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171,894,772

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6,690,000

Options
4,000,000

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Kalgoorlie Nickel Project Mineral Resource Estimate Exceeds 6 Million Tonne Contained Nickel

Ardea Resources Limited (**Ardea** or the **Company**) is pleased to present an updated JORC Code (2012) compliant Mineral Resource Estimate (**MRE**) for the Goongarrie Hub nickel-cobalt deposits within the Kalgoorlie Nickel Project (**KNP**).

The KNP global Mineral Resource Estimate (using a 0.5% Ni cut-off grade) now stands at **854Mt at 0.71% Ni and 0.045% Co for 6.1Mt of contained nickel and 386kt of contained cobalt** (see below table).

Table 1 - KNP Global MRE summary table

Camp	Resource Category	Size (Mt)	Ni (%)	Co (%)	Contained Metal Ni (kt)	Contained Metal Co (kt)
KNP TOTAL	Measured	22	0.94	0.079	207	17
	Indicated	361	0.73	0.047	2,622	169
	Inferred	471	0.70	0.043	3,272	200
GRAND TOTAL	***Combined***	***854***	***0.71***	***0.045***	***6,101***	***386***

Note: 0.5% nickel cutoff grade used to report resources. Minor discrepancies may occur due to rounding of appropriate significant figures.

The KNP is owned 100% by Ardea and the Goongarrie Hub is undergoing a Prefeasibility Study (**PFS**) for an open pit mining operation feeding a 3Mtpa High Pressure Acid Leach (**HPAL**) and 0.5Mtpa Atmospheric Leach (**AL**) circuit using proven technology to produce Mixed Hydroxide Product (**MHP**) for the Lithium Ion Battery (**LIB**) sector. The technical work streams of the PFS have now been completed, and is undergoing a final review by the Competent Persons. Upon finalisation and sign off, expected to be in early July, Ardea will release the PFS by announcement on the ASX.

The Goongarrie Hub is a subset within the KNP. The deposits within the Goongarrie Hub that were considered in the PFS comprise from south to north on the Goongarrie Line the Scotia Dam (**SD**), Big Four (**BF**), Goongarrie South (**GS**), and Goongarrie Hill (**GH**) deposits, as well as the satellite deposits Highway (**HW**) and Siberia North (**SN**). Other Goongarrie Hub deposits (Ghost Rocks, Siberia South and Black Range) have at this stage not been included in the PFS (Figure 1).

As part of the PFS, the Goongarrie Hub MRE was re-evaluated to consider the Mineralised Neutraliser (**MN**) that is captured in optimised open pits, with a grade of less than the 0.5% nickel MRE reporting grade. As once this material has been screened, the coarse magnesium rich magnesite saprock has been demonstrated to be a viable source of neutraliser and the fine goethite rich fraction a viable source of AL feed (ASX releases 16 November 2022 and 15 June 2023).

A key component of the PFS for the KNP Goongarrie Hub has been focussed on Material Types to allow the nickel-cobalt mineralisation to be variously matched to the High-Pressure Acid Leach (**HPAL**), Atmospheric Leach (**AL**) and MN circuits, maximising resource utilisation for a well understood and proven flowsheet.

Ardea's Managing Director and CEO Andrew Penkethman noted:

"The Kalgoorlie Nickel Project Goongarrie Hub Prefeasibility Study technical work streams are completed, with final sign-off shortly by the various contributors.

Whilst completing the open pit optimisations of the resource models, it was apparent that additional tonnes of nickel-cobalt bearing Mineralised Neutraliser below the 0.5% nickel reporting grade would be recovered within the mine plan.

This extra neutralising material contributes additional project value through its Magnesite component being used in the leaching circuit for acid neutralisation, to which it adds nickel-cobalt units at nil cost. Additionally, the Mineralised Neutraliser Fines component contribute to the nickel-cobalt production as the dominant feed for the Atmospheric Leach circuit. This excellent R&D outcome is protected with an international patent application recently lodged (ASX release 15 June 2023)."

1. LOCATION & BACKGROUND

The Goongarrie Hub is located 70km northwest from the world-renowned mining centre, the City of Kalgoorlie-Boulder, along established road and rail infrastructure (Figure 1).

Goongarrie is Ardea's most advanced project within the broader KNP. The Goongarrie Hub includes the Goongarrie deposits from south to north, Scotia Dam, Big Four, Goongarrie South and Goongarrie Hill, along with Highway some 30km to the north and Siberia North, approximately 30km to the southwest (Figure 1). These six deposits are the main source of plant feed for the PFS currently being finalised.

All Goongarrie Hub mineral resources are located on granted mining leases with Native Title Agreement in place and tenure 100%-controlled by Ardea.

Additional future Goongarrie plant feed is expected to also be sourced from Ghost Rocks, Siberia South and Black Range (Figure 1), but these deposits were not required to complete the PFS, given the very large proximal resource base already available.

The entire KNP is characterised by excellent availability of road and rail infrastructure for reagent and product logistics and ore haulage from satellite deposits.

A major project advantage is proximity to Australia's premium mining services centre being the City of Kalgoorlie-Boulder with its 130-year mining history.

The main purpose of this Mineral Resource update is to classify this Mineralised Neutraliser as part of the Mineral Resource Estimate, so that this material can be available for inclusion in the Ore Reserve in the upcoming PFS.

The total Kalgoorlie Nickel Project Mineral Resource Estimate with the inclusion of all mined MN is now 854Mt at 0.71% Ni and 0.045% Co for 6.1Mt of contained nickel and 386kt of contained cobalt.

This is a world-significant nickel-cobalt asset within an infrastructure-rich location, within the best mine operating jurisdiction in the world.

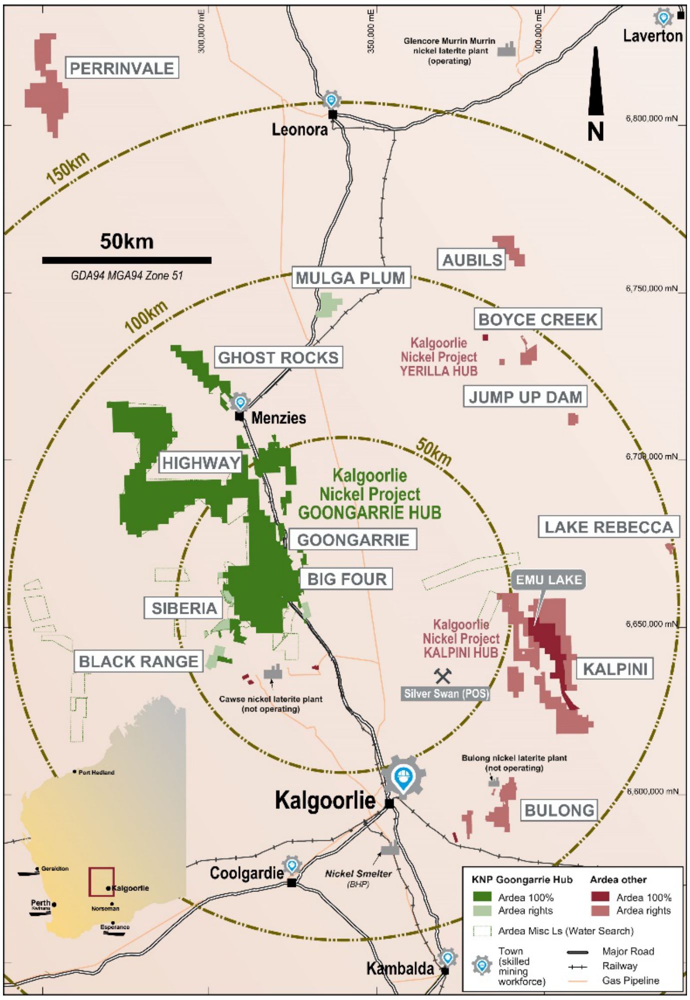

Figure 1 - The Kalgoorlie Nickel Project (KNP) location plan. Projection: GDA94 MGA Zone 51.

2. MINERALISED NEUTRALISER RESOURCE

The current Goongarrie Hub 0.5% Ni cut-off MRE being evaluated as part of the PFS is summarised below. This MRE includes Mineralised Neutraliser (**MN**) but only where it exceeds a 0.5% Ni cut-off.

	Goongarrie Hub PFS subset MRE based on 0.5% Ni cut-off grade
Measured Indicated & Inferred MRE	**437Mt at 0.71% Ni and 0.042% Co** Contained metal **3,083kt nickel and 184kt cobalt**

Notes All tonnages and grades are rounded with two-digit precision for nickel and three-digit precision for cobalt.

In addition to this MRE, the following MN below the 0.5% nickel reporting grade has been defined within optimised pit shells designed as part of the PFS.

	Goongarrie Hub PFS subset Mineralised Neutraliser Material below 0.5% Ni cut-off grade
Measured Indicated & Inferred MRE	**38Mt at 0.37% Ni and 0.017% Co** Contained metal **144kt nickel and 6kt cobalt**

Notes All tonnages and grades are rounded with two-digit precision for nickel and three-digit precision for cobalt.

This extra neutralising material contributes additional project value through its Magnesite component being used in the leaching circuit for acid neutralisation, to which it adds nickel-cobalt units at nil extra cost. Additionally, the Mineralised Neutraliser Fines component contribute to the nickel-cobalt production as the dominant feed for the Atmospheric Leach circuit.

The current PFS optimisation is based on two 1.5Mtpa HPAL autoclaves, along with 0.5Mtpa AL plant feed. The majority of the AL feed will be generated from MN Fines, so pit designs are now essentially agnostic to AL Material Type requirements.

The PFS assumes a feed allocation ranking approximately as follows:

- 69% Grind/HPAL.
- 17% Beneficiation/HPAL.
- 8% Mineralised Neutraliser Fines (to Grind/AL circuit).
- 4% Grind/AL
- 2% Beneficiation/AL (which being volumetrically minor can be blended with the Beneficiation/HPAL circuit).

The MN is the largest source of nickel units to the Atmospheric Leach Pregnant Liquor Solution (**PLS**).

A key component of the PFS was replacement of long-distance haulage limestone sourced from third parties with MN material sourced from within the mined Goongarrie Hub nickel laterite deposits. MN represents carbonate-bearing saprock which occurs within and most commonly at the base of the nickel-cobalt laterite profile. It contains low grade nickel-cobalt mineralisation and will be mined as part of a conventional open pit mining operation.

The PFS identified that the quantity of MN required for neutralisation could not be supplied using the 0.5% Ni cut-off used for estimating the Goongarrie Hub MRE. Therefore, it was necessary to consider lower grade material to meet supply requirements.

Whilst ostensibly used for neutralisation of free acid from the discharge stream of the leaching circuits, both high pressure and atmospheric pressure, the material identified as MN also contributes to the nickel and cobalt production of the Goongarrie Hub.

Key specifications for the MN were:

- Loss on ignition (**LOI**) >25% and Ni >0.3%, or
- LOI >25% and Ni >0.2% and Si <= 23%

As this specification was based on the characteristics of the material that demonstrated acid neutralising capacity and not nickel economics, each deposit contained surplus requirements. The preferred source of MN was defined as a subset of this material type using pit optimisation and scheduling analysis undertaken as part of the PFS.

Compared to traditional nickel laterite operations that transport limestone from the Nullarbor Plains or from Esperance lime sands, the MN cost per tonne benefits have a significant influence on pit optimisations, such that pits are driven deeper in order to access the saprock MN.

R&D undertaken by Ardea subsequent to the 2018 Ardea PFS and Expansion Study (Ardea ASX releases 28 March 2018 and 24 July 2018) has demonstrated the benefits through AL being able to regulate acid production, utilise the excess heat and steam from the acid plant and generate power off grid without fossil fuels, which in particular were not key benchmarks in any of the earlier KNP feasibility study programs.

A detailed summary of the MN captured in optimised open pits, with a grade of less than the 0.5% Ni, is provided in the section below in Table 3.1. These estimates represent only the MN within lower grade material and are not included in the Mineral Resources inventory reported at greater than 0.5% Ni cut-off grade, which is shown in Table 3.2 and Table 3.3.

Only the deposits in the Goongarrie Hub considered in the PFS (GS, GH, BF, SD, HW, SN) are included in the MN tables below. Other Goongarrie Hub deposits (Ghost Rocks, Siberia South and Black Range), the Kalpini Hub deposits and Yerilla Hub deposits have not been included.

Results are based on previously reported resource models at Goongarrie Hub (see Ardea ASX releases 15 February and 16 June 2021, and Heron ASX release 18 October 2013).

3. KNP MINERAL RESOURCES UPDATE

The total Mineral Resource inventory for the KNP has been updated to reflect the most recent resource estimates available for all of Ardea's nickel laterite deposits (Table 3.3).

Ardea's total Mineral Resource inventory within the KNP based on a 0.5% Ni cut-off grade now stands at **854Mt at 0.71% Ni and 0.045% Co (for 6.1Mt of contained nickel and 386kt of contained cobalt)**. All the resources are constrained within optimised pit shells using appropriate nickel and cobalt prices, mining and processing costs and pit slope parameters to determine the material that could potentially be economically mined in the future. The Mineral Resource has been estimated and reported in accordance with the guidelines of the 2012 edition of the Australia Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves the JORC Code (2012).

All the Mineral Resource estimates completed prior to the introduction of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (**JORC Code 2012**) have been reviewed by Ardea Competent Persons and confirmed to comply with JORC Code 2012 guidelines.

In 2009 Snowden Mining Industry Consultants (**Snowden**) completed a resource model for Siberia North utilising Ordinary Kriging (**OK**), followed by Uniform Conditioning (**UC**). Previously reported MRE tables have included the OK estimates for Siberia North, while the other five deposits at the Goongarrie Hub that are the subject of the current PFS all utilise OK followed by Local Uniform Conditioning (**LUC**) for estimation and are reported as LUC estimates (see Table 3.3 below). LUC for nickel laterite is considered to provide the most detailed and appropriate model for open pit mining, including dilution, for the Goongarrie Hub deposits. The UC model at SN was the closest to this in terms of methodology and block size, so was deemed the most appropriate and consistent fit. As such, the total Mineral Resource inventory has been updated to reflect the change to UC for Siberia North.

Ardea is currently completing an updated resource model for the Siberia North deposit aimed at aligning the LUC estimation methodology with the other five Goongarrie Hub deposits.

Table 3.1 - KNP Goongarrie Hub PFS subset nickel, cobalt and scandium Mineralised Neutraliser Material MRE below 0.5% Ni cutoff grade.

Deposit	Resource Category	Ni Co Resources Tonnes (Mt)	Ni %	Co %	Contained Metal Ni (kt)	Contained Metal Co (kt)	Sc Resources Tonnes (Mt)	Sc (ppm)
Goongarrie South	Measured	0.1	0.42	0.033	0.2	0.0	0.1	49.5
	Indicated	2.2	0.38	0.029	8.4	0.7	2.2	8.2
	Inferred	0.6	0.35	0.039	2.2	0.2	0.6	22.9
	Subtotal	*2.9*	*0.37*	*0.031*	*10.9*	*0.9*	*2.9*	*11.2*
Goongarrie Hill	Indicated	0.1	0.42	0.021	0.6	0.0	0.0	14.8
	Inferred	1.1	0.39	0.018	4.2	0.2	0.0	10.9
	Subtotal	*1.2*	*0.40*	*0.018*	*4.7*	*0.2*	*0.0*	*11.7*
Big Four	Indicated	0.8	0.37	0.035	2.8	0.3	0.6	24.2
	Inferred	0.9	0.36	0.027	3.2	0.2	0.6	16.3
	Subtotal	*1.7*	*0.36*	*0.031*	*6.1*	*0.5*	*1.2*	*20.2*
Scotia Dam	Indicated	0.3	0.34	0.032	0.8	0.1	0.3	8.0
	Inferred	0.0	0.37	0.024	0.1	0.0	0.0	9.8
	Subtotal	*0.3*	*0.34*	*0.031*	*0.9*	*0.1*	*0.3*	*8.2*
Highway	Indicated	31.8	0.38	0.014	119.5	4.6	0.1	26.4
	Inferred	0.5	0.39	0.019	2.0	0.1	0.0	29.5
	Subtotal	*32.3*	*0.38*	*0.014*	*121.4*	*4.7*	*0.1*	*27.2*
Siberia North	Indicated	0.0	-	-	-	-	-	-
	Inferred	0.0	-	-	-	-	-	-
	Subtotal	*0.0*	-	-	-	-	-	-
Combined PFS Deposits	**Measured**	0.1	0.42	0.033	0.2	0.0	0.1	49.5
	Indicated	35.2	0.38	0.016	132.1	5.6	3.1	11.6
	Inferred	3.1	0.37	0.025	11.7	0.8	1.3	19.4
	Grand Total	***38.4***	***0.37***	***0.017***	***144.0***	***6.4***	***4.5***	***14.3***

The MRE for the Goongarrie Hub PFS subset deposits covered in the table above, reported at a 0.5% Ni cut-off grade, are provided in Table 3.2.

Table 3.2 - KNP Goongarrie Hub PFS subset nickel, cobalt and scandium MRE using a greater than 0.5% Ni cut-off grade.

