

# NAMDINI GOLD PROJECT



**Investor Presentation**  
September 2017

**ASX / TSX: CDV**

# DISCLAIMER



## DISCLAIMER

This presentation contains “forward-looking statements”, within the meaning of Section 27A of the United States Securities Act of 1933, as amended and Section 21E of the United States Exchange Act of 1934, as amended and forward-looking information as defined under applicable Canadian securities legislation (collectively, “forward-looking statements”). These forward-looking statements relate to, among other things, the objectives, goals, strategies, beliefs, intentions, plans, estimates and outlook of Cardinal Resources. Ltd (“Cardinal Resources” or the “Company”). Forward-looking statements can generally be identified by the use of words such as “believe,” “anticipate,” “expect,” “intend,” “plan,” “goal,” “will,” “may,” “target,” “potential” and other similar expressions. In addition, any statements that refer to expectations, projections or other characterizations of future events or circumstances are forward-looking statements. Forward-looking statements are based on estimates and assumptions made by Cardinal Resources in light of its experience and perception of historical trends, current conditions and expected future developments, as well as other factors Cardinal Resources believes are appropriate in the circumstances. These estimates and assumptions are inherently subject to significant business, economic, competitive and other uncertainties and contingencies, many of which, with respect to future events, are subject to change. Although Cardinal Resources believes that the expectations reflected in such forward-looking statements are reasonable, undue reliance should not be placed on such statements.

In making the forward-looking statements in this presentation, Cardinal Resources has made several assumptions, including, but not limited to assumptions concerning: production costs; statements with respect to the future price of gold, the estimation of mineral reserves and resources, the realization of mineral reserve estimates, the timing and amount of estimated future production, costs of production, capital expenditures, costs and timing of the development of new deposits, success of exploration activities, permitting time lines, currency exchange rate fluctuations, requirements of additional capital, government regulation of mining operations, environmental risks, costs of closure of various operations and changes to the political stability or government regulation in the country in which Cardinal Resources operates .

Actual results may differ materially from those expressed or implied in the forward-looking statements contained in this presentation. Important factors that could cause actual results to differ materially from these expectations are discussed in greater detail under the heading “Risk Factors” in Cardinal Resource’s annual information form for the current year available on [www.sedar.com](http://www.sedar.com). When relying on forward-looking statements to make decisions with respect to Cardinal Resources, carefully consider these risk factors and other uncertainties and potential events. Cardinal Resources undertakes no obligation to update or revise any forward-looking statement, except as required by law.

Although Cardinal Resources has carefully prepared and verified the Mineral Resource figures presented herein, such figures are estimates, which are, in part, based on forward-looking information and no assurance can be given that the indicated level of gold will be produced. Estimated Mineral Resources may have to be recalculated based on actual production experience. Market price fluctuations of gold as well as increased production costs or reduced recovery rates and other factors may render the present Proven and Probable Mineral Reserves unprofitable to develop at a particular site or sites for periods of time.

# INVESTMENT HIGHLIGHTS

**Namdini gold deposit** – mineralised system currently measuring up to 350m in width and extending over 1km within the West African Birimian greenstones

**Mining Licence** – recently granted for a 15 year renewable term with environmental permitting in progress

**Mineral Resource** – 1<sup>st</sup> drill hole to maiden resource in 18 months - declared Nov 2016 and updated Sept 2017

**Resource expansion** – open at depth and along strike with drilling on-going

**Metallurgy** – testwork confirms conventional crush-grind-float-regrind-CIL circuit. Optimisation ongoing

**Infrastructure** – established roads, grid power and continuous water supply available - located nearby

**Community** – pre-existing, robust, long term relationships assists with rapid development objective

**Board and Management Team** – proven track record in African gold mining industry, in particular, Ghana

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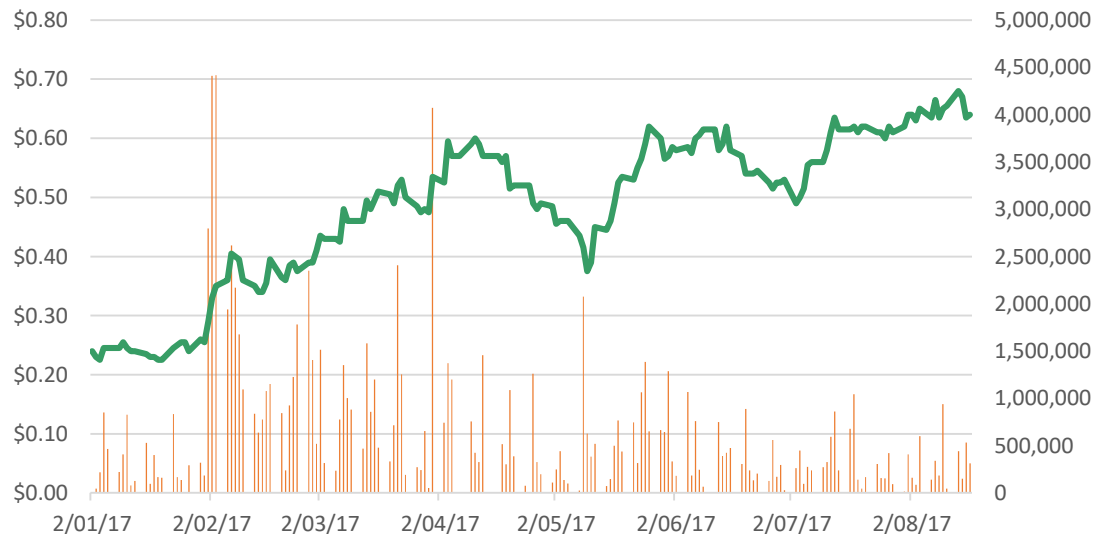


# CORPORATE SNAPSHOT

## Capital Structure

Current Share Price <sup>1</sup>	AUD	<b>\$0.60</b>
Shares on Issue <sup>2</sup>	#	<b>350 million</b>
Listed Options on Issue <sup>3,4</sup>	#	<b>115 million</b>
Market Capitalisation	AUD	<b>\$210 million</b>
Enterprise Value	AUD	<b>\$182 million</b>
Cash <sup>5</sup>	AUD	<b>\$28 million</b>

## Share Price (AUD) 1 Jan 2017 – Present



## Shareholders

Directors	<b>4.80%</b>
Bank of Nova Scotia - Dynamic Fund ( <i>Canada</i> )	<b>10.35%</b>
Van Eck Associates Corp ( <i>USA</i> )	<b>7.49%</b>
Gold Fields ( <i>Australia</i> )	<b>6.98%</b>
Royal Bank of Canada ( <i>Canada</i> )	<b>6.02%</b>
Sprott Asset Management LP ( <i>Canada</i> )	<b>4.98%</b>
Commonwealth Bank Australia ( <i>Australia</i> )	<b>4.77%</b>
US Global ( <i>USA</i> )	<b>4.00%</b>
Macquarie Bank – Metals & Mining ( <i>Australia</i> )	<b>3.64%</b>
Aga Nola - Precious Capital Global Mining and Metals Fund ( <i>Switzerland</i> )	<b>3.00%</b>

**Top 20 Shareholders** **~79% <sup>1</sup>**

**Top 40 Shareholders** **~87% <sup>1</sup>**

<sup>1</sup> As at 15 September 2017

<sup>2</sup> The Company also has 50 Class A Performance Shares and 60 Class C Performance shares on issue. All series, if converted, will total 11 million ordinary shares if certain milestones are achieved. Details of conversion milestones are provided in Cardinal's Annual Report

<sup>3</sup> The Company has 31,500,000 unlisted options on issue with various ex dates and ex various prices

<sup>4</sup> Exercise price of \$0.15, Expiry date 30 September 2019

<sup>5</sup> As at 30 June 2017.

