

**PRESS RELEASE**  
Monday, 28 May 2018

ASX/TSX: CDV  
2018-10

## ENCOURAGING FIRST PASS GOLD RESULTS AT NDONGO

Cardinal Resources Limited (ASX/TSX: CDV) (“Cardinal” or “the Company”) is pleased to announce that it has received encouraging results from its first pass shallow RC drilling designed to test one of the six coincident gold-in-soil and geophysical targets on the Ndongo License within the Bolgatanga Project, which is located ~15 km north of the Company’s Namdini Gold Project with an Indicated Mineral Resource of 6.5 Moz Au (Figure 2).

### Highlights

- RC drilling has returned several shallow gold intersections from the first of six targets to be drilled including:
  - NDRC130: **24m at 1.2 g/t Au from 2m, and 14m at 1.4 g/t Au from 46m**
  - NDRC131: **9m at 11.5 g/t Au from surface (includes 3m at 29.8 g/t Au)**
  - NDRC134: **4m at 1.2 g/t Au from 20m**
  - NDRC137: **8m at 1.4 g/t Au from 1m**
- The results highlight the potential for discovery of gold mineralisation within the Ndongo License, located approximately 15 km north of Cardinal’s Namdini Gold deposit which currently contains 6.5 Moz Au Indicated and 0.5 Moz Inferred Mineral Resources.
- Prospectivity of the area is enhanced due to its proximity to the prolific Nangodi Shear Zone which is known to host major economic gold mineralisation in northeast Ghana and Burkina Faso
- Field crews are currently undertaking geological mapping, surface rock sampling, trenching and geophysical surveys to help identify new targets and refine existing targets

Cardinal’s Chief Executive Officer / Managing Director, Archie Koimtsidis stated:

“We are highly encouraged with these early promising results at Target A – Prospect Zupeliga South (Figures 3, 4 and 5) particularly given the strong grades we are seeing near surface. These results strengthen our resolve that the Ndongo License is highly prospective with several untested drill targets which could deliver another significant gold discovery.

We are planning infill and extensional drilling with both RC and DD rigs to target the strike and dip extensions of the mineralisation which remains open.

Gold mineralisation has initially been located within an area of ~200m strike length by ~100m width within the larger Target A area which has a strike length of ~12km and a width of ~1.5km. At this early stage, mineralisation appears to be open along strike and at depth with further drilling planned.

Drill rigs will also be mobilised across the Ndongo License to test other target areas (Figures 3, 4 and 5)”.

The target area was originally highlighted following a soil sampling programme by AfricWest in 1997 and Etruscan Resources in 2007. A number of shallow high-grade gold intersections were returned from RAB drilling completed by Etruscan Resources in 2008. The results from the historical Etruscan Resources RAB drilling include:

- NRB-08-399: **7.5m at 1.8 g/t Au** from 33m
- NRB-08-400: **19.5m at 1.2 g/t Au** from 6m
- NRB-08-404: **21.0m at 2.3 g/t Au** from 6m
- NRB-08-409: **18.0m at 3.4 g/t Au** from surface

**Note:** All the historical RAB drill data was collected by Etruscan Resources Ghana Limited, now part of Endeavour Mining Corporation (For details, refer to TSX announcement by ABZU Gold on 23 January, 2013 entitled “*ABZU Gold Announces Drilling Mobilisation For 2013, Targets Additional Satellite Gold Mineralisation at Zupeliga*”).

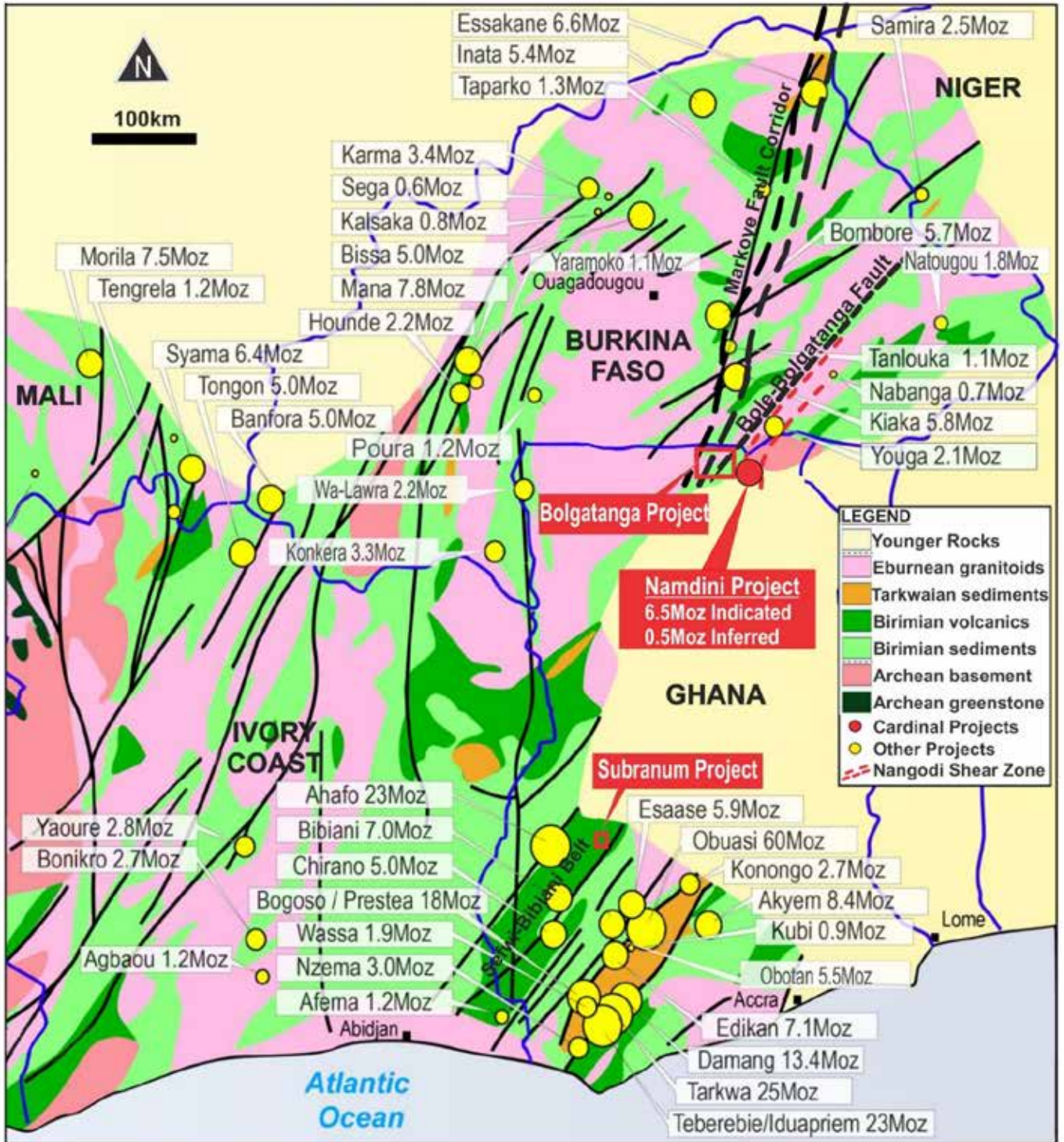


Figure 1: Major Gold Discoveries in Burkina Faso, Cote d'Ivoire (Ivory Coast) and Ghana

## Ndongo Prospecting License

The Ndongo Prospecting License covers an area of 295 km<sup>2</sup>, having been recently expanded by the purchase of two exploration licence areas from Kinross Gold in August 2017 (Figure 2).