Deposit	Resource Category	Ni Co Resources Tonnes (Mt)	Ni %	Co %	Contained Metal Ni (kt)	Contained Metal Co (kt)	Sc Resources Tonnes (Mt)	Sc (ppm)
Goongarrie South	Measured	18	0.94	0.085	172	15	18	40
	Indicated	82	0.71	0.049	587	40	53	23
	Inferred	10	0.64	0.033	61	3	6	24
	Subtotal	*110*	*0.75*	*0.053*	*820*	*59*	*77*	*27*
Goongarrie Hill	Indicated	40	0.65	0.037	260	15	11	16
	Inferred	29	0.60	0.025	178	7	2	16
	Subtotal	*69*	*0.63*	*0.032*	*438*	*22*	*13*	*16*
Big Four	Indicated	49	0.71	0.047	345	23	32	24
	Inferred	14	0.68	0.043	95	6	3	24
	Subtotal	*63*	*0.70*	*0.046*	*440*	*29*	*35*	*24*
Scotia Dam	Indicated	11	0.71	0.065	82	7	11	25
	Inferred	5	0.72	0.043	37	2	1	22
	Subtotal	*17*	*0.72*	*0.058*	*118*	*10*	*12*	*25*
Highway	Indicated	71	0.70	0.038	491	27	19	27
	Inferred	21	0.67	0.040	142	8	3	26
	Subtotal	*92*	*0.69*	*0.038*	*633*	*35*	*22*	*26*
Siberia North	Indicated	14	0.72	0.042	102	6	-	-
	Inferred	72	0.74	0.034	532	24	-	-
	Subtotal	*86*	*0.73*	*0.035*	*634*	*30*	-	-
Combined PFS Deposits	Measured	18	0.94	0.085	172	15	18	40
	Indicated	267	0.70	0.044	1,867	118	126	23
	Inferred	151	0.69	0.034	1,045	51	14	23
	Grand Total	***437***	***0.71***	***0.042***	***3,083***	***184***	***158***	***25***

Table 3.3 - Updated KNP nickel and cobalt MRE based on a greater than 0.5% Ni cut-off grade

Camp	Prospect	Resource Category	Size (Mt)	Ni (%)	Co (%)	Contained Metal Ni (kt)	Contained Metal Co (kt)	Estimation Details Method	Estimation Details Source	Estimation Details Year
Goongarrie	Goongarrie South	Measured	18	0.94	0.085	171	15	LUC	Ardea	2021
		Indicated	82	0.71	0.049	584	40	LUC	Ardea	2021
		Inferred	10	0.64	0.033	61	3	LUC	Ardea	2021
	Highway	Indicated	71	0.69	0.038	487	27	LUC	Ardea	2023
		Inferred	21	0.67	0.040	141	8	LUC	Ardea	2023
	Ghost Rocks	Inferred	47	0.66	0.042	312	20	OK	Snowden	2004
	Goongarrie Hill	Indicated	40	0.65	0.037	259	15	LUC	Ardea	2021
		Inferred	29	0.60	0.025	176	7	LUC	Ardea	2021
	Big Four	Indicated	49	0.71	0.047	346	23	LUC	Ardea	2021
		Inferred	14	0.68	0.043	96	6	LUC	Ardea	2021
	Scotia Dam	Indicated	12	0.71	0.065	82	7	LUC	Ardea	2021
		Inferred	5	0.72	0.043	37	2	LUC	Ardea	2021
	Goongarrie Subtotal	Measured	18	0.94	0.085	171	15			
		Indicated	253	0.69	0.044	1,758	112			
		Inferred	127	0.65	0.037	823	47			
		Combined	***398***	***0.69***	***0.044***	***2,753***	***175***			
Siberia	Siberia South	Inferred	81	0.65	0.033	525	27	OK	Snowden	2004
	Siberia North	Indicated	14	0.72	0.042	102	6	Ni(UC) Co(OK)	Snowden	2009
		Inferred	72	0.74	0.034	534	25	Ni(UC) Co(OK)	Snowden	2009
	Black Range	Indicated	9	0.67	0.090	62	8	OK	HGMC	2017
		Inferred	10	0.69	0.100	68	10	OK	HGMC	2017
	Siberia Subtotal	Indicated	24	0.70	0.061	165	14			
		Inferred	163	0.69	0.038	1,127	61			
		Combined	***186***	***0.69***	***0.040***	***1,292***	***75***			
KNP Goongarrie Hub	**TOTAL**	Measured	18	0.94	0.085	171	15			
		Indicated	277	0.70	0.046	1,923	127			
		Inferred	289	0.67	0.037	1,951	108			
		Combined	***584***	***0.69***	***0.043***	***4,044***	***250***			
Bulong	Taurus	Inferred	14	0.84	0.051	119	7	OK	Snowden	2007
	Bulong East	Indicated	16	1.06	0.055	169	9	OK	Snowden	2004
		Inferred	24	0.79	0.053	190	13	OK	Snowden	2004
	Bulong Subtotal	Indicated	16	1.06	0.055	169	9			
		Inferred	38	0.81	0.052	309	20			
		Combined	***54***	***0.88***	***0.053***	***477***	***29***			
Hampton	Kalpini	Inferred	75	0.73	0.044	550	33	OK	Snowden	2004
	Hampton Subtotal	Inferred	75	0.73	0.044	550	33			
KNP Kalpini Hub	**TOTAL**	Indicated	16	1.06	0.055	169	9			
		Inferred	114	0.76	0.047	859	53			
		Combined	***130***	***0.79***	***0.048***	***1,028***	***62***			
Yerilla	Jump Up Dam	Measured	4	0.94	0.048	36	2	OK	Snowden	2008
		Indicated	42	0.78	0.043	324	18	OK	Snowden	2008
		Inferred	18	0.63	0.034	116	6	OK	Snowden	2008
	Boyce Creek	Indicated	27	0.77	0.058	206	16	OK	Snowden	2009
	Aubils	Inferred	49	0.70	0.066	346	33	OK	Heron	2008
KNP Yerilla Hub	**TOTAL**	Measured	4	0.94	0.048	36	2			
		Indicated	68	0.78	0.049	531	33			
		Inferred	68	0.68	0.057	462	39			
		Combined	***140***	***0.73***	***0.053***	***1,028***	***74***			
KNP TOTAL		Measured	22	0.94	0.079	207	17			
		Indicated	361	0.73	0.047	2,622	169			
		Inferred	471	0.70	0.043	3,272	200			
	GRAND TOTAL	***Combined***	***854***	***0.71***	***0.045***	***6,101***	***386***			

Legend: LUC – Local Uniform Conditioning; UC – Uniform Conditioning; OK – Ordinary Kriging.

This announcement is authorised for release by the Board of Ardea Resources Limited.

For further information regarding Ardea, please visit https://ardearesources.com.au/ or contact:

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About Ardea Resources

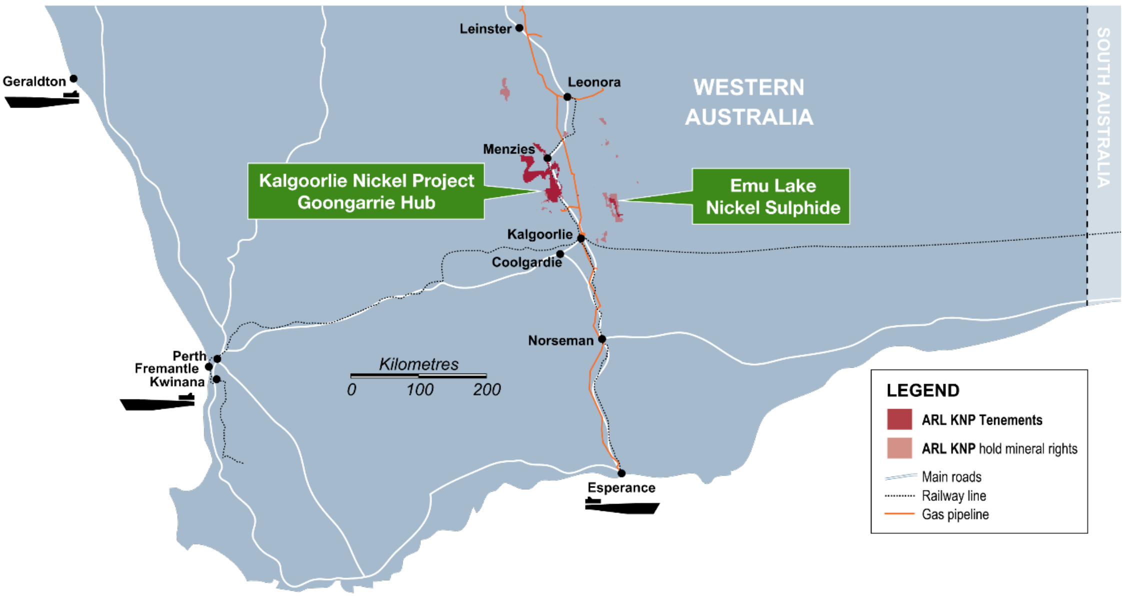
Ardea Resources (ASX:ARL) is an ASX-listed nickel resources company, with a large portfolio of 100%-controlled West Australian-based projects, focussed on:

- Development of the Kalgoorlie Nickel Project (**KNP**) and its subset the Goongarrie Hub, a globally significant series of nickel-cobalt and Critical Mineral deposits which host the largest nickel-cobalt resource in the developed World at **854Mt at 0.71% nickel and 0.045% cobalt for 6.1Mt of contained nickel and 386kt of contained cobalt** (see Table 3.3 in this announcement for the detailed MRE resource classification), located in a jurisdiction with exemplary Environmental Social and Governance (**ESG**) credentials, notably environment.
- Advanced-stage exploration at compelling nickel sulphide targets, such as Emu Lake, and Critical Minerals targets including scandium and Rare Earth Elements throughout the KNP Eastern Goldfields world-class nickel-gold province, with all exploration targets complementing the KNP nickel development strategy.

Ardea's KNP development with its 6.1 million tonnes of contained nickel is the foundation of the Company, with the nickel sulphide exploration, such as Emu Lake, as an evolving contribution to Ardea's building of a green, forward-facing integrated nickel company.

Put simply, in the Lithium Ion Battery (**LIB**) sector, the Electric Vehicle and Energy Storage System battery customers demand an ESG-compliant, sustainable, and ethical supply chain for nickel and other inputs. In the wet tropics, with their signature HPAL submarine tailings disposal and rain forest habitat destruction, an acceptable ESG regime is problematic. In contrast, the world-class semi-arid, temperate KNP Great Western Woodlands with its benign environmental setting is likely the single greatest asset of the KNP.

The KNP is located in a well-established mining jurisdiction with absolute geopolitical acceptance and none of the land-use and societal conflicts that commonly characterise nickel laterite proposals elsewhere. All KNP Goongarrie Hub production tenure is on granted Mining Leases with Native Title Agreement in place.



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Australian Federal Government - Major Project Status

KALGOORLIE NICKEL PROJECT
Battery Minerals to the World

COMPLIANCE STATEMENT (JORC CODE 2012)

The Resource Estimation, data collection processes and industry benchmarking summaries for the KNP Goongarrie Hub deposits are based on information reviewed or compiled by Mr. Ian Buchhorn, and Mr Andrew Penkethman. Mr Buchhorn is a Member of the Australasian Institute of Mining and Metallurgy and Mr Penkethman is a Fellow of the Australasian Institute of Mining and Metallurgy and a Member of the Australian Institute of Geoscientists. Both Mr Buchhorn and Mr Penkethman are full-time employees of Ardea Resources Limited and have sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are 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'. Mr Buchhorn and Mr Penkethman have reviewed this press release and consent to the inclusion in this report of the information in the form and context in which it appears. Mr Buchhorn and Mr Penkethman own Ardea shares.

The information in this report that relates to Resource Estimates for the KNP non Goongarrie Hub deposits is based on information originally compiled by previous employees of Heron Resources Limited and current full-time employees of Ardea Resources Limited. The Exploration Results, Resource Estimates and data collection processes have been reviewed and verified by Mr Ian Buchhorn who is a Member of the Australasian Institute of Mining and Metallurgy and currently a director of Ardea Resources Limited. Mr Buchhorn has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the exploration activities 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'. Mr Buchhorn consents to the inclusion in this report of the matters based on his information in the form and context that it appears. Mr Buchhorn owns Ardea shares.

The Mineral Resource Estimate for the KNP non Goongarrie Hub deposits information shown in this ASX release have been previously released on the ASX platform by Ardea in ASX release 16 June 2021, in accordance with Listing Rule 5.8.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous market announcement noted above and that all material assumptions and technical parameters underpinning the Mineral Resource Estimate in the previous market announcement continue to apply and have not materially changed.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION

This news release contains forward-looking statements and forward-looking information within the meaning of applicable Australian securities laws, which are based on expectations, estimates and projections as of the date of this news release.

This forward-looking information includes, or may be based upon, without limitation, estimates, forecasts and statements as to management's expectations with respect to, among other things, the timing and amount of funding required to execute the Company's programs, development and business plans, capital and exploration expenditures, the effect on the Company of any changes to existing legislation or policy, government regulation of mining operations, the length of time required to obtain permits, certifications and approvals, the success of exploration, development and mining activities, the geology of the Company's properties, environmental risks, the availability of labour, the focus of the Company in the future, demand and market outlook for precious metals and the prices thereof, progress in development of mineral properties, the Company's ability to raise funding privately or on a public market in the future, the Company's future growth, results of operations, performance, and business prospects and opportunities. Wherever possible, words such as "anticipate", "believe", "expect", "intend", "may" and similar expressions have been used to identify such forward-looking information. Forward-looking information is based on the opinions and estimates of management at the date the information is given, and on information available to management at such time. Forward-looking information involves significant risks, uncertainties, assumptions, and other factors that could cause actual results, performance or achievements to differ materially from the results discussed or implied in the forward-looking information. These factors, including, but not limited to, fluctuations in currency markets, fluctuations in commodity prices, the ability of the Company to access sufficient capital on favourable terms or at all, changes in national and local government legislation, taxation, controls, regulations, political or economic developments in Australia or other countries in which the Company does business or may carry on business in the future, operational or technical difficulties in connection with exploration or development activities, employee relations, the speculative nature of mineral exploration and development, obtaining necessary licenses and permits, diminishing quantities and grades of mineral reserves, contests over title to properties, especially title to undeveloped properties, the inherent risks involved in the exploration and development of mineral properties, the uncertainties involved in interpreting drill results and other geological data, environmental hazards, industrial accidents, unusual or unexpected formations, pressures, cave-ins and flooding, limitations of insurance coverage and the possibility of project cost overruns or unanticipated costs and expenses, and should be considered carefully. Many of these uncertainties and contingencies can affect the Company's actual results and could cause actual results to differ materially from those expressed or implied in any forward-looking statements made by, or on behalf of, the Company. Prospective investors should not place undue reliance on any forward-looking information.

Although the forward-looking information contained in this news release is based upon what management believes, or believed at the time, to be reasonable assumptions, the Company cannot assure prospective purchasers that actual results will be consistent with such forward-looking information, as there may be other factors that cause results not to be as anticipated, estimated or intended, and neither the Company nor any other person assumes responsibility for the accuracy and completeness of any such forward-looking information. The Company does not undertake, and assumes no obligation, to update or revise any such forward-looking statements or forward-looking information contained herein to reflect new events or circumstances, except as may be required by law.

No stock exchange, regulation services provider, securities commission or other regulatory authority has approved or disapproved the information contained in this news release.

Appendix 1 – Summary of Information Required according to ASX Listing Rule 5.8.1

4. GOONGARRIE HUB RESOURCE ESTIMATION

4.1. Geology and Geological Interpretation

Nickel laterite mineralisation within the Goongarrie Hub is developed from the weathering of Achaean-aged olivine-cumulate ultramafic units within the Walter Williams Formation (**WWF**) with resultant near surface metal enrichment. As komatiite flows, the WWF sits on a baren Missouri Basalt footwall then typically has a basal olivine=pyroxene orthocumulate facies transitioning upwards through olivine mesocumulate to thick olivine adcumulate central flow. Mirror image facies occur at the top of the flow with the sequence again transitioning to mesocumulate, to weakly mineralised orthocumulate then barren Siberia Komatiite.

The mineralisation typically occurs within 80m of surface (but can extend to 160m depth where protolith structural preparation). The mineralised profile and can be subdivided based on mineralogical and metallurgical characteristics into upper iron-rich ("Clay Upper") and lower magnesium-rich ("Clay Lower/Saprock") materials based on the ratios of iron to magnesium. These upper and lower layers can be further subdivided into additional mineralogy groups or material types based on ratios of the other major grade attributes. The deposits are analogous to many typically tropical weathered ultramafic-hosted nickel-cobalt deposits both within Australia and world-wide.

