.8% of the global production of rough diamonds.

The term Observers refers to Industry and Civil Society groups that play an active role in monitoring the effectiveness of the certification scheme and who provide technical and administrative expertise to the Secretariat, Working Groups, Applicants and Participants.

- African Diamonds Producers Association (ADPA)
- Civil Society Coalition
- Diamond Development Initiative (DDI)
- World Diamond Council (WDC)

As at May 2017, the following countries have been suspended from the KPCS (Kimberley process, 2017):

- The Bolivarian Republic of Venezuela has voluntarily suspended exports and imports of rough diamonds until further notice; therefore, the Bolivarian Republic of Venezuela cannot trade in rough diamonds.
- The Central African Republic has been temporarily suspended. No exports and imports of rough diamonds are allowed until further notice.

16 INTERPRETATION AND CONCLUSIONS

The Wouterspan operation has proceeded in three phases:

Pre-2008, some 2.7Mm^3 of gravel was processed in bulk-sampling and trial-mining, to recover some 18,719.66ct (8,489st) at an average grade of 0.7ct/100m^3 and stone size of 2.2ct/st (at a bcos of 2mm). Both bulk-sampling and trial-mining were based on the excavation and processing of the entire gravel profile through rotary pan plants – mixing Rooikoppie and the underlying fluvial-alluvial gravels. The proposed plan was to eventually bulk mine the entire deposit in a low-grade, high-throughput model. The programme culminated in a Prefeasibility Study in 2008 which resulted in the property being put on Care & Maintenance until a plant could be designed/obtained which could handle the desired volumes.

During 2015, as part of Rockwell's plan of putting Wouterspan back into production, the updated plan provided for the sampling of Rooikoppie gravels only in the initial stage, followed by sampling of fluvial alluvial gravels. Consequently, an extensive pitting campaign was initiated into the Rooikoppie gravels, with the intention of classifying these deposits based on the experience gained on Rockwell's Remhoogte operation. These gravels were to be sampled through a new bulk X-Ray (BV) processing plant with a bcos of 5mm.

During late 2016 / early 2017, management implemented an updated prospecting programme based on a "*selective bulk-mining*" plan, which called for the processing of selective units within the fluvial-alluvial stratigraphy and also only specific Rooikoppie facies. This programme involves the re-evaluation of the drill-logs to identify the coarse gravel units and estimate a potential volume for these units only. The separate sampling of Rooikoppie and fluvial-alluvial units was also to continue. However, as a result of various factors, the processing programme did not proceed as planned and sample blocks and sample types were mixed, bcos was not kept constant and the plant did not perform according to specification. Consequently, while sample results are encouraging, the results are insufficient (as is the confidence in the results) to support a Diamond/Mineral Resource classification.

Significant Exploration Targets have been identified on Wouterspan:

- The volume of fluvial-alluvial gravel targeted on the Wouterspan section is in the 30-40Mm^3 range, with expected average grades of 0.4-0.6ct/100m^3 (at bcos of 5mm) and values of USD1,600-2,000/ct. The Rooikoppie Exploration Target in the same area is some 2-3Mm^3 at grades of 0.2-0.6ct/100m^3 and values of USD 1,300-2,000/ct. These target grades/values are based on limited bulk-sampling within the prospecting area.
- An additional 2-3Mm^3 of Rooikoppie gravel has been outlined on the Stofdraai section of Wouterspan (by 50x50m pitting), no samples have yet been processed. Grade and value targets of 0.2-0.4ct/100m^3 (at bcos of 5mm) and USD900-1,600/ct are based purely on geological interpretation of the gravel quality.

It is important to note that these statements of potential quantity and grade are conceptual in nature, that there has been insufficient exploration in these areas to define a mineral resource and that it is uncertain if further exploration will result in the targets being delineated as a mineral resource.

It is recommended that the bulk-sampling programme continue to process both Rooikoppie and Fluvial-Alluvial gravels with the objective of upgrading certain of the Exploration Targets to Inferred Mineral Resources and/or to an Indicated Mineral Resource by obtaining representative grade and value data; and completing a Prefeasibility Study. During this programme, it is fundamentally important that samples be processed separately by block and type, so that reliable results may be obtained.

Exploration pitting costs on Stofdraai have been budgeted at some ZAR 200,000 for the 2017 programme. On-mine bulk-sampling and trial-mining costs on WPC and Stofdraai are expected to run at some ZAR22M/month. The planned CAPEX budget is some ZAR50M.

The independent QP has reviewed both the proposed work programme and budget and concurs that they are reasonable for the stage of the project.