The license area is considered highly prospective for the discovery of economic gold mineralisation associated with the prolific Nangodi Shear Zone, a splay fault off the main regional-scale Bole-Bolgatanga Shear. Elsewhere, the Nangodi Shear Zone is spatially related to no fewer than four major gold discoveries, including the Company's Namdini Gold Project with 6.5 Moz Au Indicated and 0.5 Moz Au Inferred Mineral Resources, the Shaanxi Mine, the historic Nangodi Gold Mine and the 2.1 Moz Youga Gold Mine in Burkina Faso, adjacent to the Ghana border (Figures 1, 2 and 3). In addition, there are numerous historic shallow artisanal workings along many parts of this shear zone ~15 km north of the Namdini Gold Project (Figure 3).

Six exploration target areas totalling 70 km in strike length ~15 km north of the Namdini Gold Project have been initially identified for more detailed investigations through assessing geophysical, geochemical and geological data relevant to this Prospecting License (Figures 3 and 4).

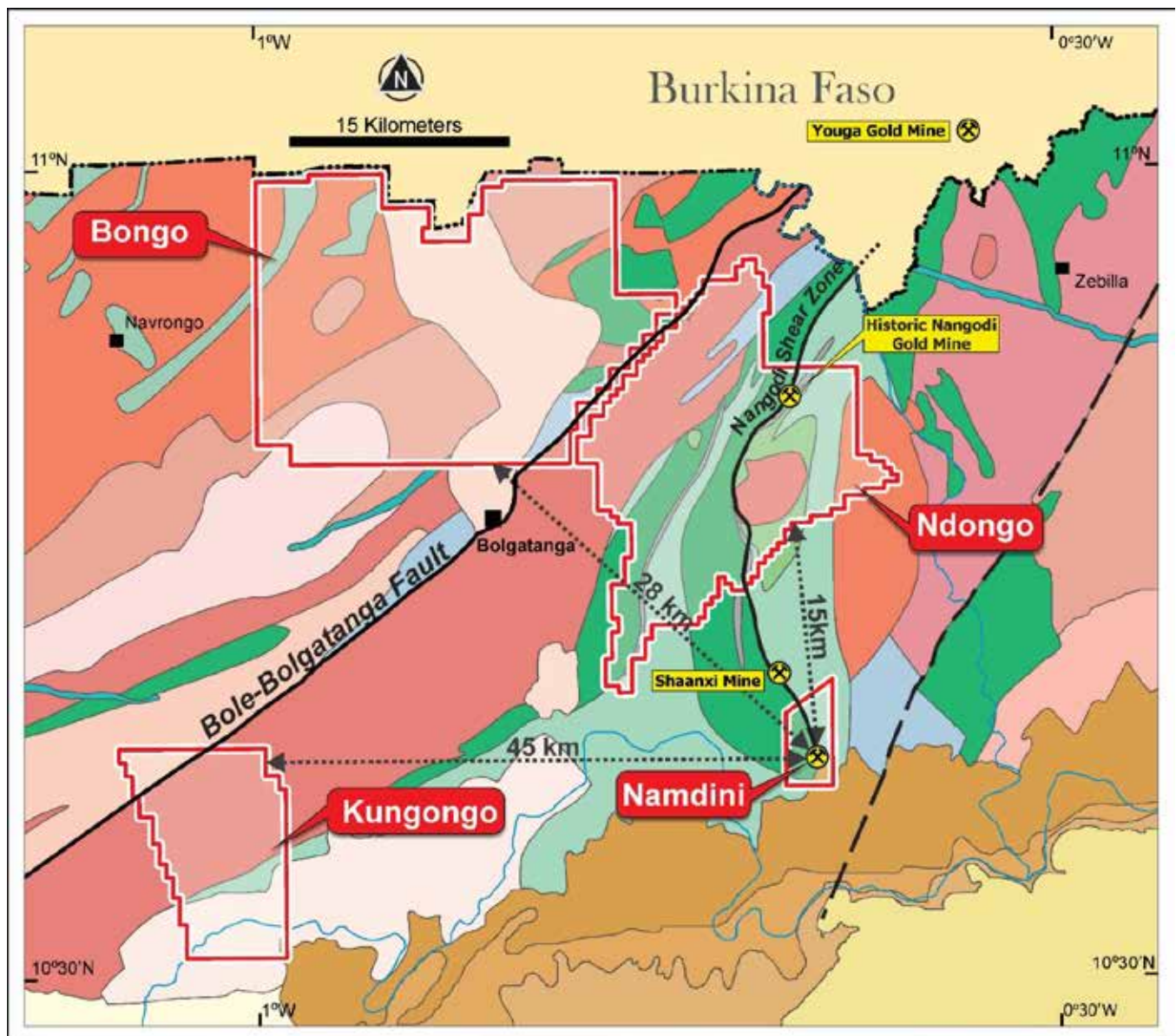


Figure 2: Cardinal's Three Large Scale Tenements comprising the Bolgatanga Project and the Namdini Project

### Ndongo Prospecting License - Target A – Prospect Zupeliga South

Target A was previously named Ndongo West prior to the acquisition of the surrounding Kinross ground. Numerous gold-in-soil anomalies, RAB drilling, shallow artisanal diggings and several deeper artisanal shafts all indicated the gold-bearing potential of this recently acquired area (Figures 3 and 4).

At Ndongo West, Gradient Array IP ("GAIP") and ground magnetic surveys identified a very well-developed contact zone between conductive and resistive units, along which the artisanal shafts are located.

Once the former Kinross ground was added to Ndongo West, this extended the Target A strike length to 12 km and 1.5 km width and is now called Zupeliga South Prospect (Figure 5).

The prospect is underlain by weak to strongly magnetic mafic-ultramafic volcanic units which are intruded locally by granodiorite. The volcanic units are altered containing pyrite, minor pyrrhotite, magnetite, minor arsenopyrite and silica.

The geology of this prospect is more complex as folding has been identified with the fold axis orientated  $\sim 020^{\circ}$ , and the rock units striking  $\sim 300^{\circ}$  and dipping north at  $\sim 60^{\circ}$ . The structures imply open anticlinal folds although plunges have yet to be determined.

Gold of variable grades is found within highly magnetised mafic volcanic horizons with disseminated sulphides and cross-cutting pyrite and smoky quartz veinlets. Higher gold grades occur within a sheared, less magnetic and siliceous altered inner zone within the magnetic corridor which also has cross-cutting pyrite and quartz veinlets.