The continuity of Goongarrie Hub mineralisation is strongly controlled by variations in the ultramafic protolith, fracturing and palaeo water flow within the ultramafic host rocks. Areas of deep fracturing and hence active water movement promoting intense groundwater leaching within the bedrock typically have higher grade and more extensive mineralisation in the overlying regolith. There is also a distinctive increase in grade, width and depth of mineralisation coinciding with olivine mesocumulate facies and increased structural deformation proximal to more competent thinner orthocumulate facies and mafic rocks immediately to the east and west of the WWF. Where the host regolith overlies olivine adcumulate lithologies there is typically an increase in siliceous mineralisation, coinciding with generally lower nickel and cobalt grades along the central axis of the WWF. Deeper fracturing occurs along cross cutting structures within the adcumulate facies which often coincides with narrow higher-grade nickel and cobalt mineralisation.

The carbonated saprock variant of adcumulate commonly has a palaeo-karst speleothem development, being coarse residual silicified fragments of light-coloured adcumulate and white cryptocrystalline magnesite "floating" in a matrix of dark red goethite. The open space within the breccia constitutes a favourable borefield reservoir rock.

Thin layers of transported colluvial, alluvial and lacustrine sediments overlie much of the in-situ nickel laterite mineralisation at the Goongarrie Hub, with mostly colluvial sediments approximately 4m thick at Goongarrie Hill (**GH**) and Highway (HW). Deeper cover sediment types are present at Goongarrie South (**GS**) ranging from less than 5m to over 40m thick. At Big Four (**BF**) and Scotia Dam (**SD**) colluvial and alluvial sediments range from less than 5m to 40m thick. Much of the high-grade mineralisation at GS, BF and SD is under 10-20m of transported cover, reflecting proximity to the ancestral Lake Goongarrie.

Nickel and cobalt mineralisation domains were interpreted in cross section using a combination of assay data and observed geological logging data. The outlines were extended variable distances laterally from marginal mineralised drill intersections to adjacent subgrade or barren drillholes with consideration of the lateral extents evident on the current and adjacent drillhole traverses. The resulting outlines were then used to create three-dimensional wireframe solids of the mineralised domains to constrain resource estimation.

The mineralisation envelopes were subdivided into area domains, reflecting either changes in the dominant local drillhole spacing, or trend in the nickel and cobalt mineralisation based on the interpreted orientation of the host protolith and structures influencing variations in both the tenor of grades and depth of the regolith profile.

The entire geological modelling process involved a thorough analysis of the complex relationships between the ultramafic protolith, structure, variations in the nature of the overlying regolith, and more recent weathering processes responsible for the deposition of overlying transported sediments and the composition of these sediments.

The domaining approach is robust and provides suitable constraints for resource estimation accounting for variations in the complexity of the geology. Potential for bias is minimised in the interpretation by incorporating subgrade drill intercepts and sample intervals into the resource envelopes where the local drillhole spacing is too broad to assume connectivity of higher grades.

Nickel Domains

Nickel envelopes were defined using a notional 0.25% Ni cut-off grade applied to the drillhole assay data incorporating internal dilution where necessary to maintain reasonable 3-D continuity of the mineralised domain geometry. While Mineral Resources were ultimately reported using a 0.5% Ni cut-off grade, the nickel envelopes include lower grade material, primarily in saprock, which is often rich in carbonate minerals that could be used as Mineralised Neutraliser (**MN**).

Cobalt Domains

Cobalt envelopes were defined using a notional 0.05% Co cut-off grade for GH, GS, BF, SD and SN applied to the drillhole assay data, also incorporating internal dilution where necessary to maintain reasonable 3-D continuity of the mineralised domain geometry as well as being constrained within the nickel envelopes. A notional cut-off grade of 0.03% Co was used for the HW deposit. These envelopes were used to subdivide the nickel domains into cobalt-rich and cobalt-poor domains.

Scandium Domains

As scandium assays were not available across the entirety of any of the Goongarrie Hub deposits, additional boundaries were defined isolating the regions of the modelled nickel mineralisation envelopes informed with scandium assay data, in order to apply corresponding domaining in the resource block models to constrain the spatial extents of scandium grade estimates to the same regions informed with scandium assay data. As scandium assay data was only available for selected downhole intervals for an irregular pattern of historical drillholes, REE resource envelopes were modelled based on the drillhole intervals over which pulp re-assaying was undertaken by Ardea to enable estimation of scandium resources and to provide data for gold and nickel sulphide exploration targeting. Cross sectional outlines were interpreted based on 15ppm cut-off applied to the sum of the scandium, cerium, neodymium and praseodymium assay data, with the resulting outlines used to construct wireframe solids to constrain estimation of scandium resources.

Paleochannel and Surficial Calcrete Domains

Paleochannel and surficial calcrete/pedogenic sediments domains rich in carbonate minerals were modelled to constrain estimation of carbonate mineral quantities for consideration as acid neutralisation materials in the proposed ore processing flowsheet in future mining studies. A threshold of 5% CaO+MgO (equating to a minimum of 10% contained carbonate mineralogy), elevated Loss On Ignition (**LOI**) assays, and drillhole logging data was used to interpret cross-sectional paleochannel carbonate outlines from which wireframe solid models were generated. Cross sectional profiles defining the base of combined surficial calcrete and carbonate rich pedogenic soils were also interpreted based on similar assay and geological data considerations. Envelopes constraining paleochannel material particularly high in kaolinite (with Al_2O_3 >25%), but also low in iron (FeO <5%) were also modelled to allow quantification of material that could potentially be a future source of High Purity Alumina.

Overburden and Regolith Domains

A combination of geological logging and assay data was used to subdivide the mineralisation into high iron (goethite rich) domains of more intensely weathered insitu material, and underlying high magnesium (saprock) mineralisation within the mineralised domains. These were interpreted as cross sectional profiles from which ‘top of saprock’ wireframe surface models were generated. The interface between insitu nickel bearing clays derived from ultramafic protolith, and overlying transported sediments comprised of alluvium, colluvium, and pedogenic surficial material has also been modelled for each of the Goongarrie Hub deposits mostly based on drillhole geological logging data. Occasionally elevated nickel and cobalt grades in the transported material are interpreted to be colluvial material derived from nickel laterite mineralisation exposed at surface in the past. The base of transported sediments was also interpreted as cross-sectional profiles from which wireframe surface models were generated.

A compilation of representative plans and cross sections showing geological interpretations and block models for the Goongarrie Hub PFS subset deposits are included in Appendix 3.

4.2. Drilling Techniques

A total of 5,124 drill holes for a total of 252,087m of drilling were completed at the Goongarrie Hub PFS subset deposits as described in Table 4.1. RC drilling comprising 4,850 RC holes for a total of 237,113m was completed, mostly focused on resource definition. Over 9,220m of diamond drilling amongst 151 drillholes has also been undertaken for multiple purposes including QAQC verification of the geology and sampling from the RC drilling, collection of samples for bulk density determinations and to source material for metallurgical test work. Additional material for metallurgical test work has been collected by over 5,590m of sonic drilling amongst 115 drillholes completed by Vale Inco and Ardea. All the diamond and sonic drill drillholes twinned earlier RC holes chosen to verify the full range of material types observed to occur in the weathering profile based on the RC drilling. To date, 45% of all the RC drilling has been completed by Heron, 27% by Vale-Inco, 17% by Ardea, 9% by Anaconda and 2% by Golden State, while 62% of the diamond drilling has been completed by Ardea, 34% by Vale Inco and 4% by Heron. Most of the sonic drilling (80%) was completed by Vale-Inco. Drillhole spacing varies widely across the Goongarrie Hub, ranging from 5mE x 5mN to 100mE x 640mN.

- HW spacing is predominantly 80mE x 80mN (Figure 4.1)
- GH spacing is predominantly 80mE x 40mN and 80mE x 120mN (Figure 4.2)
- GS spacing ranges from 20mE x 20mN to 80mE x 160mN (Figure 4.3)
- BF spacing ranges from 40mE x 80mN to 80mE x 400mN (Figure 4.4)
- SD spacing is predominantly 40mE x 80mN, and ranges up to 160mE x 640mN (Figure 4.5)
- SN spacing ranges from 20mE x 20mN to 100mE x 400mN (Figure 4.6)

The mineralisation within the Goongarrie deposits has a strong global sub-horizontal orientation. The majority of the drillholes are focused on the nickel and cobalt laterite mineralisation at Goongarrie and are therefore vertical and represent the true thickness of the mineralisation. The majority of the drillhole collars have been surveyed using an RTK DGPS system with either a 3- or 7-digit accuracy. The coordinates are stored in the Ardea exploration database referenced to the MGA Zone 51 Datum GDA94.

Table 4.1 - Summary of drilling at the Goongarrie Hub PFS subset deposits

Deposit	Drill Type	No Holes	No Meters
Highway	DD	43	2,295
	RC	785	36,735
	SH	23	1,109
	CW	1	25
	Sub Total	852	40,164
Goongarrie Hill	DD	18	870
	RC	655	28000
	SH	25	940
	CW	3	59
	Sub Total	701	29869
Goongarrie South	DD	46	3,631
	RC	1,616	85,515
	SH	49	2,490
	CW	2	60
	Total	1,713	91,696
Big Four	DD	23	1,207
	RC	752	33,546
	Sub Total	775	34,753
Scotia Dam	DD	2	98
	RC	202	9,142
	Sub Total	204	9,240
Siberia North	DD	19	1,124
	RC	840	44,175
	SH	18	1,051
	CW	2	15.4
	Sub Total	879	46,365
Combined Deposits	**DD**	151	9,225
	RC	4,850	237,113
	SH	115	5,590
	CW	8	159.4
	Total	5,124	252,087

Plans showing tenure and drillhole collar locations at the Goongarrie Hub deposits considered in the current PFS MRE are shown in Figures 4.1 to 4.6 below.

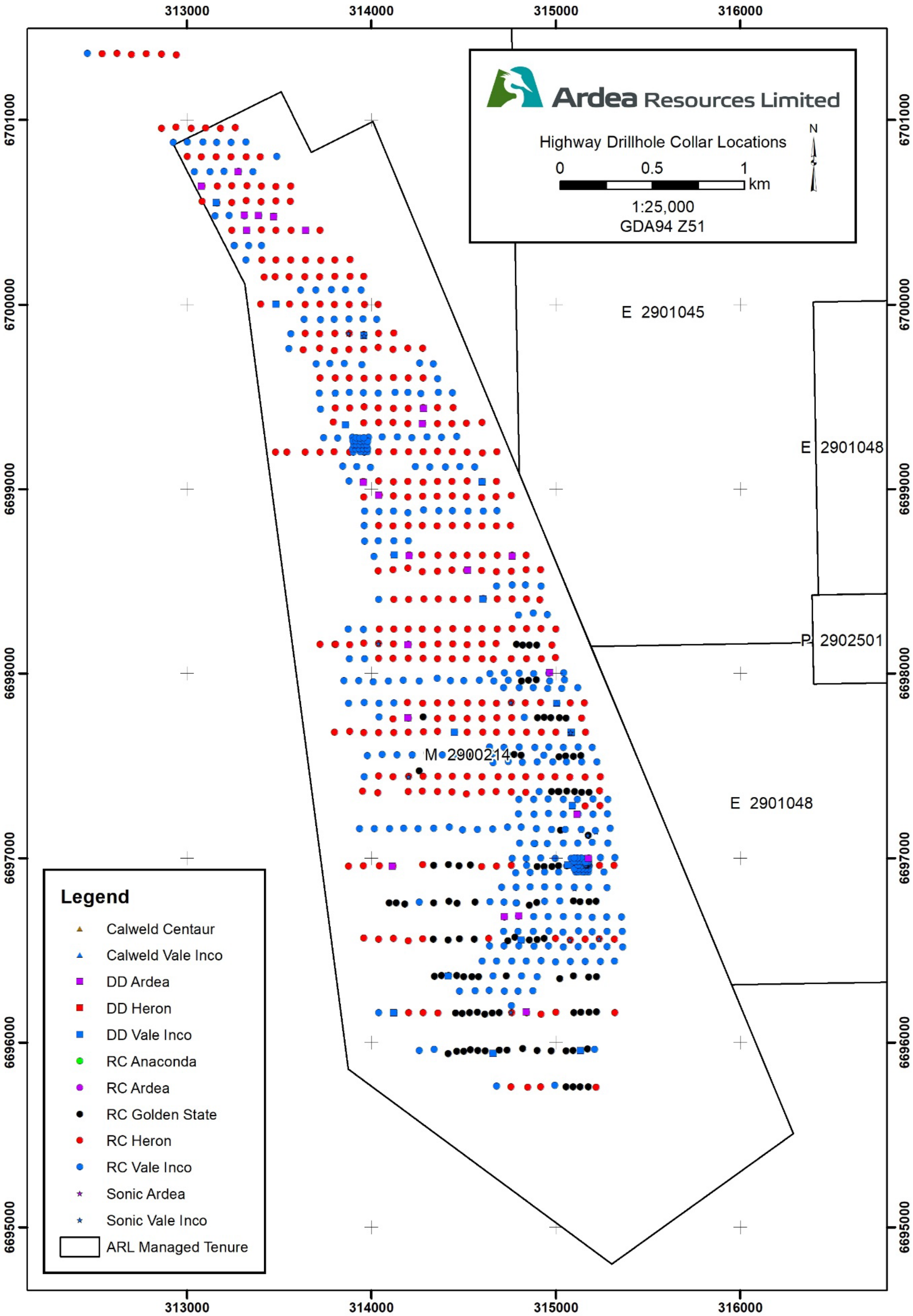


Figure 4.1 - Ardea Tenure and distribution of nickel laterite drilling at Highway

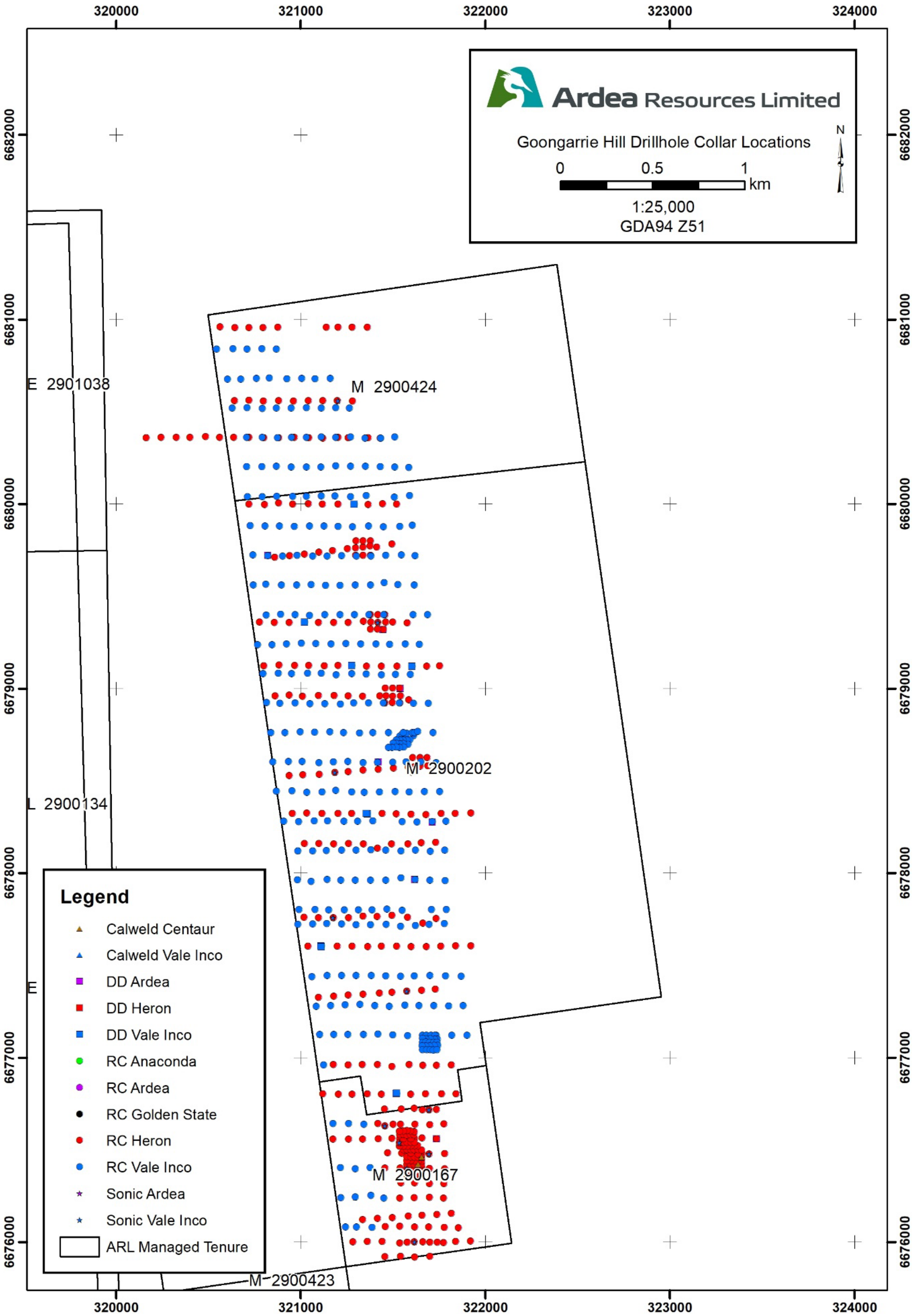


Figure 4.2 - Ardea Tenure and distribution of nickel laterite drilling at Goongarrie Hill