# BOARD AND MANAGEMENT

## Board of Directors and Senior Management

Non-Executive Chairman <b>Kevin Tomlinson</b>	Investment banker and geologist. Former Director of Centamin and Orbis Gold. Current Chairman of Xanadu Mines and Director of Samco Gold, Plymouth Minerals
CEO / MD <b>Archie Koimtsidis</b>	Experienced project developer. Former Deputy Country Manager of Ghana for PMI Gold - Ghana (now Asanko Gold)
Executive Director <b>Malik Easah</b>	Experienced alluvial gold miner. Former Public Relations Officer at PMI Gold – Ghana (now Asanko Gold). Ghanaian citizen
Non-Executive Director <b>Robert Schafer</b>	Geologist. Past President of the Prospectors and Developers Association of Canada (PDAC). Current Director of the Canadian Mining Hall of Fame and National Mining Hall of Fame in the USA
Non-Executive Director <b>Mark Connelly</b>	Experienced project developer. Former MD of Papillon Resources and CEO of Endeavour Mining. Current Chairman of Tiger Resources, Director of Ausdrill
Non-Executive Director <b>Simon Jackson</b>	Chartered Accountant. Former VP Corp Dev and CFO of Red Back Mining, Chairman of Orca Gold and Director of Sarama Resources. Current MD of Beadell Resources
Project Manager <b>Bruce Lilford</b>	Metallurgist. Former Senior Study Manager at Amec Foster Wheeler

# NAMDINI RESOURCE

September 2017 – Resource Update

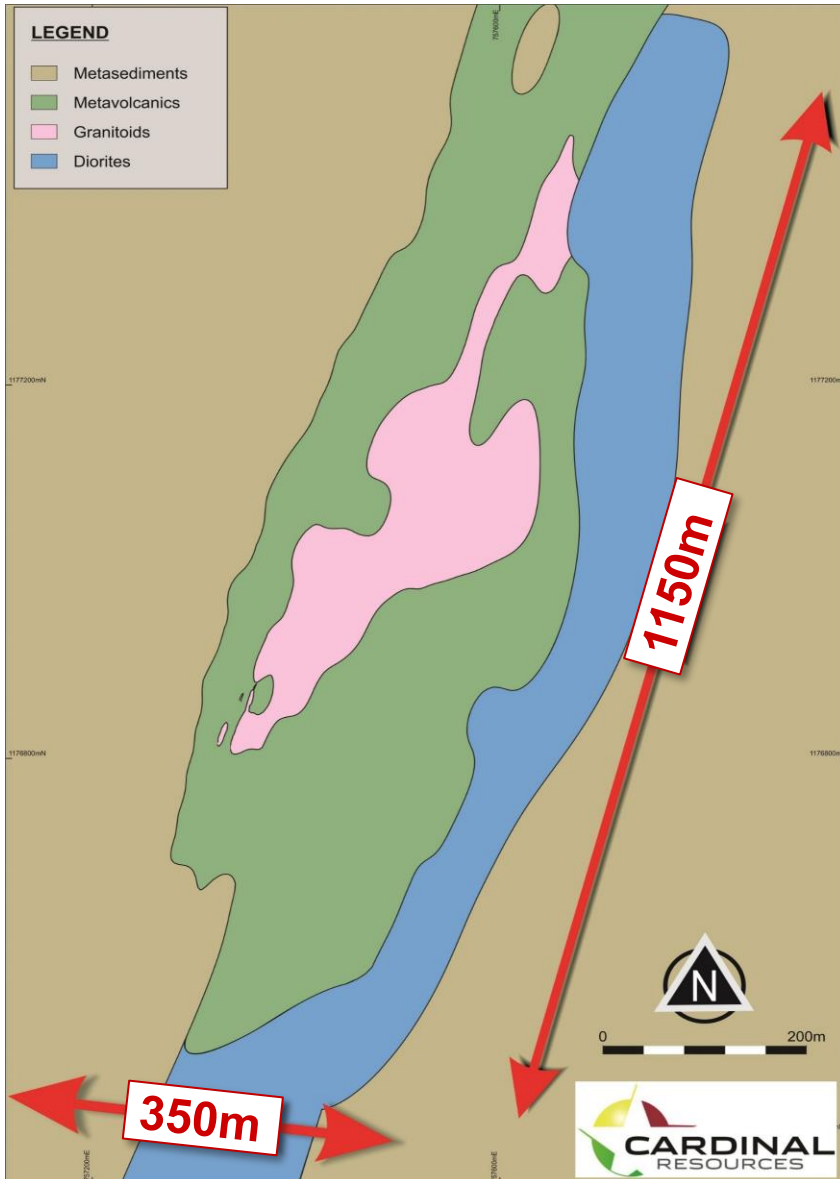
## Indicated Resource

Cut off (g/t Au)	Tonnes (Mt)	Grade (g/t Au)	Metal (Moz Au)
0.3	159	0.9	4.8
0.4	140	1.0	4.6
0.5	120	1.1	4.3
0.6	102	1.2	4.0
0.7	86	1.3	3.6

## Inferred Resource

Cut off (g/t Au)	Tonnes (Mt)	Grade (g/t Au)	Metal (Moz Au)
0.3	111	1.0	3.5
0.4	98	1.1	3.3
0.5	84	1.2	3.1
0.6	72	1.3	2.9
0.7	61	1.4	2.7