Gold mineralisation has initially been located within an area of  $\sim 200$  m strike length by  $\sim 100$  m width within the larger Target A area which has a strike length of  $\sim 12$  km and a width of  $\sim 1.5$  km. At this early stage, mineralisation appears to be open along strike, especially along the fold axes, and at depth with further drilling planned to evaluate the two limbs of the anticlines.

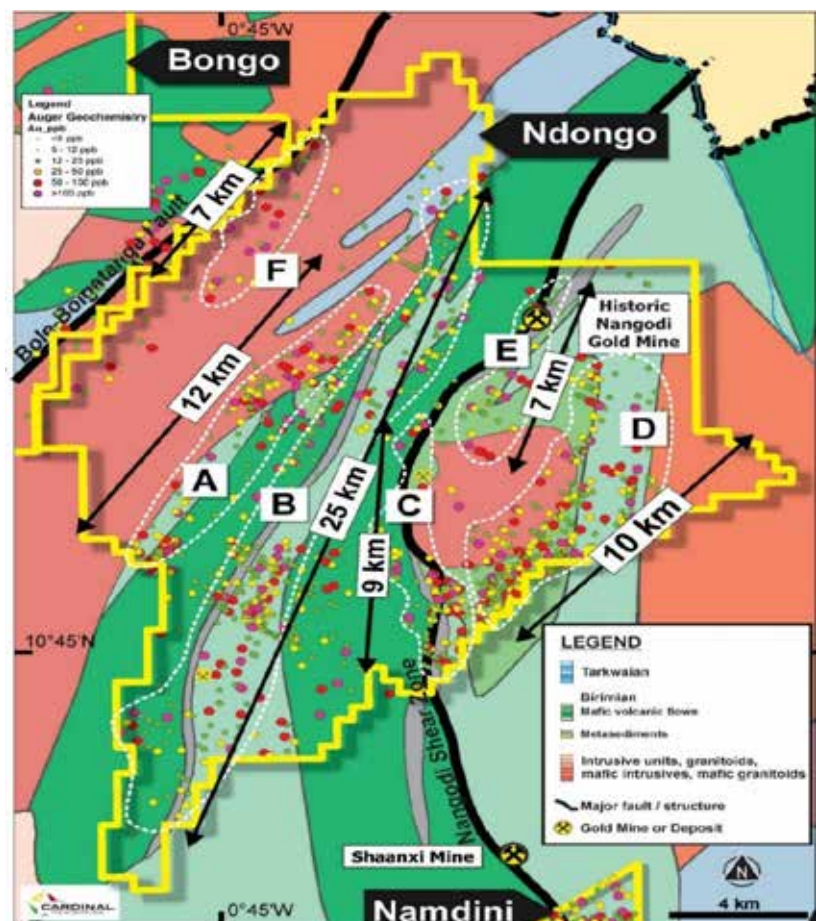