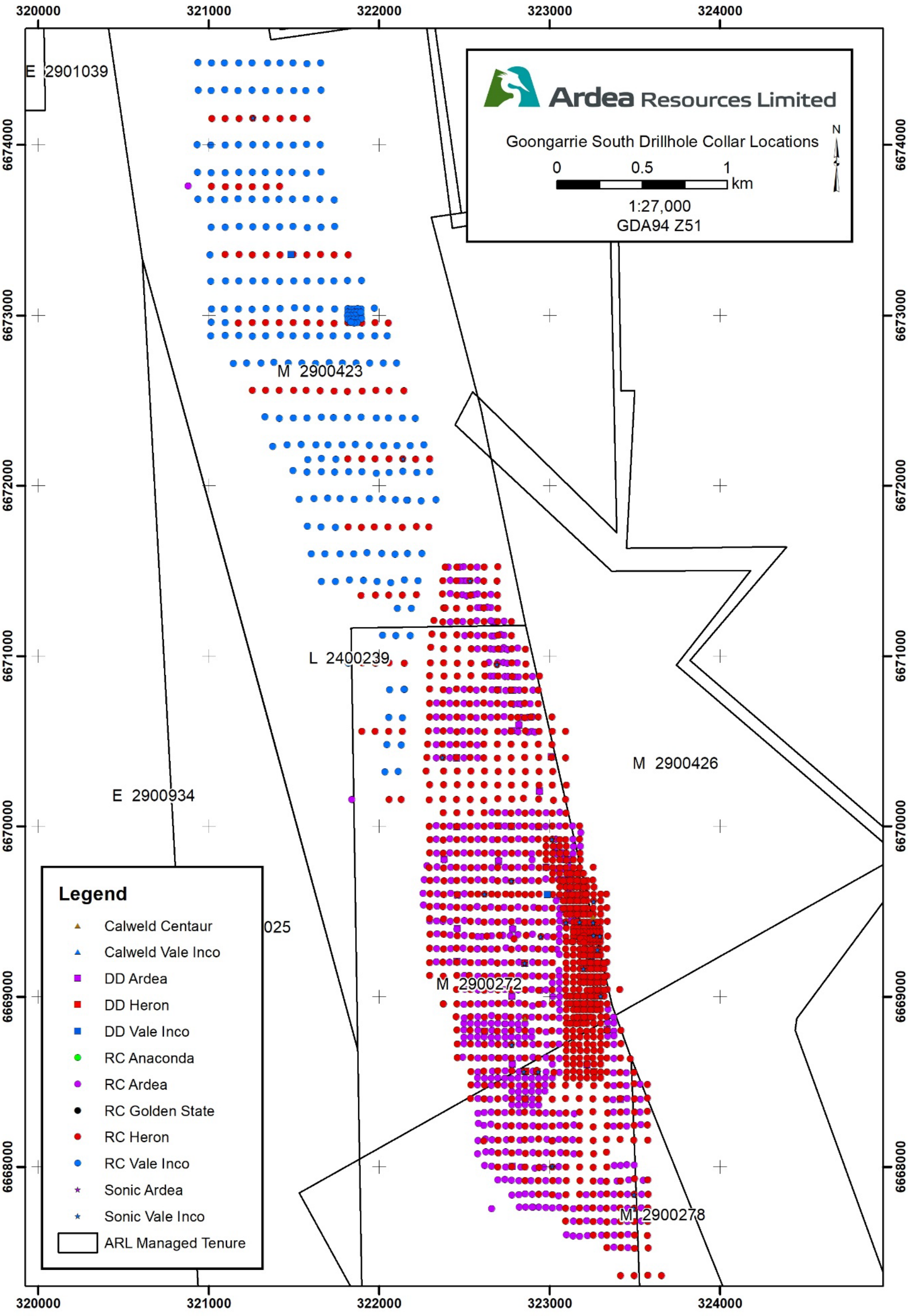


Figure 4.3 - Ardea Tenure and distribution of nickel laterite drilling at Goongarrie South

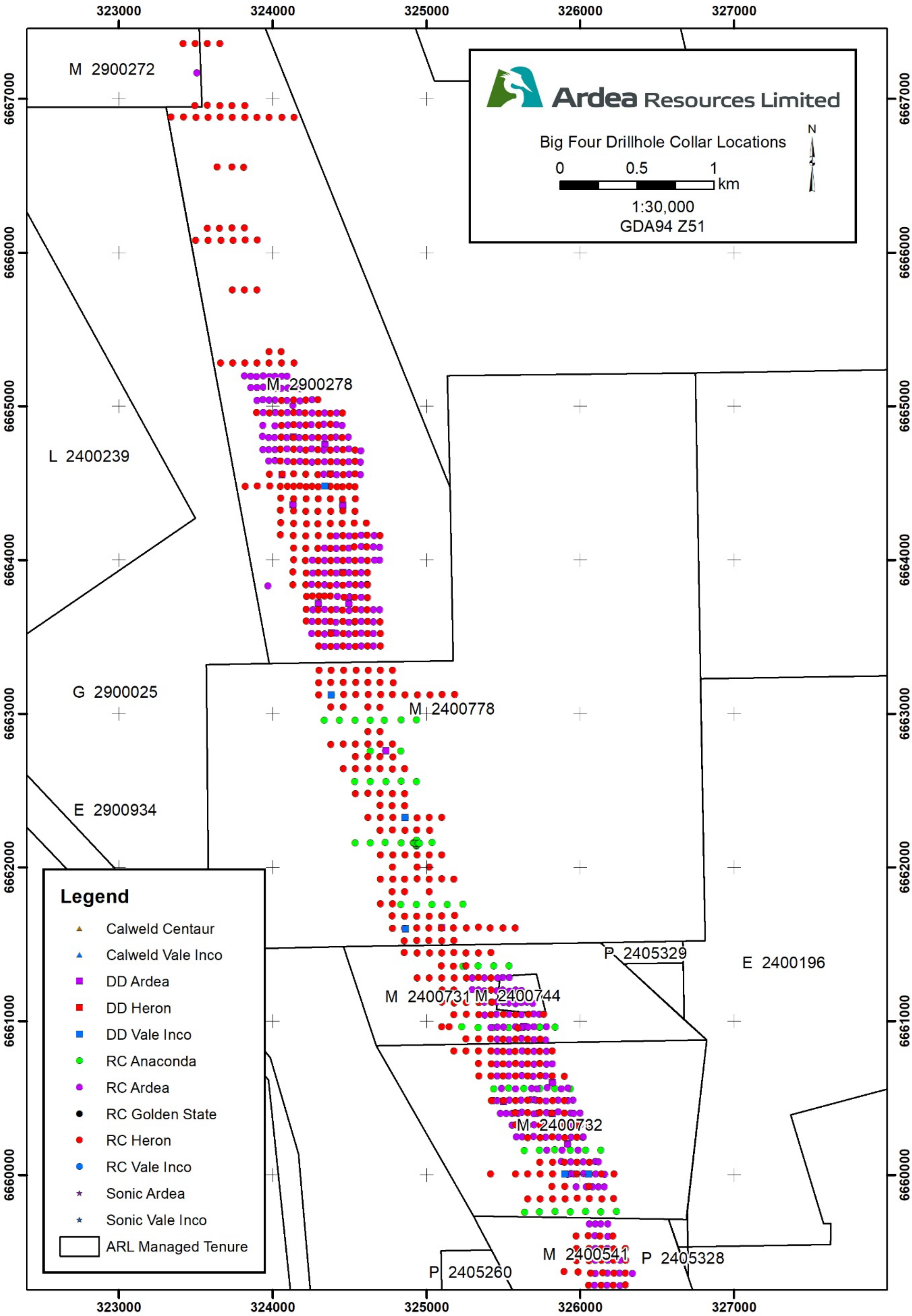


Figure 4.4 - Ardea Tenure and distribution of nickel laterite drilling at Big Four

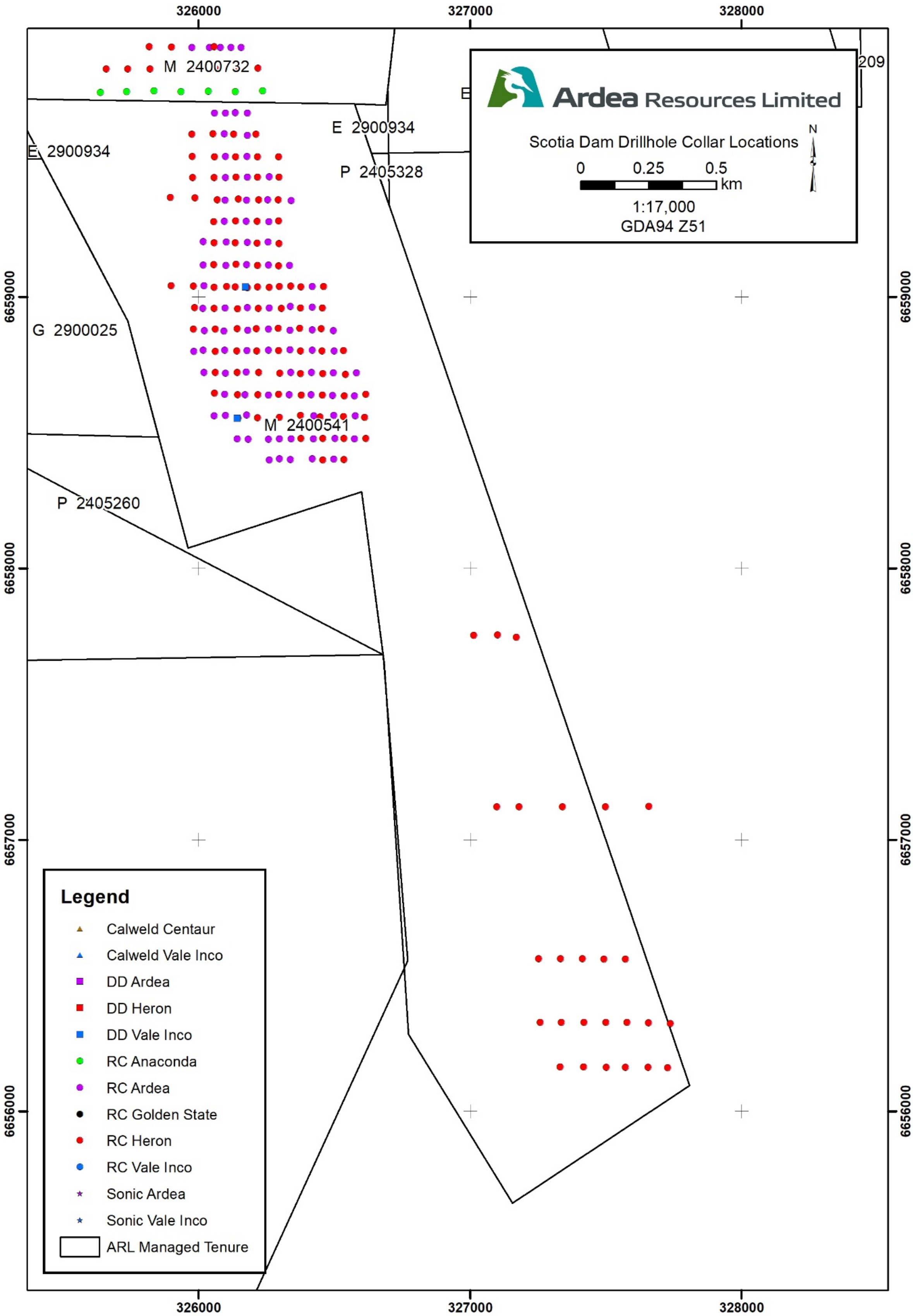


Figure 4.5 - Ardea Tenure and distribution of nickel laterite drilling at Scotia Dam

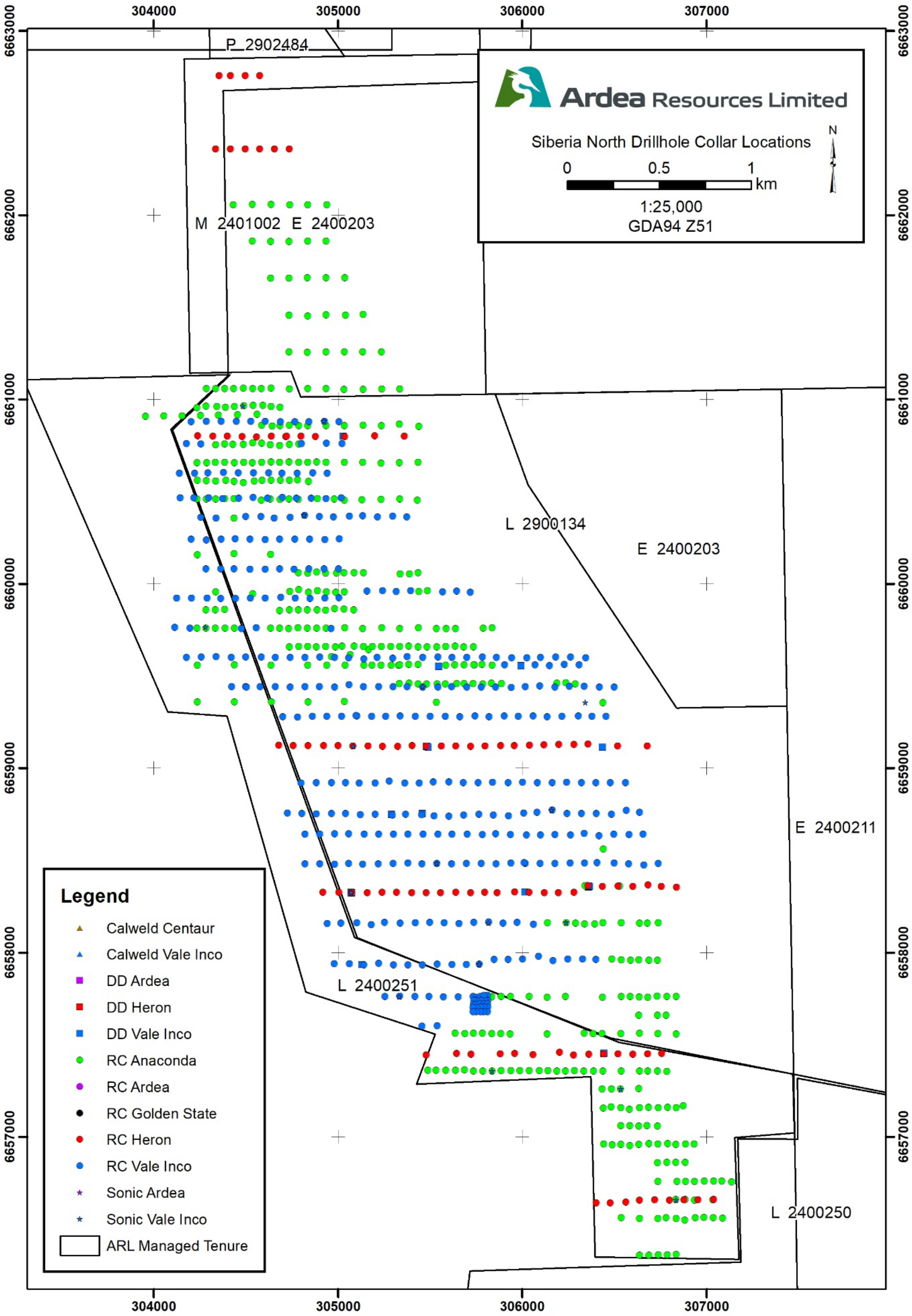


Figure 4.6 - Ardea Tenure and distribution of nickel laterite drilling at Siberia North

4.3. Sampling and Sub-sampling

All RC drilling was performed with a face sampling hammer (bit diameter between 4½ and 5 ¼ inches) and samples collected over 1m downhole intervals via a cyclone into plastic bags when dry or polyweave bags when wet (to allow water drainage prior to sample collection). All diamond drilling used triple tube core barrels to collect PQ3 and HQ3 size core. Most of the Vale Inco drilling used 1m long core barrels, and Ardea drilling used 3m core barrels. Sonic drill samples were collected as whole core samples either 3.75 or 5.1 inches diameter of up to 1m lengths. Sonic core of longer lengths was cut to shorter lengths as it was retrieved from the drill string to facilitate handling of the heavy samples.

Different sub-sampling methods have been used by different explorers across the Goongarrie deposits, and are described below.

Approximately 2.5kg to 3kg sub-samples were collected over 1m or 2m sample intervals for most of the RC drilling.

At Highway (**HW)** pre-2005 Golden State and Heron collected sub-samples by cone split when dry or scoop when wet over 1m or 2m intervals. Golden State and Heron collected composite spear or scoop sub-samples over mostly 4m or 5m downhole intervals in predominantly sub-grade material less than 0.5% Ni. Vale Inco 2005-2009 collected RC sub-samples by riffle splitting when dry or spear/scoop sub-samples when wet over 1m or 2m intervals.