17 RECOMMENDATIONS

It is recommended that the bulk-sampling programme continue to process both Rooikoppie and Fluvial-Alluvial gravels with the objective of upgrading certain of the Exploration Targets to Inferred Mineral Resources and/or Indicated Mineral Resources by obtaining representative grade and value data; and then completing a Technical Study (at a level relevant to the Resources estimated). During this programme, it is fundamentally important that samples be processed separately by block and type, so that reliable results may be obtained.

17.1 Proposed Work Programme for 2017

During the next phase, Rockwell proposes to continue with prospecting of gravels from Stofdraai. A total of 968 pits are planned to be excavated into the Rooikoppie deposits on Stofdraai (**Fig. 17.1**), to be completed by mid-June 2017. Bulk-sampling localities will be planned on the pitting results. This programme will be planned to test the grade and value distribution in order to estimate Diamond Resources on this project.

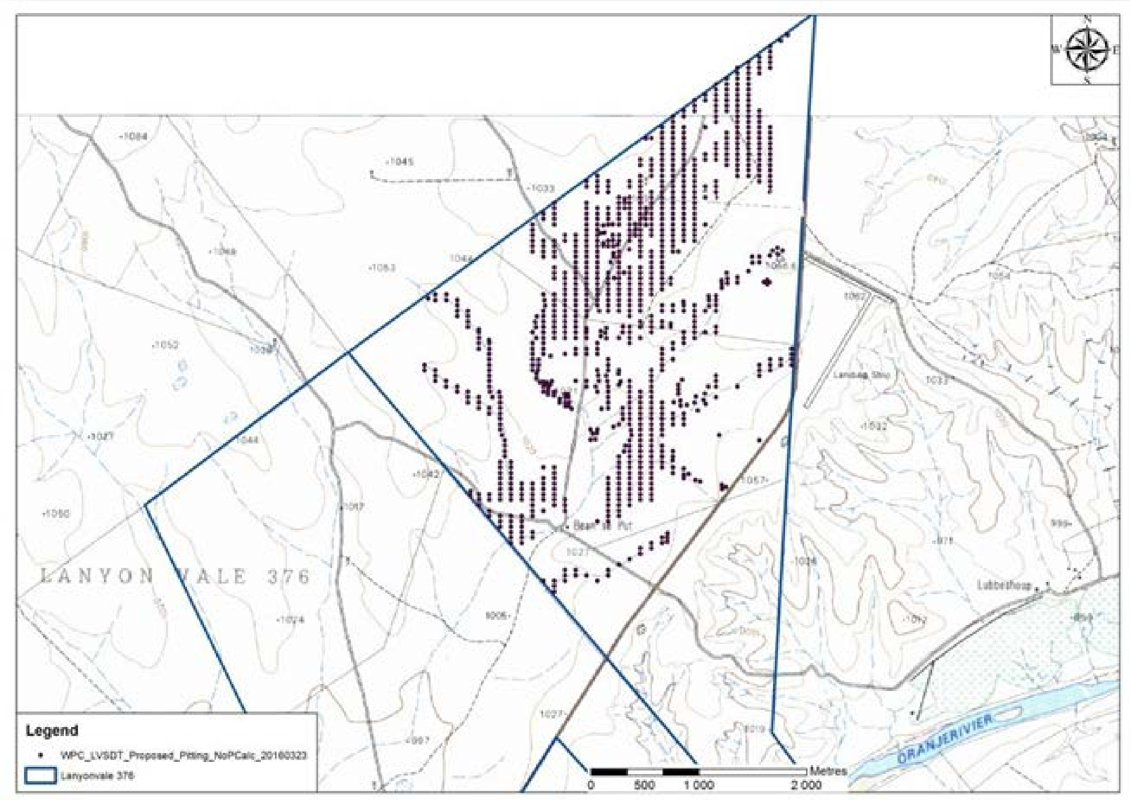


Figure 17.1: Proposed prospecting (pitting) locations for Fluvial-alluvial gravels during 2017

In addition, sampling will continue on the B and C terraces on the Wouters portions (**Fig. 17.2**) with the objective of estimating Diamond resources. Once a resource has been established, an updated Preliminary Economic Assessment will be initiated. It is proposed that some 2Mm^3 will be processed on the B and C terraces (Wouters project) over the next financial year. This is to be derived from both fluvial alluvial gravels and different units of Rooikoppie.