Figure 3: Ndongo Prospecting License - Target Areas Over Geology

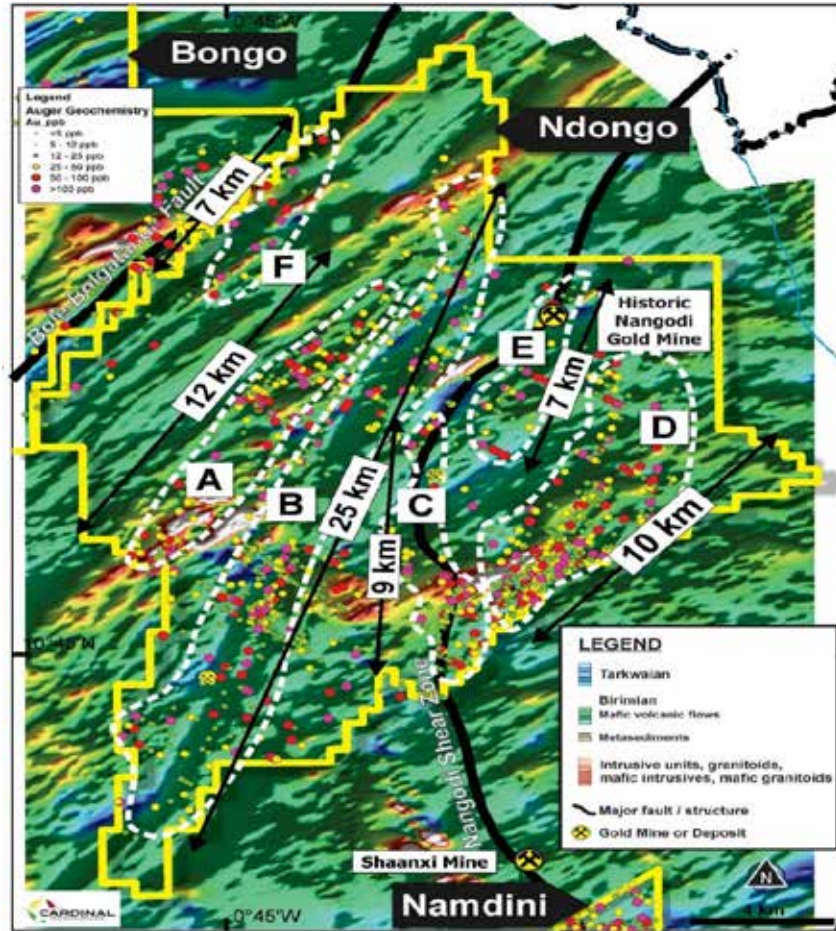


Figure 4: Ndongo Prospecting License - Target Areas Over Magnetics

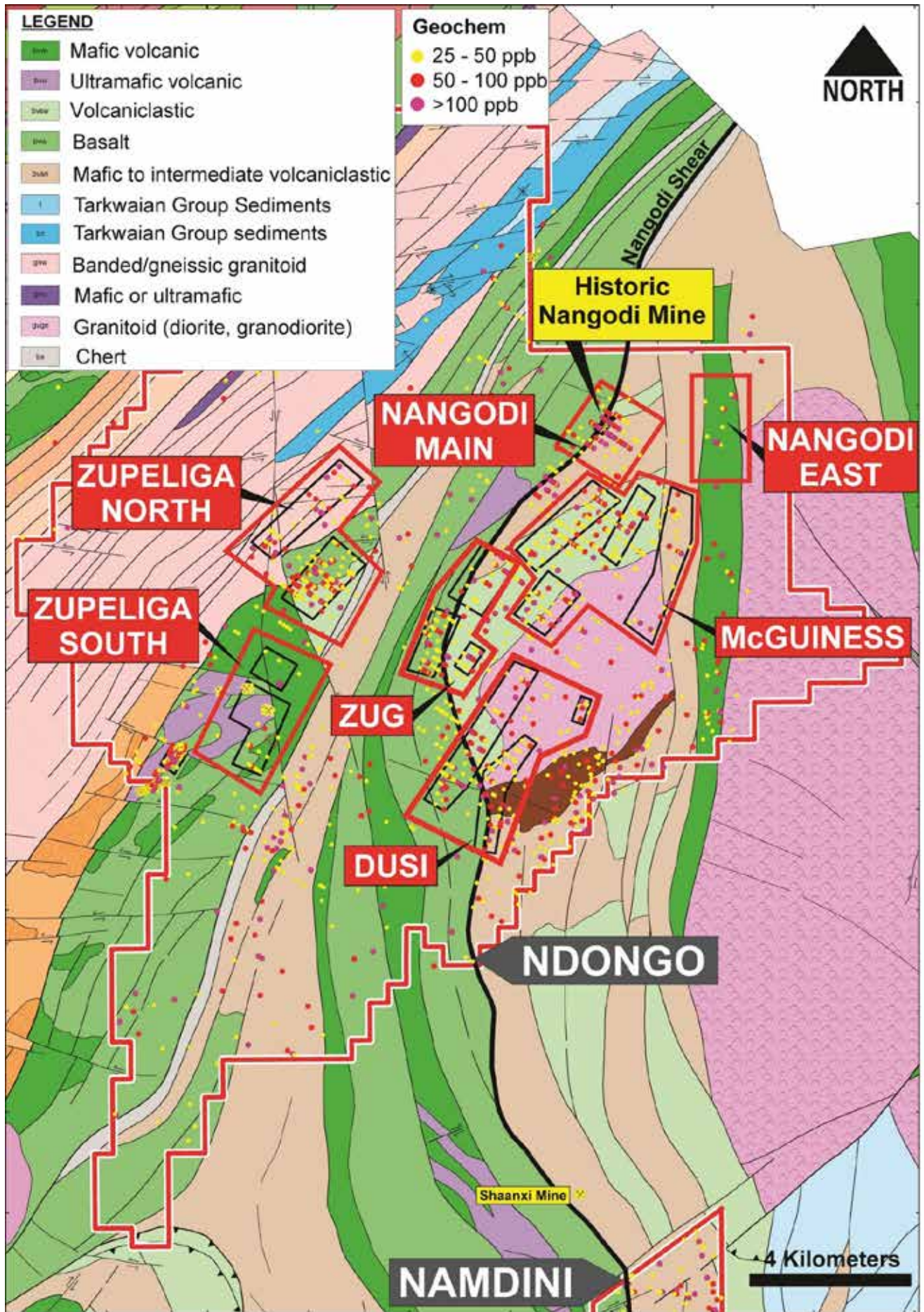


Figure 5: Ndongo Prospecting License showing local prospects

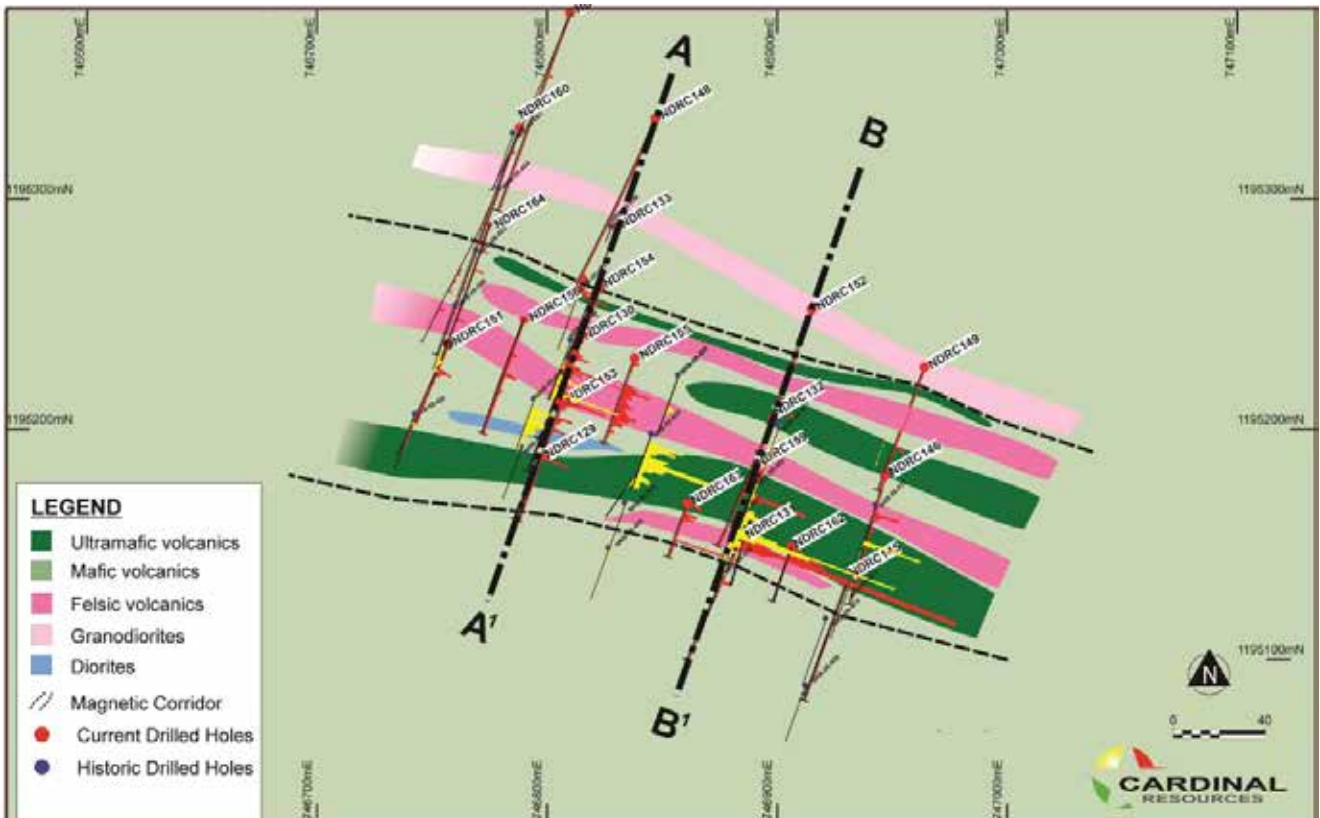


Figure 6: Prospect Zupeliga South - Plan View - Interpretive Geology and Location of Cross Section Lines  
(Yellow Histograms are Historical values drilled by Etruscan Resources Ghana Ltd)