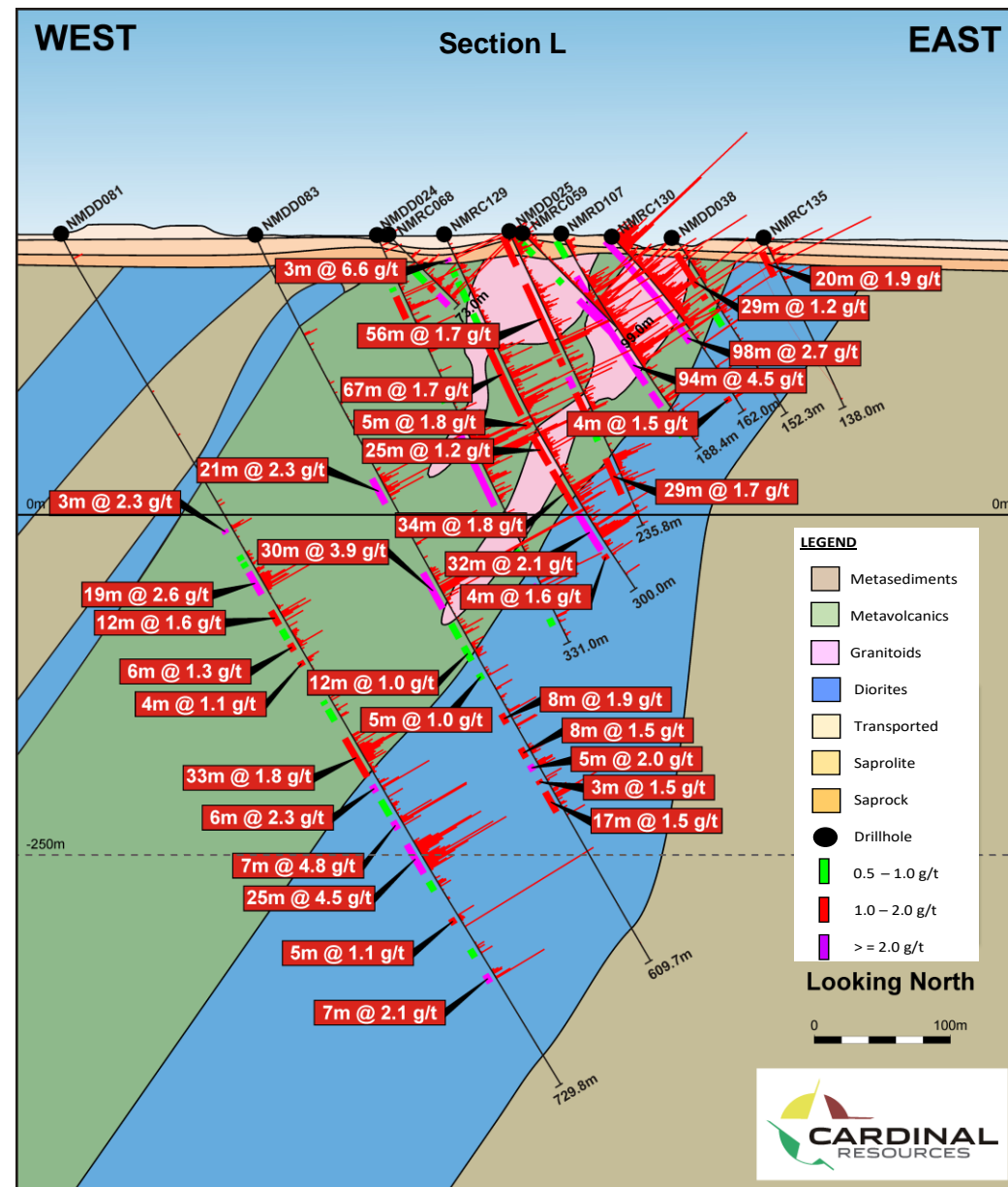
# NAMDINI GEOLOGY



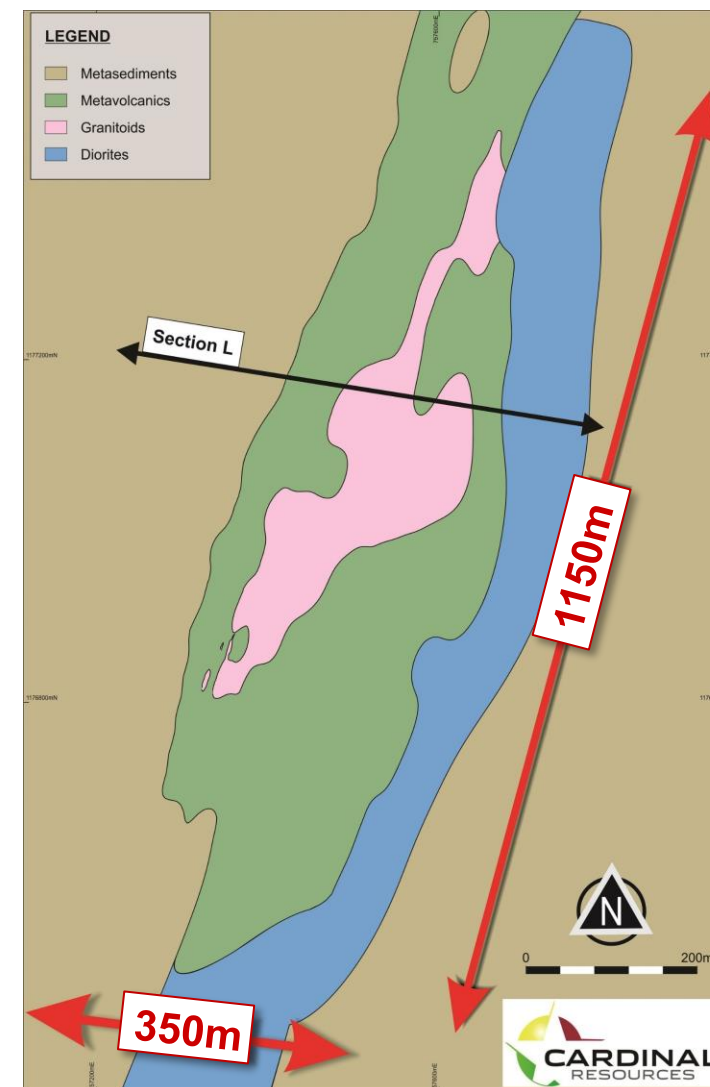
Namdini deposit plan view

- The Namdini deposit is hosted along the regional-scale Nangodi Shear zone which is spatially associated with the nearby Youga and Shaanxi gold mining operations
- Gold mineralisation is characterised by disseminated sulphides in sheared Birimian greenstones (metavolcanics intruded by granite & diorite)
- Namdini is a significant mineralised system of up to 350m in width, 650m in depth and extending over 1km in strike length

# NAMDINI GEOLOGY



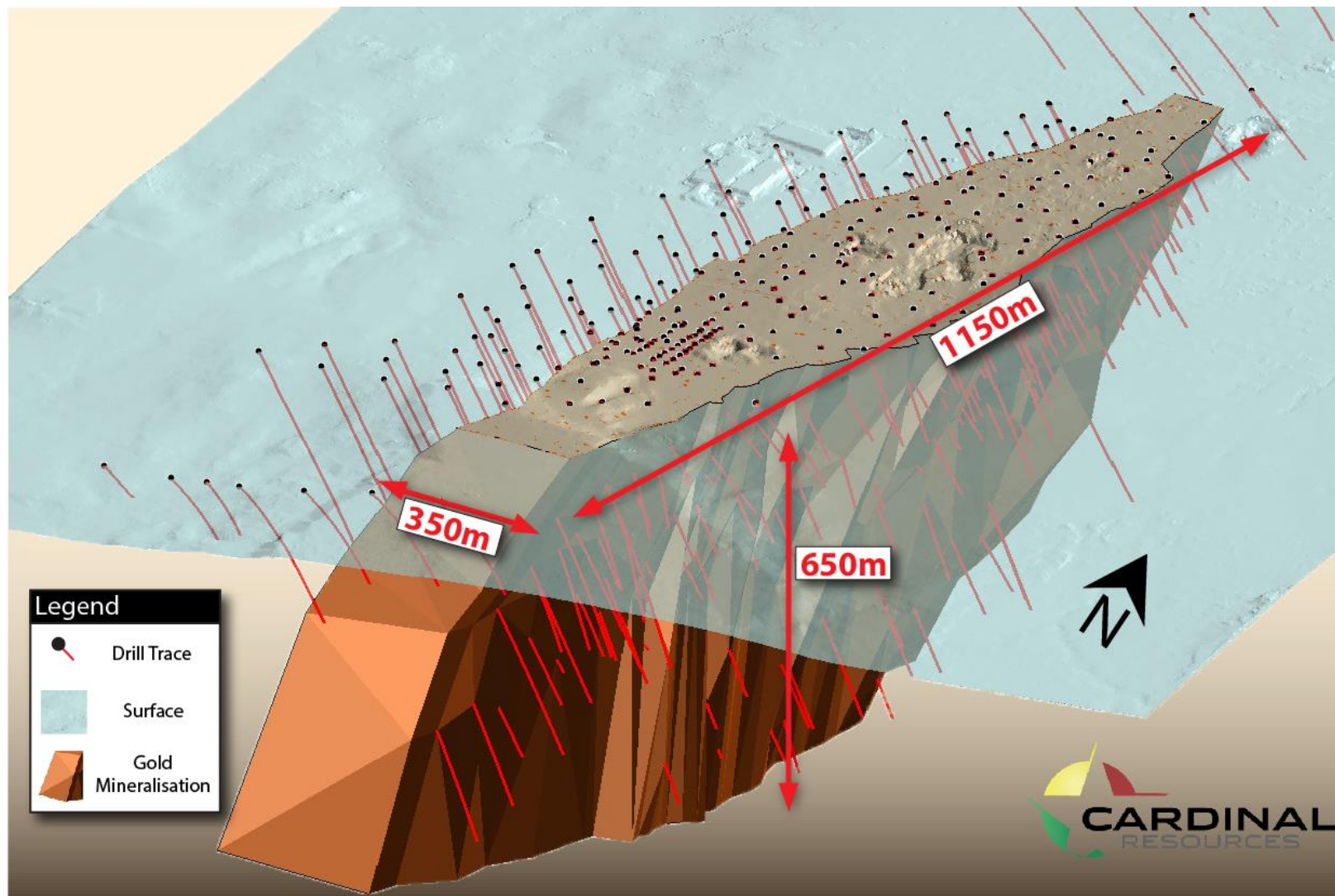
Namdini representative drill hole cross section