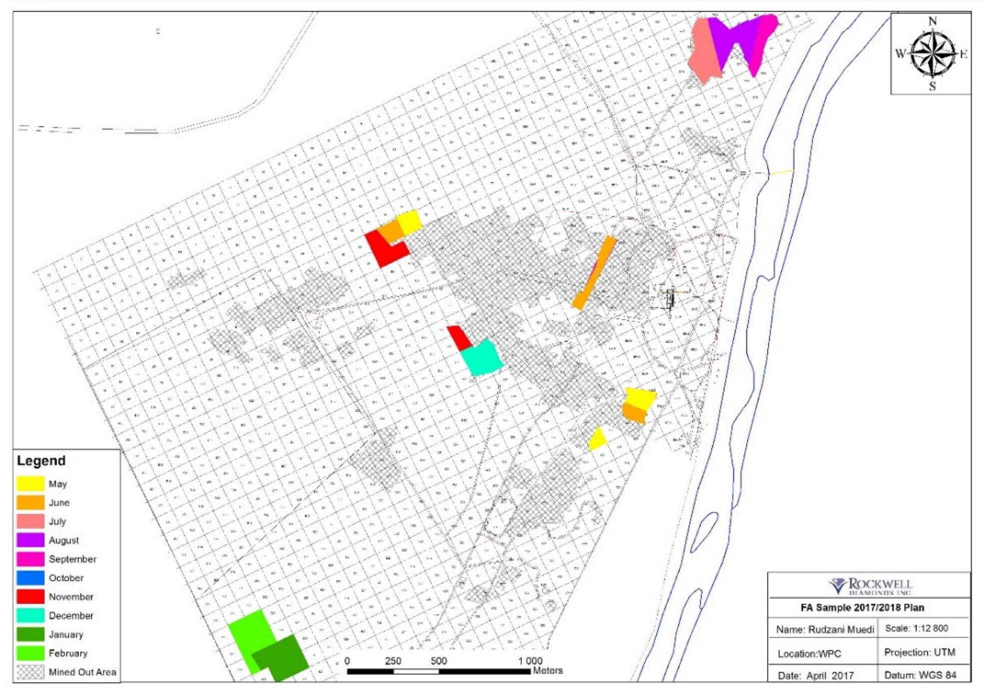
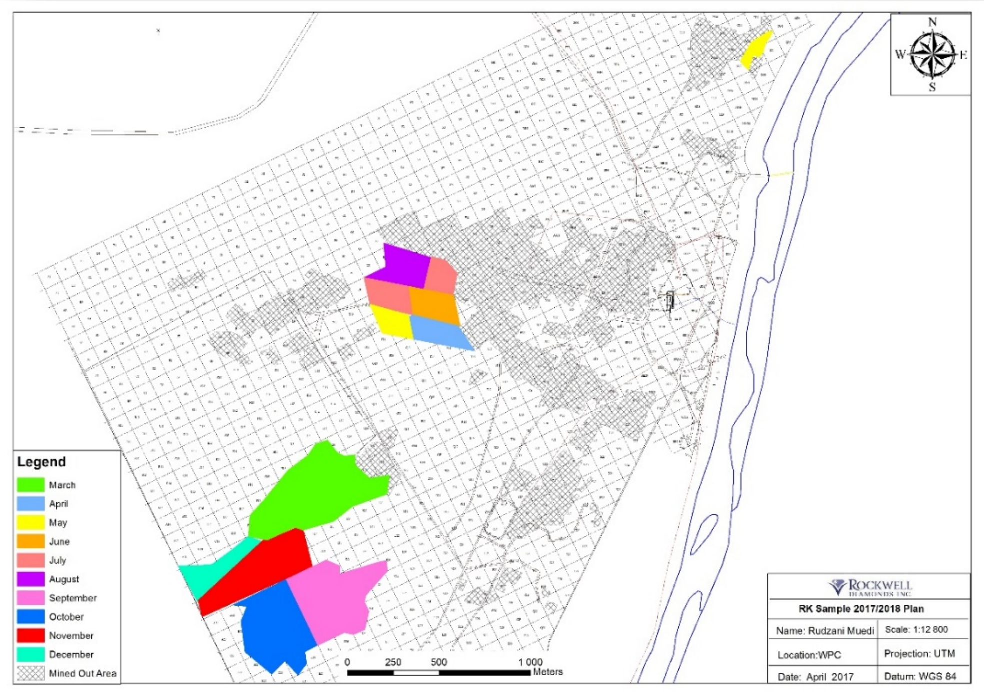


Figure 17.2: Proposed prospecting (bulk-sampling) locations for Fluvial-alluvial (above) and Rooikoppie (Below) gravels during 2017



17.2 Proposed Budget

Exploration pitting costs on Stofdraai have been budgeted at some ZAR 200,000 for the 2017 programme. On-mine bulk-sampling and trial-mining costs on WPC and Stofdraai are expected to run at some ZAR22M/month. The planned CAPEX budget is some ZAR50M (**Table 17.1**).