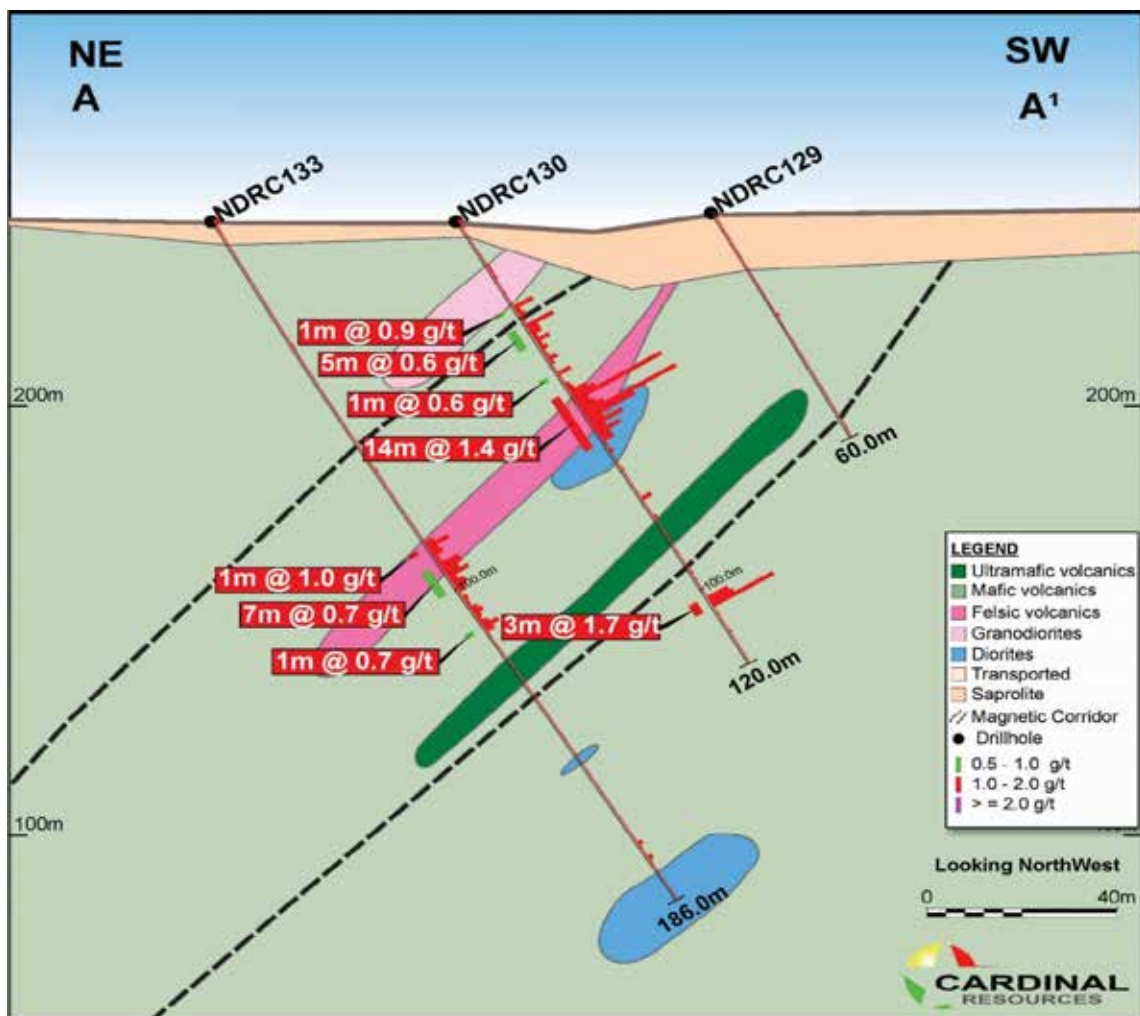


Figure 7: Prospect Zupeliga South - Cross Section (Section Line A-A')

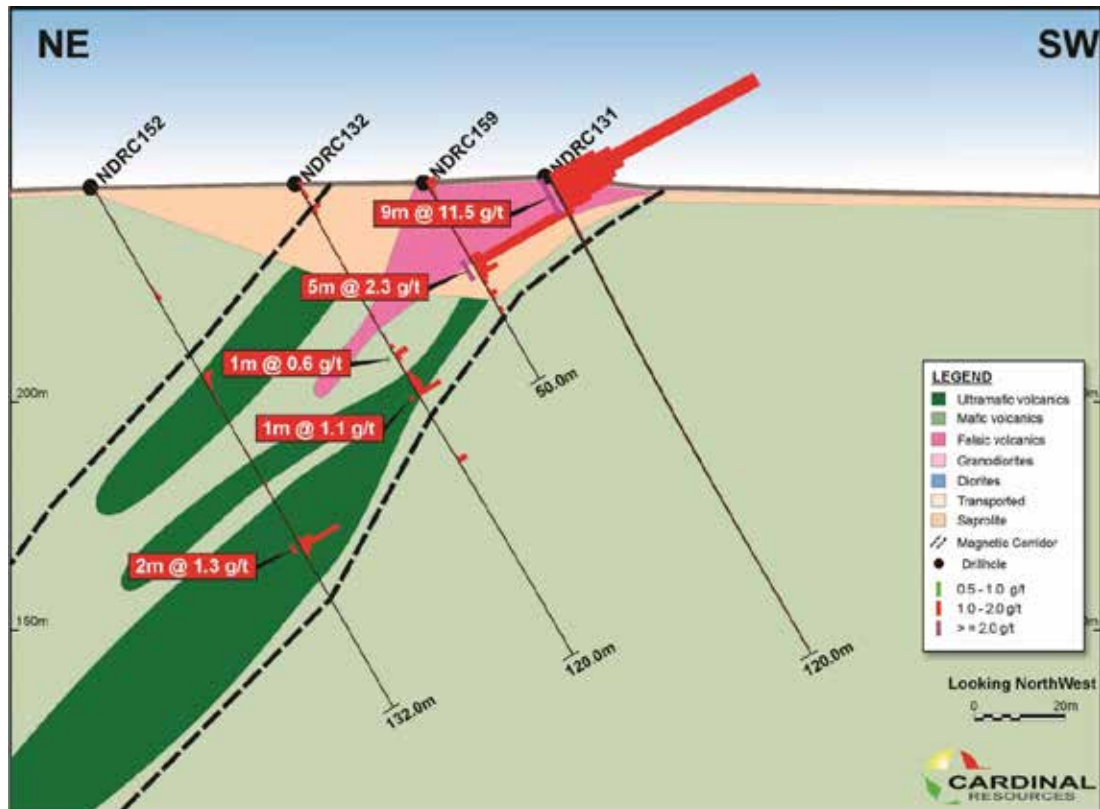


Figure 8: Prospect Zupeliga South - Cross Section (Section Line B - B1)

## ABOUT CARDINAL

Cardinal Resources Limited (ASX/TSX: CDV) is a gold-focused exploration and development Company which holds interests in tenements within Ghana, West Africa.

The Company's Namdini Project has an **Indicated Mineral Resource** of 6.5 Moz of gold contained in 180 Mt at 1.1 g/t Au at a cut-off of 0.5 g/t Au and an **Inferred Mineral Resource** of 0.5 Moz of gold contained in 13 Mt @ 1.2 g/t Au at a cut-off of 0.5g/t Au.

The Company is focused on the development of the Namdini Project through advancing its PFS studies, supported by additional multi-disciplinary engineering and metallurgical activities.

Exploration programmes are also continuing at the Company's Bolgatanga (Northern Ghana) and Subranum (Southern Ghana) Projects.

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### **Competent Person's / Qualified Person's Statement**

The information in this press release is based on information prepared by Mr. Paul Abbott, a full-time employee of Cardinal Resources, who is a member of the Geological Society of South Africa. Mr. Abbott has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and the activity which he is undertaking to qualify as a Competent Person, as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves".