Namdini deposit plan view

# NAMDINI RESOURCE

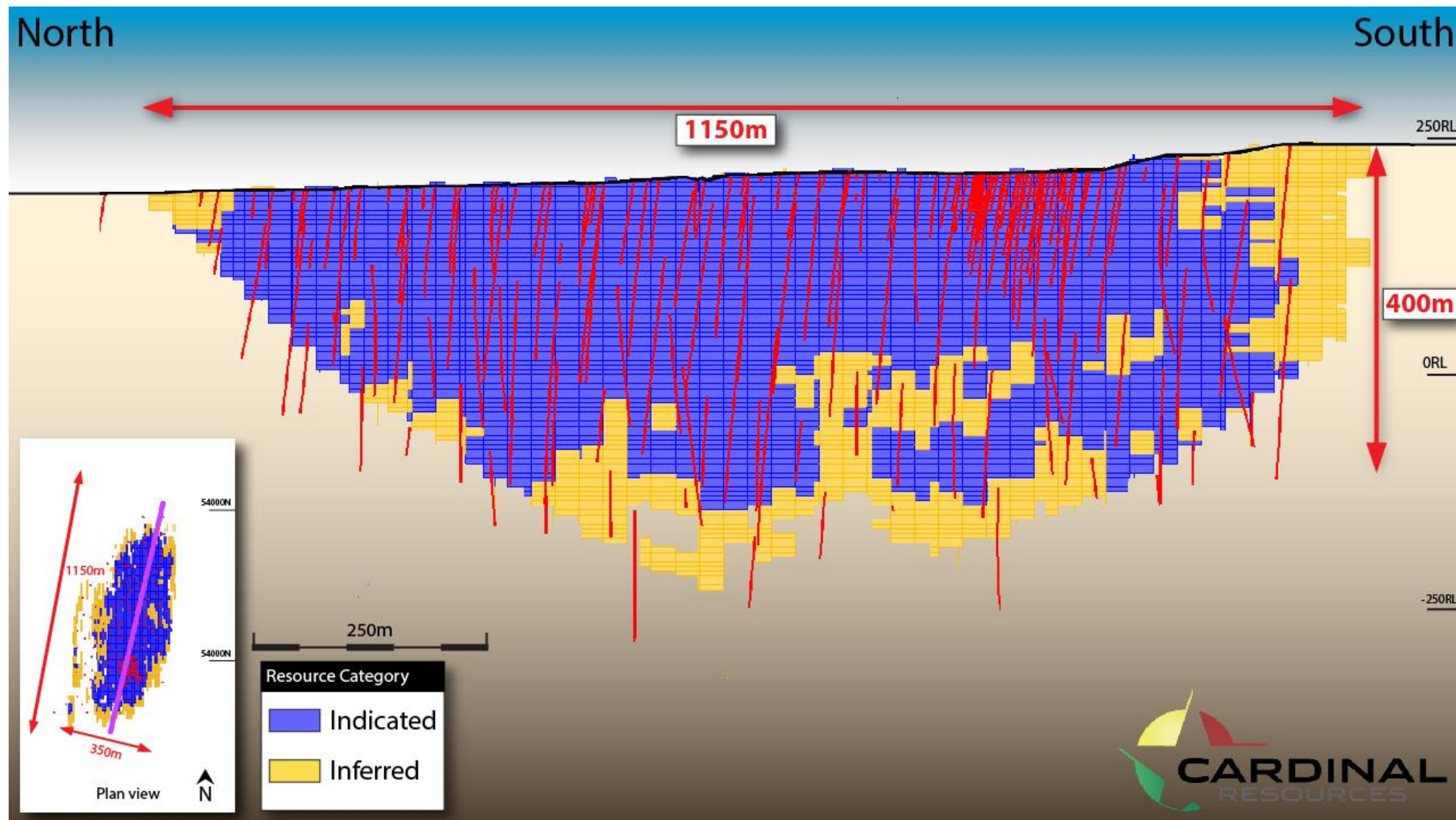
September 2017



Perspective view of the Namdini mineralized envelope

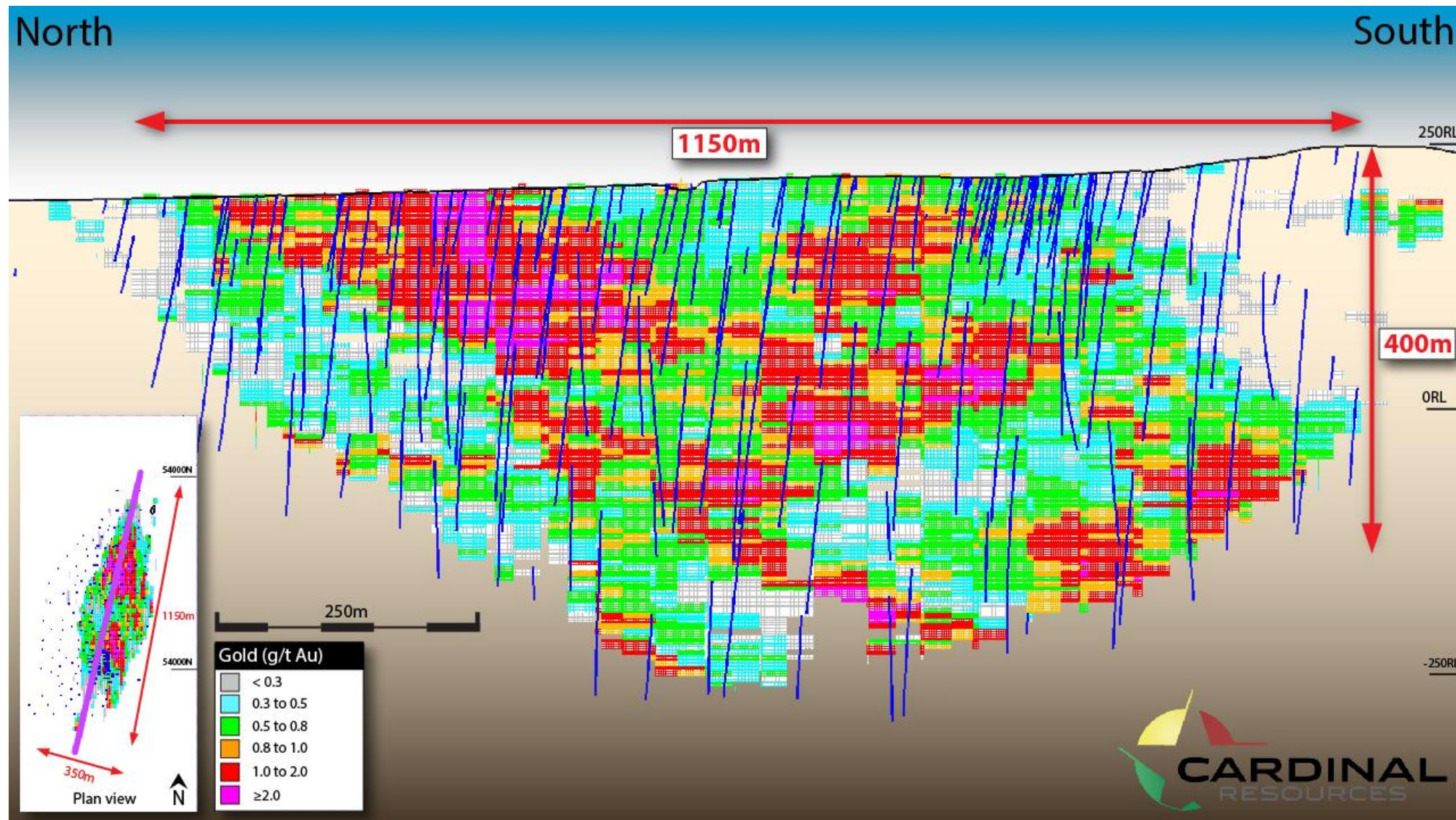
# NAMDINI RESOURCE

## Long Section – Indicated & Inferred



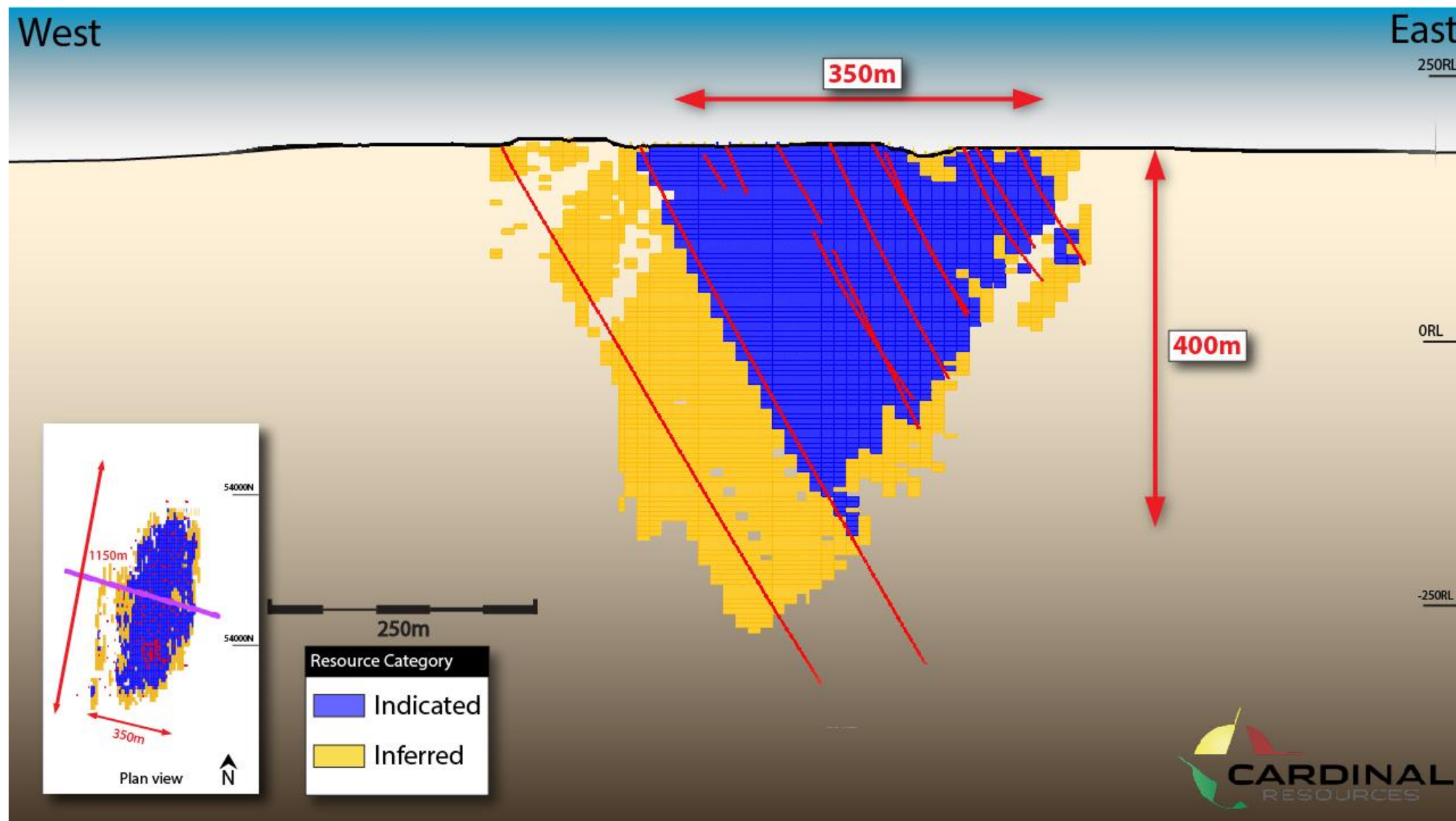
# NAMDINI RESOURCE

## Long Section – Grade Distribution



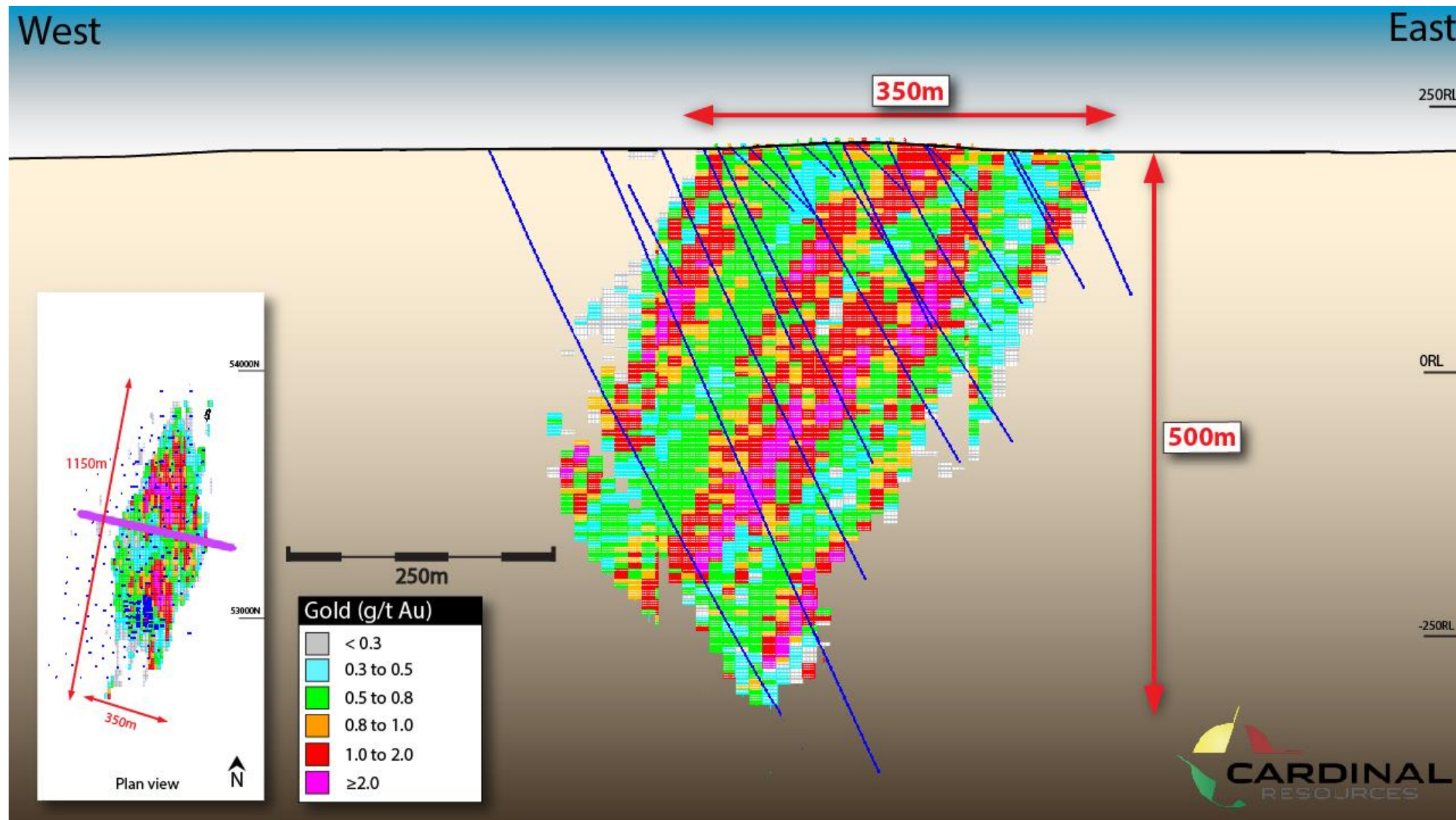
# NAMDINI RESOURCE

## Cross Section – Indicated & Inferred



# NAMDINI RESOURCE

## Cross Section – Grade Distribution



# NAMDINI PROJECT DEVELOPMENT

- Granted Mining Licence paves the way to production
- Large scale single open pit opportunity
- Anticipated low strip ratio
- Conventional processing flowsheet
- Local infrastructure
  - National HV power grid ~30km
  - Water supply ~7km
  - Sealed highway ~15km
- Low population density
- Open savannah grassland