Table 17.1 Estimated CAPEX for the Wouterspan project for FY2018

Capital Expenditure	FY2018
Mobile IFS Payments	932,398
Wouterspan Completion - Section 2	3,632,114
Wouterspan - Section 1	-
Wouterspan Workshops	5,000,000
Eskom Grid Power	400,000
Proximity Detection System[25]	1,200,000
Bridge Construction - EIA/Rehab	4,348,773
Bridge Penalty	-
In-Field Screen	17,375,045
Holsloot Plant to Stofdraai	15,000,000
Stay in business capex	39,999
Total	**49,020,793**

The independent QP has reviewed both the proposed work programme and budget and concurs that they are reasonable for the stage of the project.

[25] All Earthmoving vehicles have to be fitted with units which will detect other trucks and/or people near them – this is a new DMR requirement, as of 2017.

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Sundry Documents

Rockwell production data

Sundry hardcopy and electronic technical and production plans and data.

19 DATE AND SIGNATURE PAGE

Respectfully Submitted,

Signed and Sealed

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T R Marshall (Dr)

Geological Consultant (Pr. Sci. Nat)
SACNASP registration number 400112/96

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Effective Date : 28 February 2017

20 CERTIFICATE OF AUTHOR

I, Tania Ruth Marshall (Pr. Sci. Nat.) do hereby certify that:

- I am a Geological Consultant with:
  Explorations Unlimited
  P O Box 6578
  Homestead,
  1412
  South Africa
- I graduated with a degree in Bachelor of Science from the University of Witwatersrand in 1982. In addition, I have obtained a Bachelor of Science (Honours) in Geology in 1984, a Master of Science in Geology in 1987 and a Doctor of Philosophy (Geology) in 1990.
- I am a Fellow of the Geological Society of South Africa (#38829) and am registered with the South African Council for Natural Scientific Professions as a Geological Scientist since 1996 (SACNASP registration number 400112/96).
- I have worked as a geologist continuously since my graduation from university in 1987. During this period, I have been involved in the exploration and exploitation of alluvial diamond deposits throughout Africa, including the evaluation and valuation of a number of such deposits for both private and public companies. Such operations involving mining and financial analysis (together with mine planning and costing) include the Cangandala alluvial diamond mine in Angola, the Cayco alluvial diamond project in Akwatia, Ghana, the Aredor alluvial diamond mine in Guinea, the Kumgba alluvial diamond project in Liberia, the Lorelei alluvial diamond mine in Namibia, the Krugersdal/Morgen on and Roodepan alluvial diamond mines in the Ventersdorp district of South Africa, the Schmidtsdrift and Sydney-on-Vaal alluvial diamond mines along the lower Vaal River in South Africa, the London alluvial diamond mine in the Schweizer Reneke district of South Africa, the Kameelfontein alluvial diamond project in the Cullinan district of South Africa, as well as various small-scale alluvial diamond projects in South Africa and Namibia.
- My experience on alluvial diamond deposits is both as operator and as consultant, during which I have prepared costing estimates for mining and processing operations. In addition, as consultant, I have seen and reviewed operations and their various cost centres.
- I sit on the South African Mineral Resource Committee (SAMREC) and South African Mineral Asset Valuation Committee (SAMVAL) Working Groups (since 2010 and 2013 respectively) as well as the SAMREC Diamond Resource/Reserve Working Group Sub-committee (since 2005).
- I have read the definition of "Qualified Person" set out in NI 43-101 and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be an independent "Qualified Person" for the purposes of NI 43-101.
- I am responsible for the preparation and supervision of all sections of this Technical Report entitled "Technical Report on the Wouterspan Alluvial Diamond Project, Herbert District, The Republic of South Africa", for Rockwell Diamonds Inc. (effective date 28 February 2017).
- I have visited the Wouterspan during 14-15 March 2017.
- I am independent of the issuer applying all of the tests of NI43-101.
- I have read NI43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
- At the date of signature, to the best of my knowledge, information and belief the technical report contains all the scientific and technical information that is required to be disclosed so as to make the Technical Report not misleading.

- I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 27 May 2017

Signed and Sealed

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Geological Consultant (Pr. Sci. Nat.)
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EXPLORATIONS UNLIMITED

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