The information in this press release has been compiled and reviewed by Mr. Richard Bray, a Registered Professional Geologist with the Australian Institute of Geoscientists and Mr. Ekow Taylor, a Chartered Professional Geologist with the Australasian Institute of Mining and Metallurgy. Mr. Bray and Mr. Taylor have more than five years' experience relevant to the styles of mineralisation and type of deposits under consideration and to the activity which is being undertaken to qualify as a Competent Person, as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" and as a Qualified Person as defined by the NI43-101 instrument. Mr. Bray and Mr. Taylor are full-time employees of Cardinal and hold equity securities in the Company. Mr. Bray and Mr. Taylor have consented to the inclusion of the matters in this report based on the information in the form and context in which it appears.

### **Disclaimer**

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This press release contains summary information about Cardinal, its subsidiaries and their activities, which is current as at the date of this press release. The information in this press release is of a general nature and does not purport to be complete nor does it contain all the information, which a prospective investor may require in evaluating a possible investment in Cardinal.

By its very nature exploration for minerals is a high-risk business and is not suitable for certain investors. Cardinal's securities are speculative. Potential investors should consult their stockbroker or financial advisor. There are a number of risks, both specific to Cardinal and of a general nature which may affect the future operating and financial performance of Cardinal and the value of an investment in Cardinal including but not limited to economic conditions, stock market fluctuations, gold price movements, regional infrastructure constraints, timing of approvals from relevant authorities, regulatory risks, operational risks and reliance on key personnel and foreign currency fluctuations.

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### **Forward-looking statements**

Certain statements contained in this press release, including information as to the future financial or operating performance of Cardinal and its projects may also include statements which are 'forward-looking statements' that may include, amongst other things, statements regarding targets, anticipated timing of the PEA on the Namdini project, estimates and assumptions in respect of mineral resources and anticipated grades and recovery rates, production and prices, recovery costs and results, capital expenditures and are or may be based on assumptions and estimates related to future technical, economic, market, political, social and other conditions. These 'forward – looking statements' are necessarily based upon a number of estimates and assumptions that, while considered



reasonable by Cardinal, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies and involve known and unknown risks and uncertainties that could cause actual events or results to differ materially from estimated or anticipated events or results reflected in such forward-looking statements.

Cardinal disclaims any intent or obligation to update publicly or release any revisions to any forward-looking statements, whether as a result of new information, future events, circumstances or results or otherwise after today's date or to reflect the occurrence of unanticipated events, other than required by the Corporations Act and ASX and TSX Listing Rules. The words 'believe', 'expect', 'anticipate', 'indicate', 'contemplate', 'target', 'plan', 'intends', 'continue', 'budget', 'estimate', 'may', 'will', 'schedule' and similar expressions identify forward-looking statements.

All forward-looking statements made in this press release are qualified by the foregoing cautionary statements. Investors are cautioned that forward-looking statements are not guarantees of future performance and accordingly investors are cautioned not to put undue reliance on forward-looking statements due to the inherent uncertainty therein.

**SCHEDULE 1  
NDONGO LICENSE AREA DRILL RESULTS**

Hole ID	Depth (m)	Dip	Azimuth	Grid_ID	mEast	mNorth	mRL
NDRC129	60	-61.4	201.6	WGS84_30N	746789.8	1195184.3	247.6
NDRC130	120	-59.9	202.0	WGS84_30N	746815.1	1195237.1	247.0
NDRC131	120	-62.6	202.1	WGS84_30N	746886.8	1195153.4	249.4
NDRC132	120	-61.3	202.2	WGS84_30N	746899.2	1195207.1	247.8
NDRC133	186	-60.8	200.5	WGS84_30N	746829.3	1195289.2	246.2
NDRC145	108	-60.4	200.0	WGS84_30N	746930.5	1195133.3	250.6
NDRC146	120	-59.1	196.3	WGS84_30N	746945.5	1195178.7	249.7
NDRC148	180	-61.1	203.2	WGS84_30N	746845.3	1195333.8	245.0
NDRC149	120	-59.9	199.8	WGS84_30N	746960.1	1195225.8	247.3
NDRC151	108	-61.0	203.9	WGS84_30N	746755.9	1195239.9	246.3
NDRC152	132	-59.3	200.8	WGS84_30N	746912.8	1195249.9	247.1
NDRC153	66	-60.0	203.0	WGS84_30N	746805.6	1195210.0	247.3
NDRC154	108	-60.0	205.1	WGS84_30N	746822.7	1195260.0	246.6
NDRC155	78	-59.5	198.8	WGS84_30N	746837.8	1195228.2	247.3
NDRC156	106	-60.9	201.3	WGS84_30N	746788.3	1195248.0	246.3
NDRC159	50	-59.5	200.8	WGS84_30N	746890.8	1195180.2	248.0
NDRC160	210	-60.2	202.2	WGS84_30N	746787.2	1195329.2	244.6
NDRC162	50	-60.5	199.7	WGS84_30N	746904.7	1195153.0	249.7
NDRC163	50	-59.7	199.6	WGS84_30N	746858.7	1195162.7	248.4
NDRC164	174	-59.4	199.6	WGS84_30N	746773.5	1195289.4	245.0

**Table 1: Meta-Data Listing of Drill Holes**

Hole_ID	mFrom	mTo	mWidth	Aug/t
NDRC130	23	24	1	0.9
NDRC130	28	33	5	0.6
NDRC130	41	42	1	0.6
NDRC130	46	60	14	1.4
NDRC130	102	105	3	1.7
NDRC131	0	9	9	11.5
NDRC132	43	44	1	0.6
NDRC132	53	54	1	1.1
NDRC133	88	89	1	1.0
NDRC133	93	100	7	0.7
NDRC133	110	111	1	0.7
NDRC146	35	36	1	2.2
NDRC148	152	157	5	0.6
NDRC148	162	168	6	1.1
NDRC149	77	78	1	0.9
NDRC151	24	27	3	0.8
NDRC152	90	92	2	1.3
NDRC153	12	14	2	1.0

Hole_ID	mFrom	mTo	mWidth	Aug/t
NDRC153	23	24	1	1.0
NDRC154	62	66	4	0.5
NDRC154	73	80	7	1.9
NDRC155	25	35	10	0.8
NDRC155	39	60	21	0.8
NDRC156	33	34	1	0.5
NDRC156	51	54	3	1.0
NDRC159	19	24	5	2.3
NDRC162	0	11	11	1.5
NDRC162	0	11	11	1.5
NDRC163	0	2	2	1.2
NDRC163	9	14	5	0.8
NDRC163	33	34	1	5.7
NDRC164	23	24	1	0.6
NDRC164	40	41	1	0.8
NDRC164	84	85	1	0.7

Table 2 Summary of Individual Intercepts

**Notes:**

- Cut-off grade for reporting of each individual intercept is  $\geq 0.5\text{g/t Au}$  with a maximum of 3m of consecutive internal dilution included within the intercept; only intercepts  $\geq 1\text{m}$  are reported.
- Intervals are RC chips which are sampled every 1m.
- Samples are analysed for Au (SGS Lab FAA505 method) which is a 50g fire assay fusion with AAS instrument finish.
- Grid coordinates are in WGS84 Zone 30 North.