RC Sub-sampling methods across the Goongarrie Hill (**GH**), Goongarrie South (**GS**), Big Four (**BF**) and Scotia Dam (**SD**) deposits were reasonably consistent and are grouped together. Anaconda collected 2m composite sub-samples using a riffle splitter when dry or as grab samples when wet during their initial larger scale program at BF in 2000. Sub-samples from the subsequent short range variability drilling were collected for 1m downhole intervals using a riffle splitter. Heron collected sub-samples for 1m downhole intervals by riffle splitting when dry or damp or by spear/scoop from 1m bulk sample bag when wet during their 1999 to 2002 programs. Spear/scoop samples for initial assay analysis were also collected, typically over 8m downhole intervals in unmineralised overburden or 4m intervals in mineralised material. When composite sample intervals returned assays greater than 0.4% Ni, the corresponding 1m sub-sample splits were subsequently submitted for analysis with the resultant assays superseding the initial composite sample assays in the project database. Heron collected sub-samples mostly over 2m downhole intervals during their 2004 and 2006 programs using a cone splitter when dry or by spear sampling when wet. Vale Inco collected sub-samples for 1m downhole intervals of non-transported material and composite sub-samples to a maximum of 4m downhole in transported material by riffle splitting during their 2008 program. Ardea collected composite sub-samples over 2m downhole intervals using a cone splitter throughout their 2017 and 2018 RC drilling programs in both wet and dry drilling conditions.

At Siberia North (**SN**) Anaconda collected RC sub-samples for 1m downhole intervals from their 1997 and 1998 RC programs using a riffle splitter when dry or mostly as grab samples when damp or wet. In the Anaconda 2000 program, 2m composite sub-samples were collected using a riffle splitter when dry or as grab samples when wet. 2m composite sub-samples were collected during the Heron 2004 and 2005 program using a cone splitter when dry or damp or by scoop or spear sampling when wet. Vale Inco collected sub-samples for 1m downhole intervals of non-transported material and composite sub-samples to a maximum of 4m downhole in transported material by riffle splitting during their 2008 program.

Diamond core from the Vale Inco diamond holes was sampled over variable intervals (1m to 1.5 m) reflecting geology and recovery with half core samples cut with a diamond saw and submitted for assay along with blanks and standards, and the other half retained for beneficiation testwork. All fines generated or washed from the Vale Inco core in 2006 were collected, press filtered and dried and returned in equal half proportions to the two half core samples produced from sawing. One metre half core samples from the Heron and Ardea diamond drilling were cut using a diamond saw when hard or a spatula when soft, and submitted for laboratory sample preparation and assay analysis along with blanks, standards and duplicates for QAQC monitoring.

Sonic drill core was collected by Vale Inco and Ardea, primarily for the purpose of metallurgical sample retrieval. The Vale sonic drilling was completed mostly in 1m runs and the entire sample dispatched for crushing and splitting at the laboratory. Due to the swelling of clays within the sample material and the nature of the lateritic regolith the 1m run samples were split into two or sometimes three sample bags.

4.4. Sample Analysis Methods

Most of the exploration samples from the Goongarrie Hub have been submitted for sample preparation and chemical analysis to either Kalgoorlie Assay Labs (**KAL**) in Kalgoorlie (by Heron in 1999 through 2002) and Ultratrace come Bureau Veritas (**BV**) in Perth by Heron, Vale Inco and Ardea from 2004 to present. Industry standard sample preparation procedures were used by both laboratories, typically involving the following process: log samples received (both laboratories), weigh samples as received (BV), dry samples at 105° C (both laboratories), weigh dried samples (BV), jaw crush samples when required e.g. core samples to -3mm; (both laboratories), riffle split RC chips/crushed core samples to produce -3kg subsample for pulverisation (both laboratories), pulverise to 90% passing -75 µm, take 150-200g of bulk pulp as laboratory pulp.

Sub-samples from much of the historical RC drilling of the Goongarrie Hub by Heron were analysed by KAL Labs in Kalgoorlie using the following analytical methods (percentages are relative to all the analyses to date for each deposit):

- Four acid digestion (4AD) with AAS finish for Ni, Co, MgO, FeO, Al2O3, CaO, Mn, Cr, Cu, and Zn (8% of drilling at GS, 6% at BF, 13% at SD and 9% at GH).
- Four acid digestion (4AD) with ICP_OES finish for Ni, Co, MgO, FeO, Al2O3, Mn, Cr, Cu, and Zn (14% of drilling at GS, 15% at BF, 30% at SD and 9% at GH).
- XRF analysis of pressed powder (PP) for Ni, Co, MgO, FeO, Al2O3, SiO2, CaO, Mn, Cr, Cu, and Zn (25% of drilling at GS, 2% at BF, 4% at SD and 4% at GH).

Sub-samples from most of the Anaconda RC drilling at Big Four, all the Vale Inco and Ardea RC, diamond and sonic drilling and the remaining Heron RC drilling used for resource estimation (53% at GS, 76% at BF, 53% at SD and 77% at GH) were analysed for Ni, Co, MgO, FeO, Al2O3, SiO2, CaO, Mn, Cr, Cl, Cu, Zn and As by Ultra Trace or Bureau Veritas using fusion XRF analysis. Most of the Vale Inco and Ardea samples were also analysed for loss on ignition (LOI) by thermo-gravimetric analysis. A small percentage of the samples from Big Four (1.5%) were analysed at UltraTrace for the same grade attributes as fusion XRF, but by ICP-OES except SiO2, which was not measured. The fused discs from all the Ardea samples were also analysed at BV for a suite of 50 additional elements including REEs by laser ablation mass spectrometry. The resulting assays for scandium were used to inform scandium resource estimates for all the Goongarrie Hub deposits.

The fusion XRF method is widely accepted as the preferred analytical method for multi-element analysis of nickel laterite samples. Thermo-gravimetric analysis is also the leading method used to determine LOI. The 4AD ICP-OES analytical method is unable to test for SiO2 and the digestion method often does not fully attack all minerals which can lead to the understating of the true concentration of some elements particularly Al2O3 and Cr. The pressed powder XRF method is designed to be semi-quantitative and typically suffers from poor analytical accuracy for elements that are not well dispersed in the pressed powder pellet.

Heron inserted analytical standards and/or duplicate RC sample splits at a frequency of approximately 1 per drillhole for approximately 50% of the Heron RC drilling at GS, GH, BF and SD completed in 1999 to 2002. Subsequently, standards, blanks and duplicate RC sample splits were inserted into the exploration sample stream on a cyclic 1 in 10 frequency (1 in 30 frequency for each type) for the Heron RC drilling at HW, GH and BF in 2004 to 2006. Vale inserted analytical standards, duplicate RC sample splits and blanks at a frequency of 1 in 20 cycling between the QC sample types effectively resulting in a 1 in 60 frequency across the monitoring sample types during their drilling programs at HW, GH, GS and SN in 2005 to 2008. Ardea used the same distribution and frequency of QC samples in their 2017 to 2018 RC drilling programs at GS and BFSD as used by Heron in 2004 to 2006 as noted above. Various umpire assay programmes have also been completed.

All of the QAQC data has been statistically assessed and the precision and accuracy of the assay data for the important grade components (Ni, Co and Sc) have been found to be acceptable and suitable for use in resource estimation. Analysis of the QAQC data for the other grade attributes has also determined acceptable levels of precision and accuracy exist for the analyses completed by UltraTrace / BV using their fusion XRF methodology. However, the accuracy of the KAL pressed power XRF assays for these additional attributes is more varied with elevated overall relative bias levels above 5% evident for Al2O3 (-12%), SiO2 (-9%), CaO (+18%) and Cr (-14%). Elevated overall relative bias levels around 5% are also evident in the KAL ICP-OES assays for MgO (-4.6%), FeO (-4%) and Mn (+5%), and larger relative bias levels for Al2O3 (-10%) and Cr (-25%). While these data have been included in datasets used for corresponding grade estimation in the Goongarrie Hub resource models, they have been used only as a guide to material type classification assignments which, given the noted bias levels are not considered to have a material impact on the material type assignments considering the global assay data available for each grade attribute.

Quantitative mineralogy analysis has been undertaken at BV to improve understanding of the relationships between the mineralogy and multi-element geochemistry and develop material type classification schemes reflecting the spatial distribution of the dominant mineral groups present within the laterite profile at each deposit. Sample pulp suites from HW, GH, GS and SN were selected geographically and spread across the deposits covering the full vertical extent of the weathering profile in multiple drillholes and submitted to BV in Adelaide for quantitative XRD analysis of contained minerals. Part of the BV analysis involved validation of the mineralogy stoichiometry against the multielement geochemistry also determined by BV using fusion XRF analysis, including percentages of amorphous (non-crystalline) material present in the samples.

4.5. Estimation Methodology

Resource modelling processes were undertaken using Maptek Vulcan software for all Goongarrie deposits with the exception of Siberia North (SN) where Datamine/Isatis was used.

Based on the drill sub-sample length analysis, the domain coded sub-sample assay data were composited to 2m intervals in preparation for statistical analysis, variography and grade estimation. Various statistical tests were completed to determine the optimal composite length of 2m.

While Ni and Co are the primary focus of the resource estimate, statistical analysis, variography and grade estimation were also undertaken for FeO, MgO, Al2O3, SiO2, CaO, Mn, Cr, Sc and LOI, which are relevant to assignment of geo-metallurgical material types and dry bulk density values to the resource model.

Classical statistical analysis for each deposit was undertaken with cell declustering applied and scaled typically to the greatest drillhole spacing of significant coverage at each deposit, and a 2m cell height. The data for Ni and all the other grade attributes except Co and Mn were subdivided by the clay (high FeO and low MgO) and saprock (low FeO and high MgO) domains. Conversely, the Co and Mn data, which are moderate to strongly correlated, were subdivided by inside versus outside the Co resource envelopes within the Ni resource envelope. Elevated coefficients of variation (CV) greater than 1.0 but less than 2.0 were reported for Al2O3, CaO, and Cr in the saprock domains, and MgO in clay domains, while similar range CV values were reported for Co in the high Co domains and Mn in the low Co domains. The highest CVs greater than 2.0 but mostly less than 3.0 were reported for CaO in the clay domains.

Suitable upper and lower cuts were determined for any grade variables showing anomalously high or low outlier grades. The application of the cuts only had local influences on the corresponding grade estimates with no material effects on the domain global mean grades. A similar approach to grade cutting was adopted for the paleochannel carbonate and high alumina domains.

Continuity analysis (variography) was undertaken for all grade attributes subdivided by the clay and saprock domains and grouped area domains with similar grade trends and mineralisation characteristics. Co and Mn were subdivided by the grouped high grade and low grade cobalt domains. 3-D variography was generated as semi-variograms normalised to an overall sill of 1.0 based on the non-declustered composite grades or normal score transform of the grades for each domain or domain group. The variography was modelled with a nugget effect and up to three spherical structures. The continuity analysis determined that the drillhole spacing within all the deposits is considered sufficient for the estimation of Ni, Co and Sc mineral resource grades, and support grade attributes.

A 3-D regular block model was constructed of each of the Goongarrie Hub deposits (combined for BF and SD) with nickel, cobalt, rare earth, regolith (including transported) and area (orientation and data spacing) domain coding assigned based on the geological interpretation. Grouped domain coding based on the initial domain assignments was also defined to facilitate running of resource modelling processes, where appropriate, for similar trending regions and/or styles of mineralisation. All the block models were constructed using regular block dimensions of 10mE by 10mN by 2mRL.

Mineral Resource nickel and cobalt grades were estimated by ordinary kriging (**OK**) into panels ranging in size from 20mE x 20mN x 4mRL to 40mE by 80mN x 4mRL mostly based on half the dominant drillhole spacing in the area domain or area domain group. The ordinary kriged panel estimation was followed by Local Uniform Conditioning (**LUC**) to produce final nickel and cobalt resource grade estimates for 10mE by 10mN by 2mRL selective mining unit blocks reflecting recoverable volume and grade estimates expected upon mining based on a 10mE by 10mN by 2mRL grade control spacing or less.

To account for variations in the drillhole spacing, which often systematically changes between regions of higher and lower grade mineralisation, the ellipsoidal search neighbourhood for each estimation domain was divided into octants with a maximum of 4 composites selected from any one octant, and usually, a minimum of 8 and a maximum of 24 composites used to estimate each panel. In addition, the maximum number of composites selected from each drillhole was restricted to 4.

Hard boundaries between the clay and saprock domains was used for the estimation of nickel grades and similarly between the high and low grade cobalt domains when estimating cobalt grades. However, soft boundaries with no restrictions other than the search neighbourhood parameters noted above were used between the mineralisation orientation/drillhole spacing domains within the clay and saprock domains.

Validation of the ordinary kriged panel and LUC SMU estimates for each deposit was undertaken by detailed visual review of the block model estimates relative to the input drillhole composite grade data, global mean grade comparisons between the input composites data and the block model grade estimates subdivided by the estimation domains, and grade-volume curve comparisons between the block model estimates and gaussian global change of support (**GSOS**) data generated for the panel and SMU dimensions subdivided by the clay and saprock domains and the deposit area domains based on the declustered composite grade datasets for each deposit. The validation indicated that the ordinary kriged panel and LUC SMU nickel and cobalt estimates are within acceptable ranges considering the influences of soft estimation boundaries between adjacent area domains, the large vertical sample searches and geostatistical considerations, particularly, Information Effect (relating to the local exploration drillhole spacing). In addition, for both OK and LUC swath plots in different orientations were constructed for comparison between input composites and block grade. Detailed internal peer review was completed.

The supporting grade attributes including, MgO, FeO, Al2O3, and Cr with similar drillhole sample assay availability as Ni and Co were estimated by ordinary kriging into 10mE by 10mN by 2mRL size blocks using the same search neighbourhood parameters and domain control used for estimation of nickel grades. Estimation of Mn used the same constraints used for Co (high and low grade cobalt domains). Visual and global mean grade comparisons between the resultant grade estimates compared to the input composites data subdivided by the estimation domains were considered acceptable.

Ordinary kriging of SiO2, CaO, and LOI grades, was undertaken using larger search neighbourhoods to account for the absence of this assay data for 20-30% of the samples. Similar validation processes were completed as for the other support grade attributes followed by adjustment of the initial SiO2, CaO, and LOI grade estimates on a relative ratio basis forcing the sum of all the estimated grade attributes (as oxides) to range between 95% and 105%. This was required for robust application of the material type classification scheme discussed below.

Ordinary kriging of scandium grades into 10mE by 10mN by 2mRL size blocks was also undertaken using larger search neighbourhoods to account for the broad data spacing (up to 80mE by 400mN at GS) outside the areas of Ardea infill drilling in the southern half of GS (effectively 80mE by 80mN spacing), the areas of Ardea infill drilling at BF and SD (also effectively 80mE by 80mN spacing), and a crude 80mE by 160mN spacing over selected regions and drillhole intervals at GH. These estimates were further constrained by the regions and drillhole intervals informed with scandium assay data. No adjustments were made to the ordinary kriged scandium estimates. Validation of the scandium grade estimates was undertaken in a similar manner to the support grade attributes with reasonable correlation evident between the input data and the block model grade estimates.

Quantitative XRD mineralogy data for 164 samples from the Ardea 2017 and 2018 diamond drilling at GS and 96 pulps from historical RC and diamond drillholes at GH was merged with the multi-element geochemical data for the samples, and detailed analysis undertaken of the mineralogy data subdivided by the geological interpretation and a combination of grade and grade ratio thresholds based on the major geochemical attributes in the samples (MgO/FeO, Al2O3/SiO2 and SiO2/(MgO+FeO+Al2O3). The analysis resulted in the development of material type classification schemes for GS and GH based on geological and geochemical classification criteria relating to natural mineral groupings present in the Goongarrie Hub weathering profile. Algorithms were developed in MS Excel and Vulcan block model scripts to assign material type codes to the drillhole samples for control in the statistical analysis of the bulk density data, and to control the assignment of determined bulk density values to the resource models.

Wet and dry bulk density and moisture measurements were determined for a representative suite of diamond and sonic drill core samples from the Goongarrie deposits, including 105 samples from 3 diamond and 8 sonic drillholes at GH, 828 samples from 36 diamond holes at GS, 402 samples from 21 diamond drillholes at BF and SD and 261 diamond and sonic drill core samples at HW. All the material types (mineralised and waste) in the weathering profile were targeted for density determinations.

Wet density values of the Vale Inco diamond and sonic core samples were measured using the Archimedes method including either coating the samples with wax or vacuum sealing them in plastic bags prior to weighing them submerged in water. Wet sample weights were recorded pre–wax coating or vacuum sealing, after coating or sealing, and after removal of the coating or sealing (after weighing submerged in water). The samples were thoroughly oven dried after removing the coating or sealing, and subsequently re-weighed to determine the dry sample weight and moisture content. The dry bulk density was then calculated by multiplying the wet density by (1 – moisture) with percentage moisture in the wet sample expressed as a proportion value between 0 and 1. Also, for Heron and Ardea density sample volumes were calculated based on the sample dimensions (length and diameter) measured for each sample.