Representative drill core

# NAMDINI PROJECT CONSULTANTS



## Mine Design



GEOTECH RESOURCE MINE RESERVES MINE DESIGN  
HYDROLOGY HYDROGEOLOGY

## Process Engineering



FLOWSHEET PROCESS DESIGN OPEX CAPEX DRAWINGS  
PROCESS INFRASTRUCTURE

## Tailings Design



TAILINGS DESIGN

## Resource Model



RESOURCE MODELLING

## ESIA



ENVIRONMENTAL SOCIAL IMPACT ASSESSMENT AND  
PERMITTING

## Metallurgical Consultant



TESTWORK PROGRAMME DEVELOPMENT AND  
CONSULTING

## Oxide Testwork



OXIDE METALLURGICAL TESTWORK

## Fresh Rock Testwork



FRESH ROCK METALLURGICAL TESTWORK - AUDITS

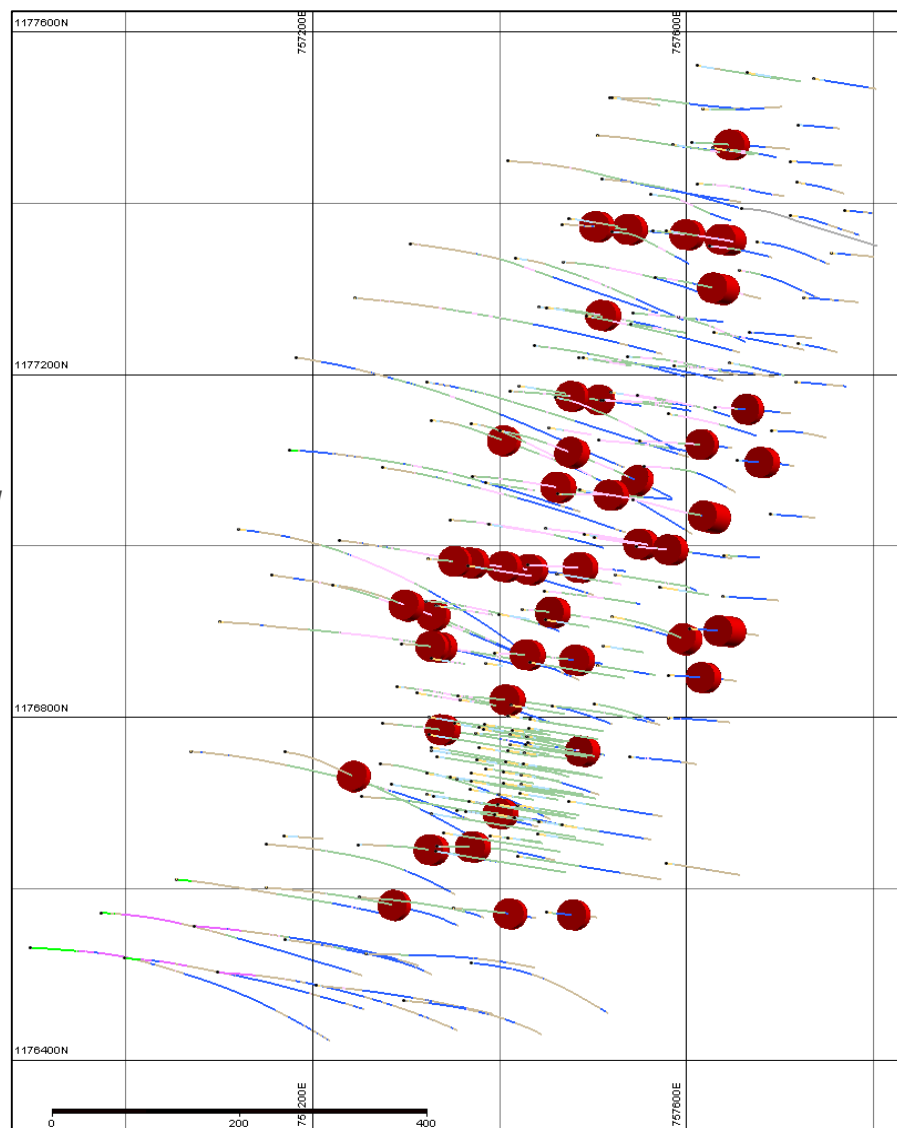
## Comminution Design



COMMUNITION DESIGN AND CONSULTING

# NAMDINI METALLURGY

Optimisation ongoing