The intercepts were calculated, using a  $0.5\text{g/t}$  cut-off, which approximates the cut-off for Reasonable Prospects of Eventual Economic Extraction ("RPEEE") as per the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves ("JORC Code") 2012 and the Canadian Institute of Mining ("CIM") 2010 guidelines and internal dilution of no more than 3m at  $<0.5\text{g/t Au}$ .

## APPENDIX 1

## JORC CODE 2012 EDITION

## TABLE 1 REPORTING OF EXPLORATION RESULTS

## Section 1 – Sampling Technique and Data

Criteria	JORC Code Explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	<p>Sampling is by reverse circulation (RC) holes.</p> <p>Nature and quality of sampling is carried out under QAQC procedures as per industry standards.</p> <p>Drilling samples are collected by a three-tier riffle splitter using downhole sampling hammers with nominal 127 to 140mm diameters.</p>
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	<p>Sampling is guided by Cardinal Resources protocols and Quality Control procedures as per industry standard.</p> <p>To ensure representative sampling, 1m RC samples are collected from a cyclone, passing them through a three-tier riffle splitter, and taking duplicate samples every 20<sup>th</sup> sample.</p>
	<p>Aspects of the determination of mineralisation that are Material to the Public Report.</p> <p>In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.</p>	<p>The determination of mineralisation is based on observed alterations and lithological differences.</p> <p>Drill samples are crushed through a RSD Boyd crusher to -2mm and pulverised via LM2 to a nominal 85% passing -75µm.</p> <p>A 200g sub-sample is taken for analysis. A 50g charge weight is fused with litharge-based flux, cupelled and the prill dissolved in aqua regia and gold tenor is determined by AAS.</p>
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	<p>Reverse circulation drilling uses sampling hammer of nominal 127 to 140mm diameter.</p> <p>The drill azimuths are orientated at 200°, drilling south-southwest at an inclined angle of -60° and the initial drilling has been concentrated around the anticlinal axis.</p> <p>All drill collars are surveyed using Trimble R8 RTK GPS with downhole surveying every 30m.</p>
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	The method of recording chip sample recoveries was to enter the relevant data on a hand-held Motion F5te Tablet PC using a set of standard templates supplied by Maxwell Geoservices, Perth (Maxwell).

Criteria	JORC Code Explanation	Commentary
		Reverse circulation sampling is good. Chips are logged, weighed and captured to the database. Sample recoveries are assessed by weighing 1m samples from the cyclone on a scale in the field and comparing with the theoretical volume contained in a 1m x 140mm diameter hole to calculate an estimated percentage sample recovery.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	At the rig, sampling systems are routinely cleaned to minimise the opportunity for contamination and drilling methods are focused on sample quality. The measures taken to maximize RC sample recovery are through a cyclone and a 3-tier riffle splitter. Each 1m sample is passed twice through the splitter before sampling to ensure maximum homogenisation of each sample and to collect an unbiased representative sample to be assayed.  The rigs have auxiliary compressors and boosters to help maintain dry samples. Where wet samples are encountered, the reverse circulation drilling is discontinued.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	No relationship is seen to exist between sample recovery and grade, and no sample bias due to preferential loss/gain of any fine/coarse material due to the acceptable sample recoveries
<b>Logging</b>	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	All drill holes are fully logged. The lithology, alteration and geotechnical characteristics of core are logged directly to a digital format on a Field Toughbook laptop logging system following procedures and using Cardinal geologic codes. Data is imported into Cardinal's central database after validation in LogChief™. All geological logging is to a level of detail to support Mineral Resource estimation.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is both qualitative and quantitative depending on the field being logged. RC chips in trays are photographed both in dry and wet form.
	The total length and percentage of the relevant intersections logged.	All holes are logged in full and to the total length of each drill hole.
<b>Sub-sampling techniques and sample preparation</b>	If core, whether cut or sawn and whether quarter, half or all core taken.	All samples in this announcement are non-core
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Samples are split using a three-tier riffle splitter. The majority of samples are dry. On occasions that wet samples are encountered, they are dried prior to splitting with a riffle splitter.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Samples are sorted and dried in an oven for eight hours and weighed. They are then crushed to -2mm using a RSD Boyd crusher and a <1.0kg split is taken. The reject sample is retained in the original bag and stored. The split is pulverised in a LM2 to a nominal 85% passing 75µm and a 200g sub-sample is used for analysis.  All preparation equipment is flushed with barren material prior to commencement of the job.

Criteria	JORC Code Explanation	Commentary
	<p>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</p>	<p>Cardinal Resources has protocols that cover the sample preparation at the laboratories and the collection and assessment of data to ensure that accurate steps are used in producing representative samples for the analytical process. Key performance indices include:</p> <ul style="list-style-type: none"> <li>• Contamination index of 95% (that is at least 95% of blanks pass); failures can only be attributed to probable minor laboratory contamination.</li> <li>• Crushed Size index of 95% passing 2mm (1:50 sample screened).</li> <li>• Grind Size index of 85% passing 75 microns (minimum 1:50 sample screened).</li> <li>• Check Samples returning at worst 20% precision at 90th percentile and bias of 5% or better.</li> </ul> <p>Crusher and pulveriser are flushed with barren material at the start of every batch.</p>
	<p>Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.</p>	<p>Sampling is carried out in accordance with Cardinal protocols as per industry best practice. Quality control procedures adopted for all sub-sampling stages to maximize representativeness of samples is to insert commercial certified reference material (CRM) for standards and blanks every 20 samples.</p> <p>The Laboratory assays duplicate samples of each sample batch (20%) so that representation of the samples can be checked. Field duplicates have been taken and analysis of results have shown the sampling to be representative</p>
	<p>Whether sample sizes are appropriate to the grain size of the material being sampled.</p>	<p>Measures taken to ensure that the RC sampling is representative of the in-situ material collected are to take field duplicate samples every 20<sup>th</sup> sample. Approximately 3kg samples from the splitter are retained from each sample and stored at the Company's secured premises for possible re-assay.</p> <p>Results of field duplicates, standards and blanks are all evaluated to ensure that the results of each assay batch are acceptable.</p>
<p><b>Quality of Assay data and laboratory tests</b></p>	<p>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</p> <p>For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</p>	<p>Samples are analysed for gold by lead collection fire assay of a 50g charge with AAS finish; the assay charge is fused with the litharge-based flux, cupelled and prill dissolved in aqua regia and gold tenor determined by flame AAS.</p> <p>The analytical method is considered appropriate for the mineralisation style and is of industry standards. The quality of the Fire Assaying and laboratory procedures are considered to be entirely appropriate for this deposit type.</p> <p>No hand held geophysical tools are used.</p>