Downhole geophysical density logging was also undertaken by Vale Inco of 14 sonic and 8 RC drillholes at GS, and 11 sonic and 13 RC holes at GH. Caliper (hole diameter), short space density and long space density values were recorded at 10cm downhole increments in each hole. The resulting data were composited to 1m downhole intervals coinciding with the dominant sub-sampling interval used by Vale Inco during their RC drilling.

The manually determined bulk density and moisture data for the core samples and 1m composites of the geophysical density data were merged with the corresponding assay data (if available) for the samples or sample intervals and material types assigned based on the geochemical criteria derived from the analysis of the XRD mineralogy data.

4.6. Resource Classification

The Mineral Resource Estimates for the Goongarrie Hub have been classified in accordance with the JORC Code (2012 Edition) guidelines.

With consideration of all the classification criteria in JORC Table 1 and the dominance of nickel in the overall value of the Goongarrie Hub, slope of regression and kriging efficiency statistics recorded for the ordinary kriged panel nickel estimates were reviewed and suitable confidence thresholds selected as a guide to subdividing the combined nickel, cobalt and scandium estimates for the Goongarrie Hub deposits into Measured, Indicated and Inferred Mineral Resources. A slope of regression threshold of 0.7 was used to define boundaries between Indicated Resources (> 0.7) and Inferred Resources (< 0.7) within the insitu regolith domains of all the Goongarrie Hub deposits, while a kriging efficiency threshold of 0.6 was used to define boundaries between Measured Resources (> 0.6) and Indicated Resources (< 0.6) at the GS deposit.

Initial resource classification assignments based on these criteria were applied to the resource models and used as a basis for defining 3-D envelopes constraining the resource model blocks showing strong continuity of blocks with the same classification assignments and downgrading the confidence of blocks showing poor continuity in terms of the initial classification.

Wireframe solids of the modified resource classification boundaries were used to assign final resource classification codes to all blocks within the nickel mineralisation domains, with any mineralised blocks in transported material classified as Inferred Resources.

It must be emphasised that the resource classification is based on the nickel estimates, which Ardea considers to be equally applicable to the cobalt estimates. However, the confidence in the scandium resource estimates is less due to the variable broader data spacing, reflecting the assay data based only on the Ardea drilling and pulp re-assay programmes.

4.7. Cut-off Grade

Cut-off grades of 0.25% Ni and 0.05% or 0.03% Co were used to interpret and model the nickel and cobalt mineralisation envelopes used to constrain the Goongarrie Hub resource estimates. These thresholds were chosen based on geological observation of the continuity of the nickel and cobalt grades within various regions of the weathering profile that could be of potential economic value to the project. Ardea has undertaken internal mining studies since the Ardea 2018 PFS that indicated the potential for significant nickel credits from saprock material rich in dolomite and magnesite (carbonate minerals), typically containing an average of 0.25% Ni, that could be used as a neutraliser in the acid leach processing flow sheet and contribute additional nickel units to production (Mineralised Neutraliser).

Mineral Resource reporting has been undertaken using a 0.5% Ni cut-off grade which is the accepted industry threshold used for resource reporting for typical nickel laterite deposits. While cobalt and potentially scandium contribute to the project value, the grades and associated value are much less than nickel and therefore are not incorporated into the resource reporting cut-off grade criteria. The 0.5% Ni cut-off has also consistently been used by Heron, Vale Inco and Ardea since 2004 for reporting the overall Mineral Resources in the KNP which have been updated in this report to include the updated resource estimates for the Goongarrie Hub. All the other Mineral Resources outside the Goongarrie Hub, stated in this report, have previously been reported in the public domain.

Ardea notes that while scandium would inherently be taken into solution with nickel-cobalt particularly in the proposed pressure acid leach processing flowsheet, it would unlikely be economic to recover scandium from solution when present in low concentrations. Scandium was also noted within the Goongarrie Hub assay suite in higher grade concentrations overlying the 0.25% nickel grade shell envelope. None of this material has been domained or included in the resource estimate. On this basis, Ardea has also reported scandium resources using a 20 ppm Sc cut-off grade applied to the Ni and Co resources based on a 0.5% Ni cut-off grade.

4.8. Mining and Metallurgical Methods and Parameters and other modifying factors

Open pit mining via conventional dig and haul is assumed for all the Goongarrie Hub deposits. The majority of the material mined will be free dig and not require blasting. The need for blasting if in the unlikely event of being required would be limited to pedogenic calcrete at surface, a layer of indurated hard cap ferruginous laterite that at times overlies the nickel and cobalt mineralisation at GS, BF and SD, and underlying saprock rich in serpentine and the carbonate minerals dolomite and magnesite (i.e. MN).

For the purposes of removing unlikely to be economic resources from the resource statement, TME Mine Consulting (**TME**) carried out a pit optimisation for each of the Goongarrie Hub deposits using a “blue sky” US$27,558 per tonne nickel price (consistent with the price used for similar pit optimisation work as part of the Ardea PFS in 2018, and Heron in 2013 when converting earlier JORC 2004 compliant resource estimates to JORC 2012 compliant estimates). A “blue sky” US$64,485 per tonne cobalt price was also applied in the resource pit optimisation work undertaken by TME but was found to be entirely agnostic to optimisations. Mining and processing costs and other appropriate costs were also used to complete the resource optimisation work. All the Goongarrie Hub resource model blocks based on a 0.5% Ni cut-off were deemed potentially economic based on the TME resource optimisation parameters and therefore have been reported as Mineral Resources in this report.

The Goongarrie Hub deposits have been the subject of detailed metallurgical studies by Vale Inco in particular. The preferred metallurgical approach is based on an “off-the-shelf” HPAL and AL flow sheet with a particular focus on improving the recovery of reagents during processing to improve unit costs.

The PFS identified that the quantity of MN required for neutralisation could not be entirely supplied using the 0.5% Ni cut-off used for estimating the Mineral Resource. Therefore, it was necessary to consider lower grade material to meet supply requirements for the Goongarrie Hub. Whilst ostensibly used for neutralisation of free acid from the discharge stream of the leaching circuits, both high pressure and atmospheric pressure, the material identified as MN also contributes to the nickel and cobalt production of the Goongarrie Hub.

Appendix 2 – JORC Code, 2012 Edition

Table 1 report

(Criteria in this section applies to all succeeding sections)

Criteria	JORC Code explanation	Commentary
Sampling techniques *Note: Due to the similarity of the deposit styles, procedures and estimations used in this table represents the combined methods for all Ardea Nickel and Cobalt Laterite Resources at the Goongarrie Hub deposits considered in the current PFS (PFS subset). Where data not collected by Ardea has been used in the resource estimates, variances in techniques are noted.*	• *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.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *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.*	• The nickel and cobalt laterite resources at Goongarrie have been sampled dominantly using Reverse Circulation (RC) drilling, with occasional diamond drilling (DD) and sonic drilling (SH) for QAQC verification of the RC drilling, collection of bulk density measurements and material for metallurgical testwork. Some large diameter Calweld drilling (CW) was completed for metallurgical work. Most holes were vertical and designed to optimally intersect the sub-horizontal mineralisation. A total of 5,124 drillholes were completed for a total of 252,087m of drilling at the Goongarrie Hub deposits. • Most of the sampling data used to inform the resource estimate is from RC drilling which is 94% of the drilling database meters. • RC drill samples were collected using a face sampling hammer over 1m intervals via cyclone into plastic bags when dry or polyweave bags when wet. Sub-samples of significant mineralised material for routine assay analysis were collected by riffle or cone splitting when dry or damp or by spear when wet, over 1m or 2m intervals with the aim of collecting a 2-3kg sub-sample over each downhole sample interval. • Diamond drilling (DD) was used to collect PQ3 and HQ3 size core. Typically 1m to 1.5m intervals of core were cut to half core using a diamond saw and samples submitted for assay analysis. • Sonic drilling (SD) was completed mostly in 1m runs and the entire sample submitted for analysis. • Downhole geophysical density measurements were collected for selected Vale Inco RC and sonic drillholes. Caliper (hole diameter), short space density and long space density values were recorded at 10cm downhole increments in each hole, using a gamma-gamma downhole survey tool. The resulting data were composited to 1m downhole intervals coinciding with the dominant sub-sampling interval used by Vale Inco during their RC drilling. This data provided a check against conventional Archimedes bulk density measurements collected by Heron, Vale Inco and Ardea on billets of diamond and sonic drill core.
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).*	• RC drilling was performed with a face sampling hammer (bit diameter between 4½ and 5 ¼ inches) and samples were collected via a cyclone into plastic bags when dry or polyweave bags when wet. • All diamond drilling used triple tube core barrels to collect PQ3 and HQ3 size core. Most of the Vale Inco drilling used 1m long core barrels, and Ardea drilling used 3m core barrels. • Sonic drill samples were collected as whole core samples either 3.75 or 5.1 inches diameter of up to 1m lengths. Sonic core of longer lengths was cut to shorter lengths as it was retrieved from the drill string to facilitate handling of the heavy samples.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *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.*	• Recovery for the historic and current RC bulk drill samples was based on visual estimates (%) while weights of the RC bulk drill samples were measured as a proxy for recovery for the Vale Inco samples. • Measures taken to ensure maximum RC sample recoveries included maintaining a clean cyclone and drilling equipment, using water injection at times of reduced air circulation, as well as regular communication with the drillers and slowing drill advance rates when variable to poor ground conditions are encountered. • The overall average RC sample recovery at Goongarrie is estimated to be 75% which is considered acceptable for nickel laterite deposits. There is no evidence of grade bias based on the analyses of RC sample moisture logging data, estimated sample recovery data and sample weight data. • Multiple diamond and sonic drilling programs have been undertaken twinning selected RC drillholes from all the prior explorers of the Goongarrie Hub deposits to provide verification of the assay results. • Core recoveries from the diamond drilling were maximised by reducing drill penetration rates and run lengths in variable

Criteria	JORC Code explanation	Commentary
		or poor ground conditions. Most of the poorer recoveries occurred in soft goethitic clay mineralisation, hard laterite cap and in transported material. Overall, acceptable core recoveries have been achieved from the diamond drilling completed at the Goongarrie Hub deposits. • All sonic drilling was completed without drilling fluids and all the recovered core was reported to be dry. Recovery results were good for almost all runs.
Logging	• *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.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Visual geological logging was carried out on all samples. The logging system was developed by Heron specifically for the KNP, and is a qualitative legend designed to capture the key physical and metallurgical features of the nickel laterite mineralisation. Drilling conducted by Vale Inco and Ardea has been logged in similar detail to Heron's procedures but using slightly modified geological logging legends. • All the RC, diamond and sonic drill samples have been logged to a level suitable for reference in resource modelling with the following types of information routinely recorded: o Date dataset (deposit), holeID, drilling method, collar location (DGPS to + 0.5m accuracy), planned hole orientation (azimuth and dip), and drilled end of hole depth. o Sub-sampling details including downhole sample interval (depths), sampleID, sampling method, and inserted QAQC sample details. o Drill sample quality attributes including moisture content classification and estimated visual sample recovery or the weights of the bulk drill samples and sub-samples. o Geological attributes including colour, hardness, regolith, laterite ore style and lithology. o Core recovery for all diamond drilling. o Geotechnical logging of core from diamond drilling. • Geological logging of the RC samples by Heron was conducted based on a wet sieved reference sample collected from each bulk sample and transferred to a plastic chip tray. Two sets of chip trays were prepared for much of the Vale/Inco RC drilling, one tray containing dry samples and the other containing washed samples. • For DD holes, both visual geological and geotechnical logging were performed on all drill core. Core was also selectively sampled for both geological and metallurgical testwork. • Sonic holes were geologically logged prior to being sampled for metallurgical testwork. • Most of the Heron logging was recorded on paper logging sheets and subsequently entered into Excel spreadsheets prior to importing into the Heron exploration database. Most Vale Inco logging was completed digitally using either Excel spreadsheets or AcQuire based data capture forms. All logging for Ardea drilling programs has been undertaken using either MS Excel spreadsheet templates or Log Chief, which has a direct interface to the commercial exploration database software package Datashed, used by Ardea. • Core tray and chip tray photography has been used for monitoring logging consistency.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *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.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Approximately 2.5kg to 3kg sub-samples were collected over 1m or 2m sample intervals for most of the RC drilling. • Different sub-sampling methods have been used by different explorers across the Goongarrie deposits. • **Highway (HW)** RC sub-sampling methods: o Vale Inco collected sub-samples by riffle splitting when dry or spear/scoop sub-samples when wet over 1m or 2m intervals. o Golden State and Heron collected sub-samples by cone split when dry or scoop when wet over 1m or 2m intervals. o Golden State and Heron collected composite spear or scoop sub-samples over mostly 4m or 5m downhole intervals in predominantly unmineralised or low-grade material grading less than 0.5% Ni. • **Goongarrie Hill (GH)**, **Goongarrie South (GS)**, **Big Four (BF)** and **Scotia Dam (SD)** RC sub-sampling methods: o Anaconda collected 2m composite sub-samples using a riffle splitter when dry or as grab samples when wet during their initial larger scale program at BF in 2000. Sub-samples from the subsequent short range variability drilling were collected for 1m downhole intervals using a riffle splitter. o Heron collected sub-samples for 1m downhole intervals by riffle splitting when dry or damp or by spear/scoop from 1m bulk sample bag when wet during their 1999 to 2002 programs. Spear/scoop samples for initial assay

Criteria	JORC Code explanation	Commentary
		analysis were also collected, typically over 8m downhole intervals in unmineralised overburden or 4m intervals in mineralised material. When composite sample intervals returned assays greater than 0.4% Ni, the corresponding 1m sub-sample splits were subsequently submitted for analysis with the resultant assays superseding the initial composite sample assays in the project database. ○ Heron collected sub-samples mostly over 2m downhole intervals during their 2004 and 2006 programs using a cone splitter when dry or by spear sampling when wet. ○ Vale Inco collected sub-samples for 1m downhole intervals of non-transported material and composite sub-samples to a maximum of 4m downhole in transported material by riffle splitting during their 2008 program. ○ Ardea collected composite sub-samples over 2m downhole intervals using a cone splitter throughout their 2017 and 2018 RC drilling programs in both wet and dry drilling conditions. • **Siberia North (SN)** RC sub-sampling methods: ○ Anaconda collected sub-samples for 1m downhole intervals from their 1997 and 1998 RC programs using a riffle splitter when dry or mostly as grab samples when damp or wet. ○ In the Anaconda 2000 program, 2m composite sub-samples were collected using a riffle splitter when dry or as grab samples when wet. ○ 2m composite sub-samples were collected during the Heron 2004 and 2005 program using a cone splitter when dry or damp or by scoop or spear sampling when wet. ○ Vale Inco collected sub-samples for 1m downhole intervals of non-transported material and composite sub-samples to a maximum of 4m downhole in transported material by riffle splitting during their 2008 program. • The riffle and cone splitting techniques are industry accepted methods for collecting sub-samples for assay analysis and resource estimation in nickel laterite deposits. • Ideally, none of the assay data for the composite spear or scoop sub-samples over the longer downhole intervals (>2m) should be used for resource estimation. However, these make up a relatively small proportion of the sample assay data (approximately 20% within the resource envelope) and are of mostly of low-grade material and have been included in order to avoid overestimation of nickel grades in lower grade regions inside the resource envelope. • Diamond drill core sub-sampling methods: ○ 1m half core samples from the Heron and Ardea diamond drilling were cut using a diamond saw when hard or a spatula when soft, and submitted for laboratory sample preparation and assay analysis along with blanks, standards and duplicates for QAQC monitoring. ○ Core from the Vale Inco diamond holes was sampled over variable intervals (1m to 1.5 m) with half core samples cut with a diamond saw and submitted for assay along with blanks and standards, and the other half retained for beneficiation testwork. All fines generated or washed from the Vale Inco core in 2006 were collected, press filtered and dried and returned in equal half proportions to the two half core samples produced from sawing. • Sonic drill core was collected by Vale Inco and Ardea, primarily for the purpose of metallurgical sample retrieval. The Vale sonic drilling was completed mostly in 1m runs and the entire sample dispatched for crushing and splitting at the laboratory. Due to the swelling of clays within the sample material and the nature of the lateritic regolith the 1m run samples were split into two or sometimes three sample bags. All sampling was conducted according to the Vale Inco Twin Sonic and SG Procedure. • Most of the sub-samples from the Goongarrie deposits have been submitted for sample preparation and chemical analysis to either Kalgoorlie Assay Labs (KAL) in Kalgoorlie (by Heron in 1999 through 2002) and Ultratrace, now Bureau Veritas (BV) in Perth by Heron, Vale Inco and Ardea from 2004 to present. Blanks, standards and duplicates are inserted for QAQC monitoring. • Industry standard sample preparation procedures were used by both laboratories, typically involving: log samples received (both laboratories), weigh samples as received (BV), dry samples at 105° C (both laboratories), weigh dried samples (BV), jaw crush samples when required e.g. core samples to -3mm; (both laboratories), riffle split RC chips/crushed core samples to produce -3kg sub-sample for pulverisation (both laboratories), pulverise to 90% passing -75 µm, take 150-200g of bulk pulp as laboratory pulp.
Quality of assay data and	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	• Sub-samples from the much of the historical RC drilling of the Goongarrie Hub by Heron were analysed by KAL Labs in Kalgoorlie using the following analytical methods (percentages are relative to all the analyses to date for each