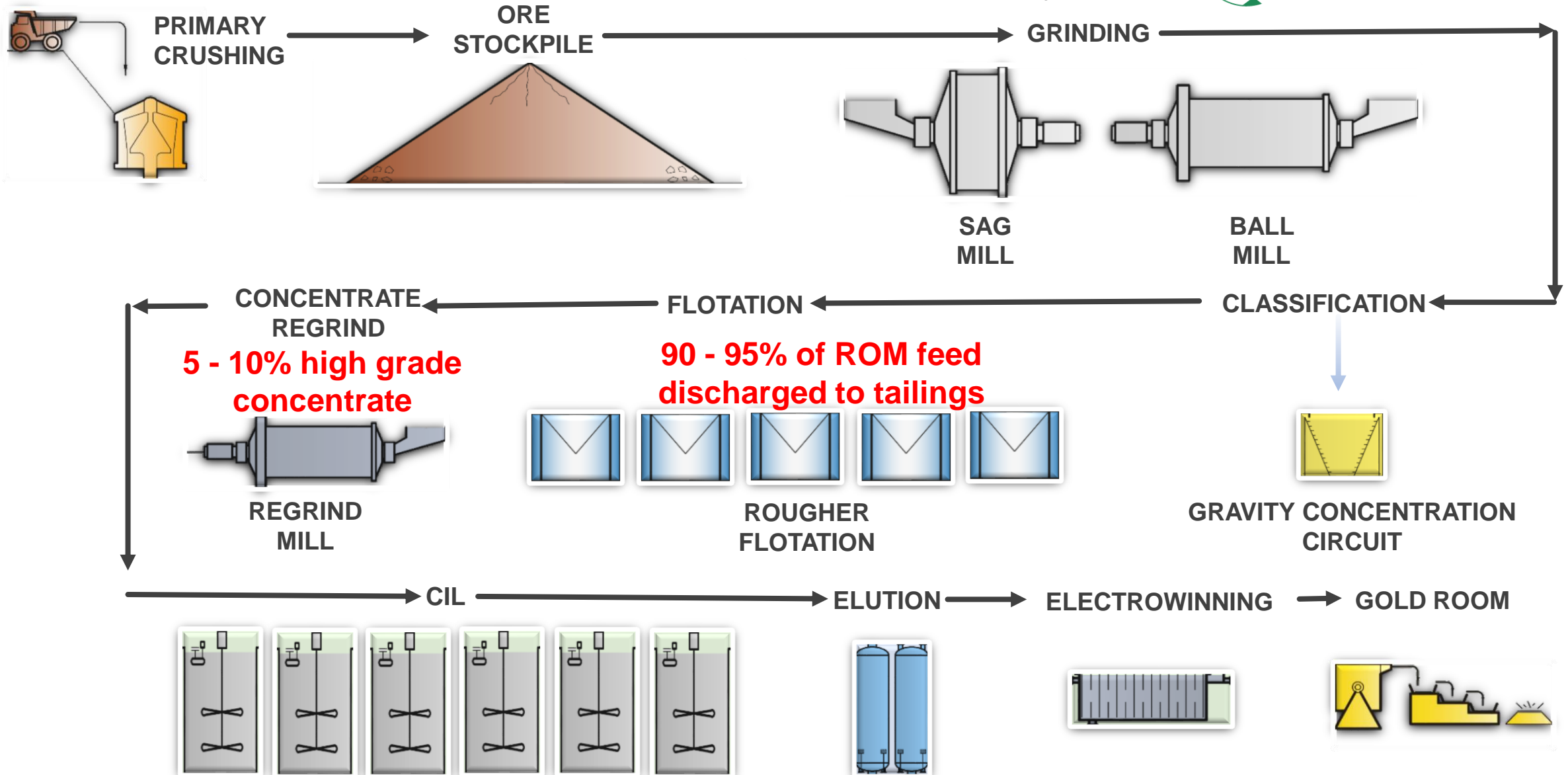


Life of Mine sample locations

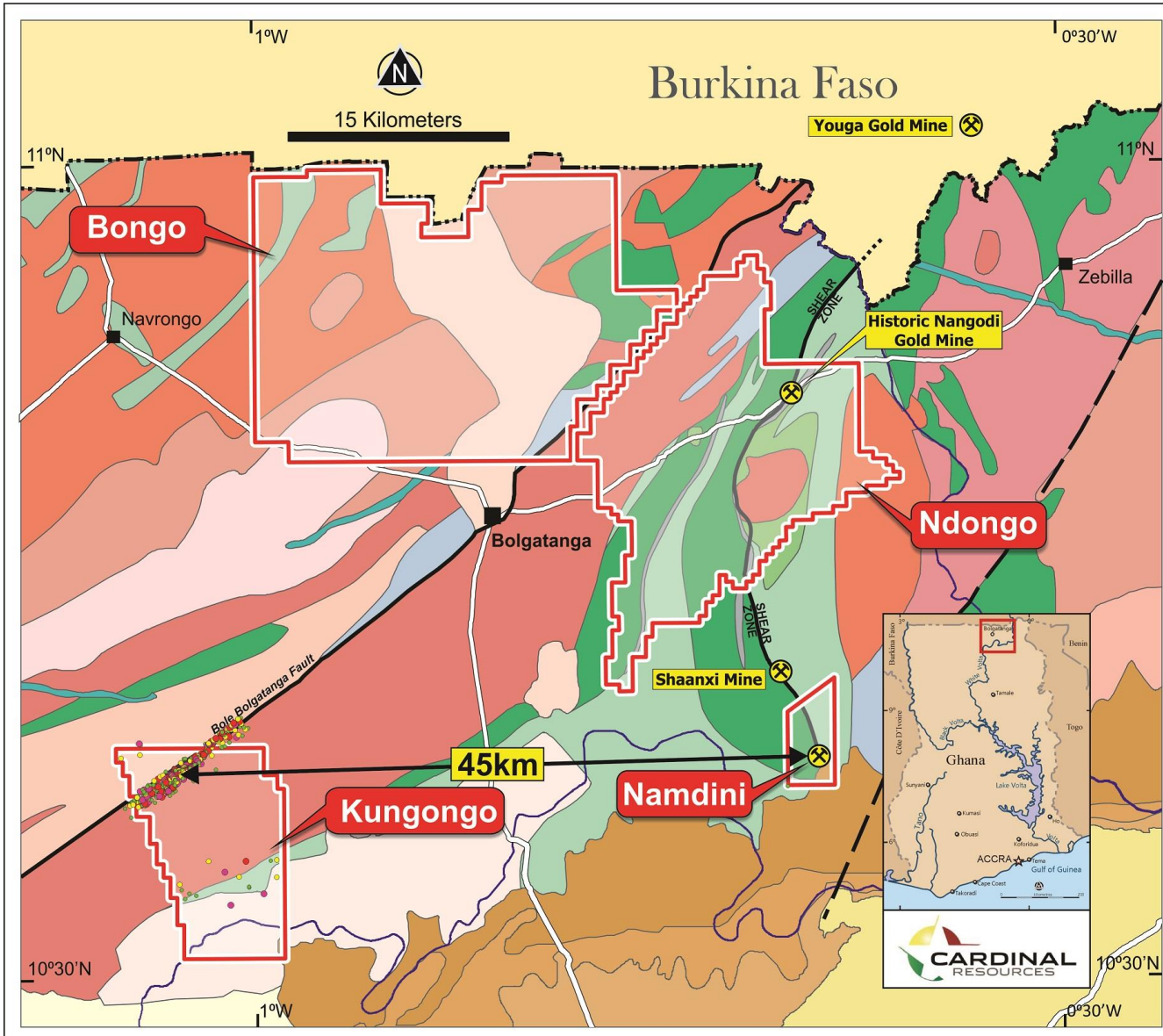
- Life of Mine metallurgical testwork:
  - Initial overall gold recovery of **86%**  
optimisation is on-going
  - Conventional crush-grind-float-regrind-CIL circuit
- Oxide zone cyanide leach gold recoveries of **>90%**
- Flotation gold recoveries of **>95%**
- Ultrafast flotation time – **<10 minutes**
- **5 - 10%** of total throughput requires processing to produce gold doré bars on site
- Treatment cost expected to be low due to low volumes of flotation concentrate to be processed
- Moderate SAG & Ball mill comminution characteristics
  - (BWI: 14.9 kWh/t, SPI: 8.8-9.6 kWh/t)