Criteria	JORC Code Explanation	Commentary
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	<p>Sample preparation checks for pulp fineness are carried out by the laboratory as part of their internal procedures to ensure the grind size of 85% passing 75µm is being attained. Laboratories' QAQC involves the use of internal lab standards using CRMs and blanks.</p> <p>Cardinal's QAQC protocol is considered industry standard with CRMs submitted on a regular basis with routine samples. The CRMs having a range of values and blanks are inserted in the ratio of 1:20. Duplicates are taken at the riffle splitter every 20<sup>th</sup> sample.</p> <p>Pulps are submitted to a secondary laboratory for checks on accuracy and precision of the primary laboratory. Coarse rejects are submitted back to the primary laboratory to assess the adequacy of the sub-sampling process.</p>
<b>Verification of sampling and assaying</b>	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections have been verified by alternative company personnel.
	The use of twinned holes.	None of the drill holes in this report are twinned.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data are captured on field tough book laptops using LogChief™ Software. The software has validation routines and data is then imported onto a secure central database.
	Discuss any adjustment to assay data.	The primary data is always kept and is never replaced by adjusted or interpreted data.
<b>Location of data points</b>	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	<p>Planned drill hole collar coordinates are surveyed using handheld Garmin GPSmap 62s GPS within ±3m accuracy. All drill collars are accurately surveyed using Trimble R8 RTK GPS system within ±10mm of accuracy (X, Y, Z).</p> <p>Coordinates are based on six control stations established at the Ndongo License by Sahara Mining Services.</p> <p>Downhole survey is completed by using Reflex Ez-Shot survey instrument at regular intervals.</p>
	Specification of the grid system used.	Coordinate and azimuth are reported in UTM WGS84 Zone 30 North.
	Quality and adequacy of topographic control.	Topographic control at Ndongo was supplied by Southern Geoscience Consultants (Perth) using satellite imagery.
<b>Data spacing and distribution</b>	Data spacing for reporting of Exploration Results.	The drilling was carried out on four fence lines that are 50m to 100m apart with hole spacing on line within 50m testing mineralisation up to a vertical depth of approximately 180m and covering a strike length of 200m
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	Drill data spacing and distribution are insufficient to establish geological and grade continuity that are appropriate for reporting Mineral Resources and Ore Reserves.
<b>Orientation of data in relation</b>	Whether sample compositing has been applied.	No sample compositing has been applied.



Criteria	JORC Code Explanation	Commentary
<b>to geological structure</b>	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The drill holes are orientated to achieve intersection angles as close to perpendicular to the mineralisation as practicable based on ground magnetic modelling data.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	No significant orientation-based sampling bias is known at this time.
<b>Sample security</b>	The measures taken to ensure sample security.	<p>An independent Ghanaian security contractor is used to ensure sample security.</p> <p>The drilling contractor is accountable for drill core and RC chip production at the drill site. Final delivery from the drill site to the laydown area within the core yard is managed by Cardinal. The core yard technicians, field technicians and Geologists ensure the core and chips are logged, prepared and stored under security until collected for delivery to the laboratories.</p> <p>At the time of sample collection, a sign-off process between Cardinal and the laboratory delivery truck driver ensures that samples and paperwork correspond. The samples are then transported to the laboratory where they are receipted against the dispatch documents. The assay laboratories are responsible for the samples from the time of collection from Cardinal until final results are returned and checked by Cardinal Geologists.</p> <p>Sample pulps and coarse rejects are retained by the laboratories and are shipped back to Cardinal after final results are returned where they are stored under security.</p>
<b>Audits or reviews</b>	The results of any audits or reviews of sampling techniques and data.	Sampling techniques are of industry standards. Data is audited by Maxwell Geoservices (Perth), who have not made any other recommendations.

## Section 2 – Reporting of Exploration Results

(Criteria listed in section 1 will also apply to this section where relevant)

Criteria	JORC Code Explanation	Commentary
<b>Mineral Tenement and Land Status</b>	Type, name/reference number, location and ownership including agreements or material issues with third parties including joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Exploration Permit covering Cardinal's Ndongo Prospect is over an area of 295 sq. km located in the North-East region of Ghana.
	The security of the tenure held at the time of reporting along with any	All tenements are current and in good standing.

Criteria	JORC Code Explanation	Commentary
	known impediments to obtaining a license to operate in the area.	
<b>Exploration Done by Other Parties</b>	Acknowledgment and appraisal of exploration by other parties.	Aside from Cardinal, systematic exploration was previously undertaken on the Ndongo Licence by Etruscan Resources.
<b>Geology</b>	Deposit type, geological setting and style of mineralisation	<p>The deposit type comprises gold mineralisation within sheared and folded rocks containing sulphides; mainly pyrite with minor arsenopyrite.</p> <p>The geological setting is a Paleoproterozoic Greenstone Belt comprising Birimian metavolcanics, volcanoclastics and metasediments located along portion of the regional Bole-Bolgatanga Shear Zone and a splay off this Shear Zone (the Nangodi Shear Zone).</p> <p>The style of mineralisation is yet to be determined</p>
<b>Drill hole information</b>	<p>A summary of all information material to the understanding of the exploration results including tabulation of the following information for all Material drill holes:</p> <ul style="list-style-type: none"> <li>• Easting and northing of the drill hole collar</li> <li>• Elevation or RL (Reduced Level – elevation above sea level in meters) of the drill hole collar</li> <li>• Dip and azimuth of the hole</li> <li>• Down hole length and interception depth</li> <li>• Hole length</li> </ul>	A summary of drill hole information is provided in this document.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	There has been no exclusion of information.
<b>Data aggregation methods</b>	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	No weighting averaging techniques nor cutting of high grades have yet been undertaken.
	Where aggregated intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Aggregated intercepts incorporating short lengths of high grade results within the lithological units are calculated to include no more than intervals of 3m below grades of <0.5 g/t Au when assay results are reported.

Criteria	JORC Code Explanation	Commentary
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are used in the intersection calculation.
<b>Relationship between mineralisation widths and intercept lengths</b>	These relationships are particularly important in the reporting of exploration results.	The relationship between mineralisation widths and intercept length are not yet known.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	The geometry of the mineralisation with respect to the drill hole angle is not yet known.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	The geometry of the mineralisation is unknown; only downhole length is reported (no true width of mineralisation is reported).
<b>Diagrams</b>	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plane view of drill hole collar locations and appropriate sectional views.	Appropriate maps and cross-sections with scale are included within the body of the accompanying document.
<b>Balanced Reporting</b>	Where comprehensive reporting of all Exploration Results is not practical, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	The accompanying document is considered to represent a balanced report.
<b>Other substantive exploration data</b>	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observation; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	<p>Other exploration data collected is not considered material to this document at this stage.</p> <p>The interpretation of the geological observations shown in the cross and long sections are subject to possible change as new information is gathered.</p> <p>Further data collection will be reviewed and reported when considered material.</p>
<b>Further Work</b>	<p>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large – scale step – out drilling).</p> <p>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</p>	Further definition drilling and geophysical surveys are planned for the Ndongo Prospect.