Criteria	JORC Code explanation	Commentary
laboratory tests	• *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.* • *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.*	deposit): ○ Four acid digestion (4AD) with AAS finish for Ni, Co, MgO, FeO, Al2O3, CaO, Mn, Cr, Cu, and Zn (8% of drilling at GS, 6% at BF, 13% at SD and 9% at GH). ○ Four acid digestion (4AD) with ICP_OES finish for Ni, Co, MgO, FeO, Al2O3, Mn, Cr, Cu, and Zn (14% of drilling at GS, 15% at BF, 30% at SD and 9% at GH). ○ XRF analysis of pressed powder (PP) for Ni, Co, MgO, FeO, Al2O3, SiO2, CaO, Mn, Cr, Cu, and Zn (25% of drilling at GS, 2% at BF, 4% at SD and 4% at GH). • Sub-samples from most of the Anaconda RC drilling at Big Four, all the Vale Inco and Ardea RC, diamond and sonic drilling and the remaining Heron RC drilling used for resource estimation (53% at GS, 76% at BF, 53% at SD and 77% at GH) were analysed for Ni, Co, MgO, FeO, Al2O3, SiO2, CaO, Mn, Cr, Cl, Cu, Zn and As by Ultra Trace or Bureau Veritas using fusion XRF analysis. Most of the Vale Inco and Ardea samples were also analysed for loss on ignition (LOI) by thermo-gravimetric analysis. A small percentage of the samples from Big Four (1.5%) were analysed at UltraTrace for the same grade attributes as fusion XRF, but by ICP-OES except SiO2, which was not measured. • The fused discs from all the Ardea samples were also analysed at BV for a suite of 50 additional elements including REE's by laser ablation mass spectrometry. The resulting assays for scandium were used to inform scandium resource estimates for all the Goongarrie Hub GNCP deposits. • Quantitative mineralogy analysis has been undertaken at BV to improve understanding of the relationships between the mineralogy and multi-element geochemistry and develop material type classification schemes reflecting the spatial distribution of the dominant mineral groups present within the laterite profile at each deposit. Sample pulp suites from HW, GH, GS and SN were selected geographically spread across the deposits covering the full vertical extent of the weathering profile in multiple drillholes and submitted to BV in Adelaide for quantitative XRD analysis of contained minerals. Part of the BV analysis involved validation of the mineralogy stoichiometry against the multielement geochemistry also determined by BV using fusion XRF analysis, including percentages of amorphous (non-crystalline) material present in the samples. • The fusion XRF method is widely accepted as the preferred analytical method for multi-element analysis of nickel laterite samples. Thermo-gravimetric analysis is also the leading method used to determine loss on ignition (LOI). The 4AD ICP-OES analytical method is unable to test for SiO2 and the digestion method often does not fully attack all minerals which can lead to the understating of the true concentration of some elements particularly Al2O3 and Cr. The pressed powder XRF method is designed to be semi-quantitative and typically suffers from poor analytical accuracy for elements that are not well dispersed in the pressed powder pellet. • Heron inserted analytical standards and/or duplicate RC sample splits at a frequency of roughly 1 per drillhole for approximately 50% of the Heron RC drilling at GS, GH, BF and SD completed in 1999 to 2002. Subsequently, standards, blanks and duplicate RC sample splits were inserted into the exploration sample stream on a cyclic 1 in 10 frequency (1 in 30 frequency for each type) for the Heron RC drilling at HW, GH and BF in 2004 to 2006. • Vale inserted analytical standards, duplicate RC sample splits and blanks at a frequency of 1 in 20 cycling between the QC sample types effectively resulting in a 1 in 60 frequency across the monitoring sample types during their drilling programs at HW, GH, GS and SN in 2005 to 2008. • Ardea used the same distribution and frequency of QC samples in their 2017 to 2018 RC drilling programs at GS and BFSD as used by Heron in 2004 to 2006 as noted above. • A number of check assay programs have been carried out since 1999 using UltraTrace laboratories in Perth (Cannington), primarily for verification of early KAL assay data. Ardea carried out selective pulp re-assay programs for HW, GH and SN to collect verification assay data for samples from previous Heron and Vale Inco drilling programs (both DD and RC) by Fusion XRF analysis and to collect broad multi-element assay data by Laser Ablation ICP-MS analysis for Ardea formalised R&D Critical Minerals studies. • UltraTrace / BV and KAL Labs routinely inserted analytical blanks, standards and duplicates into client sample batches for laboratory QAQC performance monitoring.
Verification of sampling	• *The verification of significant intersections by either independent or alternative company personnel.*	• Twin drilling was completed for multiple purposes including the verification of RC sampling and assay results, bulk density testing and metallurgical test work at the Goongarrie Hub deposits. A total of 143 diamond and sonic drillholes

Criteria	JORC Code explanation	Commentary
and assaying	• *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	for a total of 8,285 m were completed by Vale Inco and Ardea from 2000 to 2021. An additional 86 diamond and sonic twin drillholes for 4,479 m were drilled mostly by Vale Inco (3/4) in 2006 through 2008, followed by Ardea (1/4) in 2018, which provided material exclusively for metallurgical test work. • The twin drillhole data was statistically compared by means of graphical downhole plots of grade versus depth for each twin drillhole pair, and comparative tabulated statistics and cumulative frequency plots of data for appropriately grouped twin holes (most by deposit and operating company). All the assay datasets were composited to 2m downhole intervals prior to assessment to ensure uniform sample support in the comparisons. • Where geology agreed between the twinned holes, assays were generally similar between the different methods. • Despite the evidence for grade differences in some of the twinned holes related to the RC drilling process, overall, the RC drilling is considered to provide samples that adequately represent the true geochemistry of the Goongarrie deposits, and are suitable for the purpose of resource estimation. • The reliability of RC sampling which forms the majority basis of the source data used for resource estimation has been checked by collecting and statistically assessing routine duplicate RC sub-samples. Comparative statistics of the duplicate RC sample datasets indicates that acceptable overall levels of precision were achieved for Ni, Co and more recently for Sc. • Pulps from early Heron RC drilling were re-assayed by fusion XRF to provide umpire assays for 1911 RC samples originally analysed by KAL labs using 4 acid digest ICP-OES, and 687 RC samples originally analysed by KAL labs using pressed powder XRF methods (Ardea umpire programme). • No adjustments have been made to the assay data.
Location of data points	• *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.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• The majority of the drillhole collars have been surveyed using an RTK DGPS system with either a 3 or 7 digit accuracy. The coordinates are stored in the Ardea exploration database referenced to the MGA Zone 51 Datum GDA94. • Most of the exploration drillholes used for resource estimation are vertical and have not been downhole surveyed. However, minimal deviation of vertical RC drillholes is expected due to the sub-horizontal orientation of the mineralisation and the relatively soft nature of host material. • Verification downhole surveying with gyro instrumentation has been undertaken on 9 of the vertical RC holes averaging 95m deep, and an additional 9 angled RC holes averaging 140m downhole depth completed in the Ardea 2018 drilling programme. There was 2 degrees or less dip deviation from vertical in 7 of the 9 vertical RC holes and maximum 3 and 4 degree dip deviations from vertical in the remaining two holes. This indicates that significant dip deviations are unlikely to have occurred in the other vertical drillholes within the Goongarrie Hub. Dip deviations were mostly within 3 degrees of -60 towards the east and azimuth deviations typically up to 5 degrees in the angled drillholes. • The surface topography over the HW, GS, GH and BFSD deposits has been modelled based on drillhole collars supplemented by a 50mE by 50mN grid of points derived from photogrammetry around the periphery of the deposit. • The surface topography over the SN deposit has been modelled based on drillhole collars only. • The accuracy of the resultant topography model is considered acceptable for mine planning purposes. • The topographic control over the Goongarrie deposits is based on high resolution aerial photography flown by Arvista in March 2018 with subsequent photogrammetric processing to a vertical accuracy of 1 Sigma = 0.1 m completed by Aerometrex. The resulting 30cm contour data has been used to generate high-definition wireframe models of the surface topography over the areas from which more manageable lower resolution grid models were generated (10mE x 10mN over GH and 20mE x 20mN over GS, BF and SD) for use in resource modelling.

Data spacing and distribution	• *Data spacing for reporting of Exploration Results.*
	• *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.*
	• *Whether sample compositing has been applied.*
		• Drill spacing varies widely across the Goongarrie deposits, ranging from 5mE x 5mN to 100mE x 400mN.
		  ○ HW - predominantly 80mE x 80mN
		  ○ GH - predominantly 80mE x 40mN and 80mE x 120mN.
		  ○ GS - ranges from 20mE x 20mN to 80mE x 160mN.
		  ○ BF - ranges from 40mE x 80mN to 80mE x 400mN.
		  ○ SD - predominantly 40mE x 80mN, ranges up to 160mE x 640mN.
		  ○ SN - ranges from 20mE x 20mN to 100mE x 400mN.
		• All assay data for the RC drilling was composited over 2m downhole intervals to match the longest of the most common

Criteria	JORC Code explanation	Commentary
		sample intervals (1m or 2m) prior to resource estimation. • Studies of the spatial continuity of nickel and cobalt grades at the Goongarrie deposits have determined that the drill spacing is sufficient to define Measured, Indicated and Inferred resources in the project area.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *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.*	• Most of the drillholes are vertical and give true width of the regolith layers and mineralisation. • On a local scale there is some variability due to sub-vertical to vertical structures which may not be picked up with the vertical drilling. This local variability is not considered to be significant but may have local effects on mining and scheduling later in the project life, particularly mineralisation along more deeply weathered narrow structures that may enable localised deeper pit developments along such structures.
Sample security	• *The measures taken to ensure sample security.*	• Most of the exploration samples from the Goongarrie deposits were collected and accounted for by Heron, Vale Inco or Ardea employees during drilling. All sub-samples in calico bags were packaged into large plastic bags and closed with cable ties. Samples were transported to Kalgoorlie from site by relevant employees in sealed bulk bags. • Consignments were transported to Ultratrace Laboratories in Perth by reputable commercial transport companies. All samples were transported with a manifest of sample numbers and a sample submission form containing laboratory instructions. Any discrepancies between sample submissions and samples received were routinely followed up and accounted for.
Audits or reviews	• *The results of any Audits or reviews of sampling techniques and data.*	• Heron periodically conducted internal reviews of sampling techniques relating to resultant exploration datasets, and larger scale reviews capturing the data from multiple drilling programmes within the Goongarrie Hub deposits. • All the exploration and corresponding QAQC data were reviewed and assessed again by Vale Inco in 2008, Heron in 2009 and Ardea in 2019 and 2020. Vale Inco, Heron and Ardea all concluded that the quality of the data was suitable for use in resource estimation studies.

Section 2 – Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• All Mineral Resources reported in this report occur within tenement holdings 100% owned by Ardea Resources.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Previous exploration at **Highway (HW)**: ○ Nickel laterite mineralisation in the southern third to half the 5.7km strike extents of the HW deposit was initially drilled by Helix Resources in 2003 with vertical RC holes on a 40mE by 200mN grid. A total of 4,389m of RC drilling was completed amongst 108 RC holes. ○ In 2004 and 2005, Heron extended the initial Helix drill section lines to the edges of the Walter Williams formation with RC holes at 80mE intervals and extended the RC drilling coverage to the north with holes on a combination of 80mE by 80mN and 80mE by 160mN grid spacings. Heron completed a total of 333 holes for a total of 15,749m of RC drilling. ○ Upon the forming of a joint venture between Heron and Vale Inco in 2005, Vale completed 944m of diamond drilling across 21 PQ3 and HQ3 holes at HW in 2006. The drilling twinned various Heron RC holes spread geographically across the deposit to assess the reliability (QAQC) of the geology and sampling data from the Heron and Helix RC drilling and to collect samples for bulk density determinations and material for metallurgical testwork. ○ Vale Inco subsequently completed 16,597m of infill RC drilling amongst 344 holes at HW in 2007 and 2008 resulting in an 80mE x 80mN dominant drill spacing across the deposit. ○ Vale Inco also completed 1,109m of sonic drilling across 23 holes to collect additional samples for verification of the historical RC drilling, samples for bulk density determinations and additional material for metallurgical testwork. • Previous exploration at **Goongarrie Hill (GH)**, **Goongarrie South (GS)**, **Big Four (BF)** and **Scotia Dam (SD)**: ○ Nickel laterite mineralisation at GH, GS, SD and the northern half of BF was initially discovered by Heron Resources Limited with RC drilling in 1999 and 2000, while Anaconda Nickel was the first to drill test (RC) the southern half of BF in 2000. ○ Heron's typical drilling strategy was to complete initial RC drilling of weathered ultramafic rocks of the Walter Williams Formation on an 80mE x 800mN grid, followed by infill drilling resulting in 80mE x 400mN drillhole spacing. Subsequent infill drilling was undertaken on an 80mE by 80mN grid in regions where well-developed nickel laterite mineralisation was intersected by earlier drilling. ○ In 2001 Heron undertook closer spaced infill drilling of deep high grade laterite mineralisation along the eastern side of GS (Pamela Jean zone) initially on a 40mE by 40mN grid, then further infilling to a 20mE x 40mN hole spacing. ○ After acquiring BF South from receivers of Anaconda Nickel, Heron undertook broad spaced infill drilling of BF South in 2004, followed by further infill drilling to 80mE by 80mN spacing in 2006. ○ Drilling of GH has been less systematic than at the other Goongarrie deposits. While Heron began drilling GH initially on 80mE x 400mN grid followed by commencement of 80mE by 80mN infill drilling at the south end of the deposit, the 80mE x 80mN infill drilling was abandoned in favour of drilling a number of small areas with 20mE by 20mN spaced holes in mid-2000 and two small drilling programmes in 2001 and 2002. This was followed by broad infill drilling on an 80mE x 800mN grid offset from the initial 80mE x 400mN spaced drilling 160mN in 2004 and 2006. ○ Heron also completed 8 PQ3 size diamond drillholes at GS in 2000 to gain improved understanding of the deposit insitu structure, material types and solid samples for bulk density determinations.

Criteria	JORC Code explanation	Commentary
		○ A joint venture between Heron and Vale Inco from 2005 to 2009 saw Vale Inco complete significant diamond and sonic drilling as twins to earlier Heron RC holes at the Goongarrie deposits. This previously enabled verification of the geology and assay data from the Heron RC drilling and collection of samples/material for bulk density measurements and metallurgical testwork. ○ Vale Inco also undertook infill RC drilling in the northern half of GS and throughout GH for input to updated resource estimates completed by Vale Inco in 2009 and revised estimates by Heron in 2010. • Previous exploration at **Siberia North (SN)**: ○ Anaconda drilled 10 RC holes in 1997 with collars at 100m intervals on two E–W oriented section lines spaced 1,125mN apart. This was followed by a program of RAB drilling at 200mE x 200mN spacing to further test the continuity of the nickel laterite mineralisation. ○ In 1998 Anaconda drilled 177 RC holes, collared at 50m intervals along drill traverses spaced 100m apart, confirming significant laterite Ni-Co anomalism. ○ In 2000 Anaconda completed 28 RC holes, collared at 100m intervals along drill traverses 400m apart, followed by an additional 22 Anaconda RC holes which infilled the earlier drilling to a 100mE by 200mN hole spacing. Another 158 RC holes infilled mineralisation highlighted during earlier RAB and RC drilling programs with the collars at 50m intervals along east-west drill traverses 100m or 200m apart. In 2000 Anaconda also drilled a vertical 0.93m diameter 28m deep Calweld hole to provide bulk sample material for metallurgical testwork. ○ A Ni-Co laterite resource estimate was undertaken for SN using data from all the RAB and RC drillholes completed to date, and ordinary kriging to complete the grade estimates. • All the exploration datasets collected by previous explorers have been assessed by Ardea technical staff and most of the data found to be suitable for use in resource estimation.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• Nickel laterite mineralisation within the Goongarrie Hub is developed from the weathering of Achaean-aged olivine-cumulate ultramafic units within the Walter Williams Formation (**WWF**) with resultant near surface metal enrichment. The mineralisation typically occurs within 80m of surface (but can extend to 160m depth) and can be subdivided based on mineralogical and metallurgical characteristics into upper iron-rich ("Clay Upper") and lower magnesium-rich ("Clay Lower/Saprock") materials based on the ratios of iron to magnesium. These upper and lower layers can be further subdivided into additional mineralogy groups or material types based on ratios of the other major grade attributes. The deposits are analogous to many weathered ultramafic-hosted nickel-cobalt deposits both within Australia and world-wide. • The continuity of mineralisation is strongly controlled by variations in the ultramafic protolith, fracturing and palaeo water flow within the ultramafic host rocks. Areas of deep fracturing and water movement within the bedrock typically have higher grade and more extensive mineralisation in the overlying regolith. There is also often a distinctive increase in grade, widths and depth of mineralisation coinciding with olivine mesocumulate facies and increased structural deformation proximal to more competent thinner orthocumulate facies and mafic rocks immediately to the east and west of the WWF. Where the host regolith overlies olivine adcumulate lithologies there is typically an increase in siliceous material, coinciding with mostly lower nickel and cobalt grades along the central axis of the WWF. Deeper fracturing occurs along cross cutting structures which often coincides with narrow higher grade nickel and cobalt mineralisation within the adcumulate facies. • The carbonated saprock variant of adcumulate commonly has a palaeo-karst speleothem development, being coarse residual silicified fragments of light-coloured adcumulate "floating" in a matrix of dark red goethite. The open-space within the breccia constitutes a favourable borefield reservoir rock. • Thin layers of transported colluvial, alluvial and lacustrine sediments overlie much of the insitu nickel laterite mineralisation at the Goongarrie Hub, with mostly colluvial sediments approximately 4m thick at GH. All sediment types present at GS range from less than 5m to over 40m thick. At BF and SD and colluvial and alluvial sediments range from less than 5m to 40m thick. Much of the high-grade mineralisation at GS, BF and SD is under 10-20m of transported cover.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*	• Data from in excess of 4,000 drillholes with significant intersections have been used to generate the updated resource estimates for the Goongarrie deposits. Most of the drilling is vertical and represents the true thickness of the sub-