# CONCEPTUAL PROCESS FLOWSHEET

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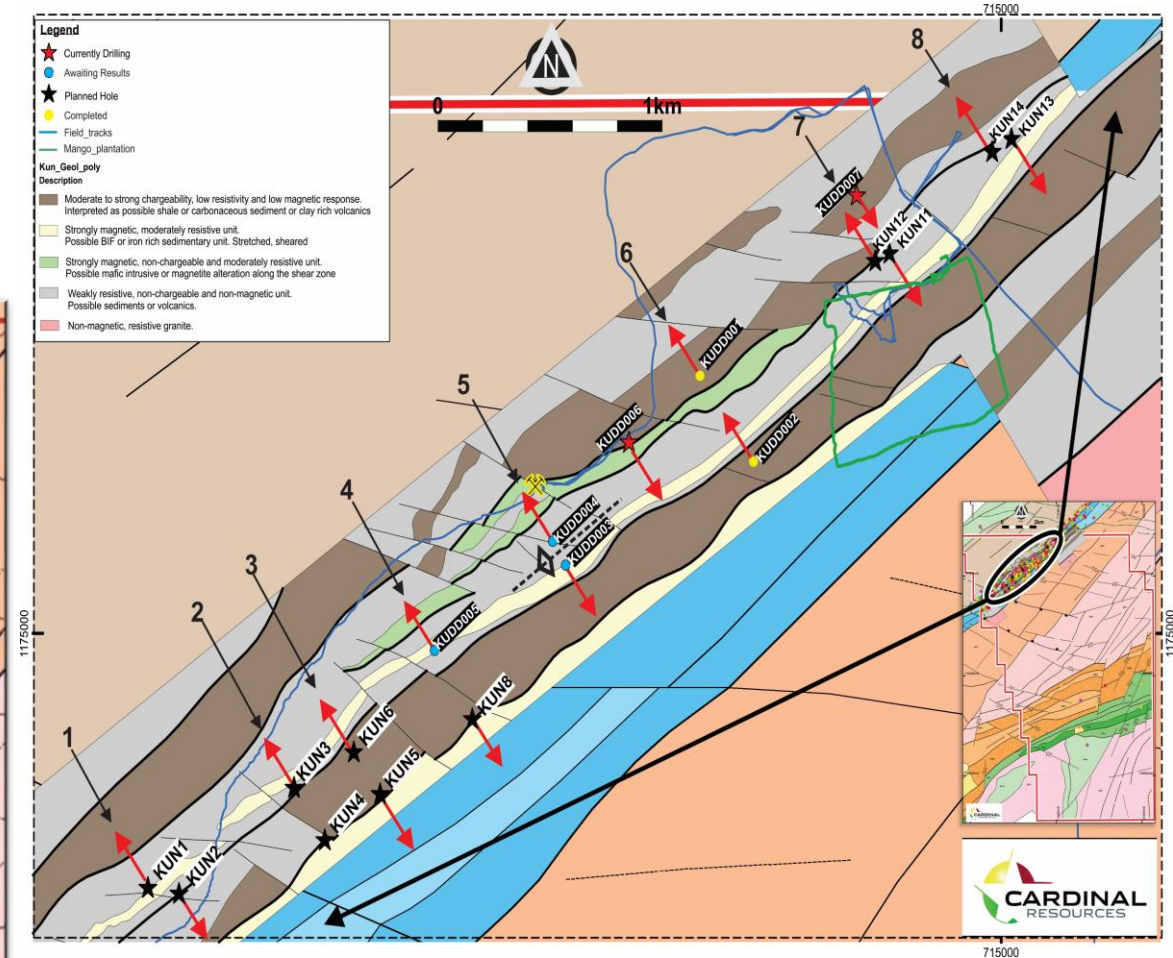
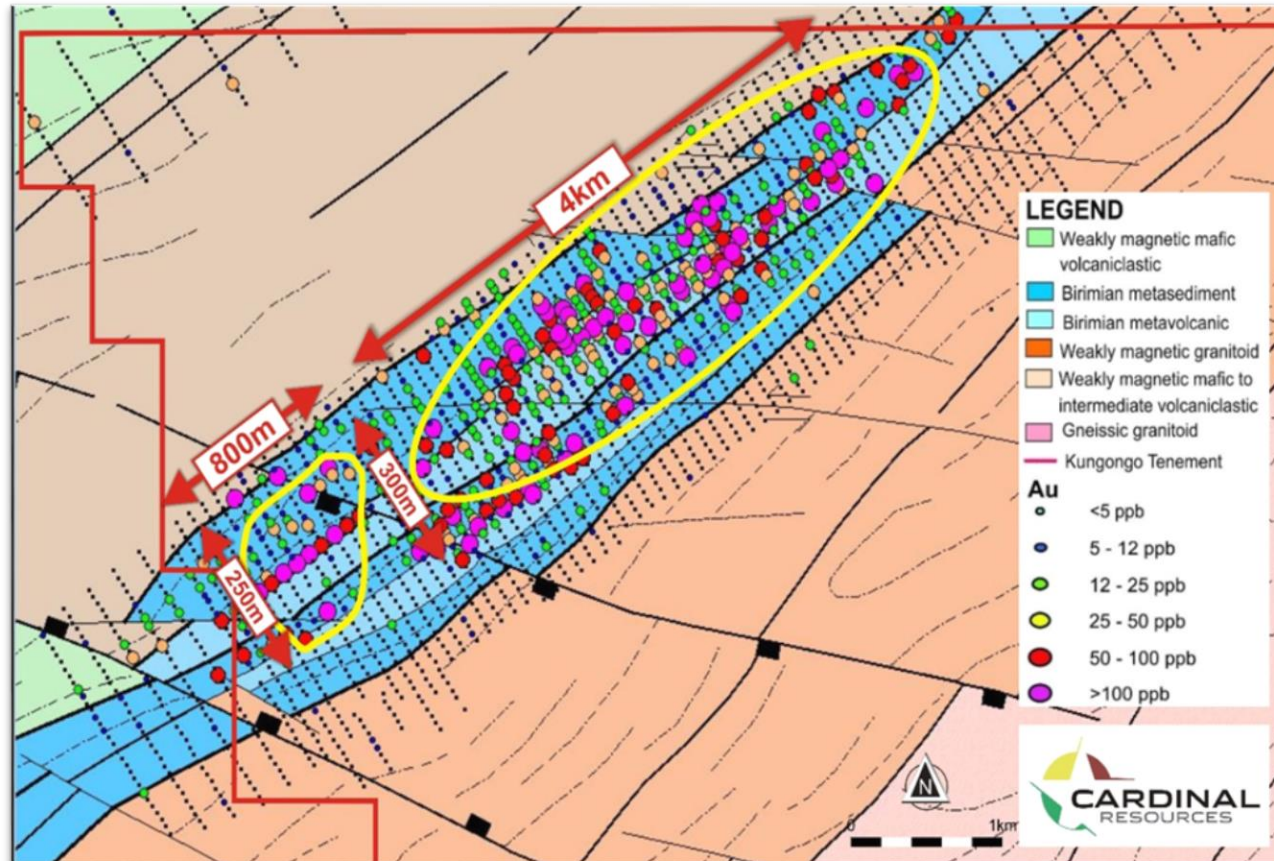
# REGIONAL EXPLORATION



- **Region** - Land holding ~900 km<sup>2</sup>
- **Ndongo** – RC scout drilling programme commenced
- **Ndongo** – Auger soil and ground magnetics underway
- **Ndongo** - Historic gold mine located on the same regional shear as Namdini gold deposit
- **Bongo** – Auger soil results being evaluated
- **Kungongo** – Reconnaissance diamond drill programme underway

# KUNGONGO AUGER SOIL ANOMALY

- Significant auger gold-in-soil anomalies discovered on Cardinal's Kungongo Prospect
  - 4.2 km x 300m auger gold-in-soil anomaly identified.
  - 800m x 250m auger gold-in-soil anomaly identified.
- Soil anomalies coincide with ground geophysics



- Diamond Drill hole programme commenced to test priority soil anomalies
- 24 drill holes over 8 lines approximately 1km apart

# NEXT STEPS

## Drilling

- Resource – grade control – geotechnical – sterilisation and regional exploration drilling underway with 13 drill rigs working 24/7

## Regional Exploration

- Drill results being evaluated:
  - Namdini strike extensions
  - Kungongo
  - Bongo
  - Ndongo
- Subranum Project – planned confirmation twin hole drilling





**THANK YOU**

# APPENDIX: Competent Person's Statement & Disclaimer



## QUALIFIED PERSON - COMPETENT PERSON'S STATEMENT

**Mr. Marc LeVier** of K. Marc LeVier & Associates, Inc., is a 'qualified person' as defined by National Instrument 43-101 - Standards of Disclosure for Mineral Projects ("NI43-101"). Mr. LeVier holds a Qualified Professional status from the Mining and Metallurgical Society of America. Mr LeVier has reviewed and approved the metallurgical information contained in this presentation has been reviewed and approved.

**Mr. Richard Bray** is a Registered Professional Geologist with the Australian Institute of Geoscientists. Mr Bray has compiled the information in this presentation that relates to the Exploration Results and Mineral Resources. Mr. Bray has more than 5 years' experience relevant to the styles of mineralisation and type of deposit 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 is a fulltime employee of Cardinal Resources Limited and holds equity securities in the Company. Mr. Bray has consented to the inclusion of the matters in this report based on the information in the form and context in which it appears.

**Mr. Ekow Taylor** is a Chartered Professional Geologist with the Australasian Institute of Mining and Metallurgy. Mr Taylor has compiled the information in this presentation that relates to the Exploration Results and Mineral Resources. Mr. Taylor has more than 5 years' experience relevant to the styles of mineralisation and type of deposit 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. Taylor is a fulltime employee of Cardinal Resources Limited and holds equity securities in the Company. Mr. Taylor has consented to the inclusion of the matters in this report based on the information in the form and context in which it appears.

## NO NEW INFORMATION

This Presentation contains information extracted from ASX and TSX market announcements reported in accordance with the JORC Code (2012) and NI 43-101 and available for viewing at [www.cardinalresources.com.au](http://www.cardinalresources.com.au)

Cardinal Resources Limited ("Cardinal" or the "Company") confirms that it is not aware of any new information or data that materially affects the information included in any original ASX market announcements carried out at the Company's projects and that all material assumptions and technical parameters underpinning the exploration activities and estimates of Mineral Resources in the relevant market announcements continue to apply and have not been materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

Please also refer to the Company's Annual and Quarterly Reports for further background information which are available on the Company's website.