Criteria	JORC Code explanation	Commentary
	• *easting and northing of the drill hole collar* • *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* • *dip and azimuth of the hole* • *down hole length and interception depth* • *hole length.*	horizontal mineralisation. • All the exploration drilling activities undertaken in the Goongarrie Hub and representative results for 'Material' drillholes have previously been reported to the public by Heron and Ardea.
Data aggregation methods	• *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.* • *Where aggregate 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.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Most drillhole samples have been collected over 1m or 2m downhole intervals. Assay compositing completed for each deposit in preparation for statistical analysis and grade estimation was conducted using length weighted averaging of the input assay data by corresponding sample lengths. A 2m compositing length was used aligned with the longest dominant sampling interval used for drill sub-sample collection. • No metal equivalent calculations have been used in this assessment.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *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 mineralisation within the Goongarrie deposits has a strong global sub-horizontal orientation. The majority of the drillholes focused on the nickel and cobalt laterite mineralisation at Goongarrie are therefore vertical and represent the true thickness of the mineralisation. The only exceptions to this are 9 angled drillholes (-60° towards the east) that test the precise location and width of mineralisation resulting from deep weathering along steep westerly dipping structures along the eastern side of GS (Pamela Jean Zone – PJZ or Pamela Jean Deeps – PJD), which could not adequately be determined based on the earlier vertical RC holes.
Diagrams	• *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 plan view of drill hole collar locations and appropriate sectional views.*	• No new discoveries of nickel laterite mineralisation or cobalt rich areas are presented in this report.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• The additional MN estimates discussed in this report represent the MN within lower grade material (below 0.5% Ni cut-off grade) and are not included in the Mineral Resources inventory, which is reported at a 0.05% Ni cut-off grade. Results for the MN are based on previously reported resource models at Goongarrie Hub. • The updated Mineral Resources inventory for the Goongarrie Hub reflects the change from OK model to UC model at Siberia North, and estimates are based on previously reported resource models. Ardea is currently completing an updated resource model for the Siberia North deposit aimed at aligning the estimation methodology with the other five Goongarrie Hub deposits.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; 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.*	• Not applicable to this report.
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• No further drilling is currently planned to further evaluate the nickel laterite resources at Goongarrie Hub. However, further drilling may be required to collect more material for metallurgical testwork as the project advances.

Section 3 – Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• Heron, Vale Inco and Ardea have employed robust procedures for the collection of and storage of sample data. This includes auto-validation of sample data on entry, cross-checking of sample batches between the laboratory and the database and regular auditing of samples during the exploration phase. • Sample numbers were both recorded manually and entered automatically. Discrepancies within batches (samples were batched daily) were field checked at the time of data entry, and resampled if errors could not be resolved after field inspection. • Data validation procedures include digital validation of the database on entry (no acceptance of overlapping intervals, duplicate hole and sample ID, incorrect legend information, out of range assay results, incorrect pattern of QAQC in sampling stream, failed QAQC, missing assays, samples and geological logging). • At the time of resource modelling all data has been visually checked on screen, and manually validated against field notes. Any changes to the database were verified by field checks. • Ardea has undertaken a program of drillhole collar survey and validation. All drillholes in the program were surveyed using DGPS with an established base station control in the vicinity of the GH, GS, BF and SD deposit areas.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Competent Person, Ian Buchhorn has conducted numerous visits to all of the Goongarrie deposits and has been intimately involved in the KNP since 1997. Competent Person, Andrew Penkethman, has been involved with the Company since April 2019 and has completed multiple site visits to the KNP Goongarrie Hub deposits.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• There is a strong and predictable correlation in the geology between adjacent drillholes in all of the Goongarrie Hub deposits. There is also a strong global correlation between the weathering profile, lithology and mineralisation intensity. On a local scale the changes in the weathering profile are often discrete, but of a complex geometry influenced to a large degree by faulting and fracturing in the ultramafic protolith. • Nickel and cobalt mineralisation domains were interpreted in cross section using a combination of assay data and observed geological logging data. The outlines were extended variable distances laterally from marginal mineralised drill intersections to adjacent subgrade or barren drillholes with consideration of the lateral extents evident on the current and adjacent drillhole traverses. The resulting outlines were then used to create wireframe solids of the mineralised domains to constrain resource estimation. • The mineralisation envelopes were subdivided into area domains, reflecting either changes in the dominant local drillhole spacing, or trend in the nickel and cobalt mineralisation based on the interpreted orientation of the host protolith and structures influencing variations in both the tenor of grades and depth of the regolith profile. • **Nickel Domains**: Nickel envelopes were defined using a notional 0.25% Ni cut-off grade applied to the drillhole assay data incorporating internal dilution where necessary to maintain reasonable 3-D continuity of the mineralised domain geometry. While Mineral Resources were ultimately reported using a 0.5% Ni cut-off grade, the nickel envelopes include lower grade material, primarily in saprock, which is often rich in carbonate minerals that could be used as Mineralised Neutraliser (MN). • **Cobalt Domains**: Cobalt envelopes were defined using a notional 0.05% Co cut-off grade for GH, GS, BF, SD and SN applied to the drillhole assay data, also incorporating internal dilution where necessary to maintain reasonable 3-D continuity of the mineralised domain geometry as well as being constrained within the nickel envelopes. A notional cut-off grade of 0.03% Co was used for the HW deposit. These envelopes were used to subdivide the nickel domains into cobalt-rich and cobalt-poor domains. • **Scandium Domains**: As scandium assays were not available across the entirety of any of the Goongarrie Hub deposits, additional boundaries were defined isolating the regions of the modelled nickel mineralisation envelopes informed with scandium assay data, in order to apply corresponding domaining in the resource block models to constrain the spatial extents of scandium grade estimates to the same regions informed with scandium assay data. As scandium assay data was only available for selected downhole intervals for an irregular pattern of historical

Criteria	JORC Code explanation	Commentary
		drillholes, REE resource envelopes were modelled based on the drillhole intervals over which pulp re-assaying was undertaken by Ardea to enable estimation of scandium resources and provide data for gold and nickel sulphide exploration targeting. Cross sectional outlines were interpreted based on 15ppm cut-off applied to the sum of the scandium, cerium, neodymium and praseodymium assay data, with the resulting outlines used to construct wireframe solids to constrain estimation of scandium resources. • **Paleochannel and Surficial Calcrete Domains**: Paleochannel and surficial calcrete/pedogenic sediments domains rich in carbonate minerals were modelled to constrain estimation of carbonate mineral quantities for consideration as acid neutralisation materials in the proposed ore processing flowsheet in future mining studies. A threshold of 5% CaO+MgO (equating to a minimum of 10% contained carbonate mineralogy), elevated Loss on Ignition (LOI) assays, and drillhole logging data was used to interpret cross-sectional paleochannel carbonate outlines from which wireframe solid models were generated. Cross sectional profiles defining the base of combined surficial calcrete and carbonate rich pedogenic soils were also interpreted based on similar assay and geological data considerations. Envelopes constraining paleochannel material particularly high in kaolinite (with Al2O3 >25%), but also low in iron (FeO <5%) were also modelled to allow quantification of material that could potentially be a future source of High Purity Alumina. • **Overburden and Regolith Domains**: A combination of geological logging and assay data was used to sub divide the mineralisation into high iron (goethite rich) domains of more intensely weathered insitu material, and underlying high magnesium (saprock) mineralisation within the mineralised domains. These were interpreted as cross sectional profiles from which 'top of saprock' wireframe surface models were generated. The interface between insitu nickel bearing clays derived from ultramafic protolith, and overlying transported sediments comprised of alluvium, colluvium, and pedogenic surficial material has also been modelled for each of the Goongarrie Hub deposits mostly based on drillhole geological logging data. Occasionally elevated nickel and cobalt grades in the transported material are interpreted to be colluvial material derived from nickel laterite mineralisation exposed at surface in the past. The base of transported sediments was also interpreted as cross-sectional profiles from which wireframe surface models were generated. • The domaining approach is robust and provides suitable constraints for resource estimation accounting for variations in the complexity of the geology. Potential for bias is minimised in the interpretation by incorporating subgrade drill intercepts and sample intervals into the resource envelopes where the local drillhole spacing is too broad to assume connectivity of higher grades. • The Competent Persons (CP) considers the geological interpretation of the Goongarrie deposits to be robust and to provide suitable constraints for resource estimation.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• Resource dimensions vary between deposits. • **Goongarrie Hill (GH)**: The total strike length of the nickel and cobalt mineralisation domains is 5.2km with the nickel envelope averaging 750m wide and 50m thick. The main cobalt domain is approximately 700m wide extending 2.2km south from the northern end of GH, bifurcating into a 500m wide western zone extending another 1.1km south before tapering to 140m wide and extending a further 1km south. The 150m wide eastern zone extends 3km south from the bifurcation to the south end of the deposit. The cobalt domains range from 2m to 30m thick and average approximately 15m thick. Interpreted depth of the mineralisation averages from approximately 8m below surface down to approximately 55m below surface. • **Goongarrie South (GS)**: The total strike length of the main nickel and cobalt mineralisation domains is approximately 7.4km with observed widths of approximately 400m and up to 1km.. Several semi-parallel mineralisation zones for the smaller cobalt domains are observed are with variable thicknesses typically ranging in the order of 5m to 20m thick with some zones being up to and exceeding 50m thick in the area referred to as the Pamela-Jean zone. Mineralisation has been modelled from near surface down to approximately 160m below surface. • **Big Four (BF)**: The total strike length of the main nickel and cobalt mineralisation domains is approximately 7.7km with observed widths of approximately 300m. In the cobalt domains, several semi-parallel mineralisation zones are observed with variable thicknesses typically in the order of 5m to 15m thick with some zones being in the range of 20m to 40m thick. Mineralisation has been modelled from near surface down to approximately 80m below surface.

Criteria	JORC Code explanation	Commentary
		• **Scotia Dam (SD)**: The total strike length of the nickel and cobalt mineralisation domains is approximately 1.3km with observed widths of approximately 250m and up to 550m. Possibly two cobalt mineralisation zones are observed with variable thicknesses typically in the order of 5m to 25m thick with some zones being up to and exceeding 35m thick towards the northern end of the main mineralised zone. Mineralisation has been modelled from near surface down to approximately 55m below surface. • **Highway (HW)**: The nickel mineralisation occurs within a single zone that extends over a strike length of 5.7km averages approximately 50m thick and is 1.2km wide at the south end, gradually tapering to 300m wide at the north end. The interpreted top of mineralisation ranges from surface to 25m below surface, averaging 10m below surface. The interpreted base of mineralisation ranges from 6m to 80m below surface, averaging 60m below surface. • **Siberia North (SN)**: The mineralisation occurs in a single zone that extends over a 7km strike length and averages approximately 1.5km wide over 4km (central region) and 500m wide over 3km (combined north and south ends). Mineralisation has been modelled from near surface down to approximately 70m below surface.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• Resource modelling processes were undertaken using Maptek Vulcan software for all Goongarrie deposits with the exception of Siberia North (SN) where Datamine/Isatis was used. • Based on the drill sub-sample length analysis, the domain coded sub-sample assay data were composited to 2m intervals in preparation for statistical analysis, variography and grade estimation. Various statistical tests were completed to determine the optimal composite length of 2m. • While Ni and Co are the primary focus of the resource estimate, statistical analysis, variography and grade estimation were also undertaken for FeO, MgO, Al2O3, SiO2, CaO, Mn, Cr, Sc and Loss On Ignition (LOI) which are relevant to assignment of geo-metallurgical material types and dry bulk density values to the resource model. • Classical statistical analysis for each deposit was undertaken with cell declustering applied and scaled typically to the greatest drillhole spacing of significant coverage at each deposit, and a 2m cell height. The data for Ni and all the other grade attributes except Co and Mn were subdivided by the clay (high FeO and low MgO) and saprock (low FeO and high MgO) domains. Conversely, the Co and Mn data, which are moderate to strongly correlated, were subdivided by inside versus outside the Co resource envelopes within the Ni resource envelope. Elevated coefficients of variation (CV) greater than 1.0 but less than 2.0 were reported for Al2O3, CaO, and Cr in the saprock domains, and MgO in clay domains, while similar range CV values were reported for Co in the high Co domains and Mn in the low Co domains. The highest CVs greater than 2.0 but mostly less than 3.0 were reported for CaO in the clay domains. • Suitable upper and lower cuts were determined for any grade variables showing anomalously high or low outlier grades. The application of the cuts only had local influences on the corresponding grade estimates with no material effects on the domain global mean grades. A similar approach to grade cutting was adopted for the paleochannel carbonate and high alumina domains. • Continuity analysis (variography) was undertaken for all grade attributes subdivided by the clay and saprock domains and grouped area domains with similar grade trends and mineralisation characteristics. Co and Mn were subdivided by the grouped high grade and low-grade cobalt domains. 3-D variography was generated as semi-variograms normalised to an overall sill of 1.0 based on the non-declustered composite grades or normal score transform of the grades for each domain or domain group. The variography was modelled with a nugget effect and up to three spherical structures. The continuity analysis determined that the drillhole spacing within all the deposits is considered sufficient for the estimation of Ni, Co and Sc mineral resource grades, and support grade attributes. • A 3-D regular block model was constructed of each of the Goongarrie Hub deposits (combined for BF and SD) with nickel, cobalt, rare earth, regolith (including transported) and area (orientation and data spacing) domain coding assigned based on the geological interpretation. Grouped domain coding based on the initial domain assignments was also defined to facilitate running of resource modelling processes, where appropriate, for similar trending regions and/or styles of mineralisation. All the block models were constructed using regular block dimensions of 10mE by 10mN by 2mRL. • Mineral Resource nickel and cobalt grades were estimated by ordinary kriging (OK) into panels ranging in size from 20mE x 20mN x 4mRL to 40mE by 80mN x 4mRL mostly based on half the dominant drillhole spacing in the area

Criteria	JORC Code explanation	Commentary
		domain or area domain group. The ordinary kriged panel estimation was followed by Local Uniform Conditioning (LUC) to produce final nickel and cobalt resource grade estimates for 10mE by 10mN by 2mRL selective mining unit blocks reflecting recoverable volume and grade estimates expected upon mining based on a 10mE by 10mN by 2mRL grade control spacing or less. • To account for variations in the drillhole spacing, which often systematically changes between regions of higher and lower grade mineralisation, the ellipsoidal search neighbourhood for each estimation domain was divided into octants with a maximum of 4 composites selected from any one octant, and usually, a minimum of 8 and a maximum of 24 composites used to estimate each panel. In addition, the maximum number of composites selected from each drillhole was restricted to 4. • Hard boundaries between the clay and saprock domains was used for the estimation of nickel grades and similarly between the high- and low-grade cobalt domains when estimating cobalt grades. However, soft boundaries with no restrictions other than the search neighbourhood parameters noted above were used between the mineralisation orientation/drillhole spacing domains within the clay and saprock domains. • Validation of the ordinary kriged panel and LUC SMU estimates for each deposit was undertaken by detailed visual review of the block model estimates relative to the input drillhole composite grade data, global mean grade comparisons between the input composites data and the block model grade estimates subdivided by the estimation domains, and grade-volume curve comparisons between the block model estimates and gaussian global change of support (GSOS) data generated for the panel and SMU dimensions subdivided by the clay and saprock domains and the deposit area domains based on the declustered composite grade datasets for each deposit. The validation indicated that the ordinary kriged panel and LUC SMU nickel and cobalt estimates are with acceptable ranges considering the influences of soft estimation boundaries between adjacent area domains, the large vertical sample searches and geostatistical considerations, particularly, Information Effect (relating to the local exploration drillhole spacing). In addition, for both OK and LUC swath plots in different orientations were constructed for comparison between input composites and block grade. Detailed internal peer review was completed. • The supporting grade attributes including, MgO, FeO, Al2O3, and Cr with similar drillhole sample assay availability as Ni and Co were estimated by ordinary kriging into 10mE by 10mN by 2mRL size blocks using the same search neighbourhood parameters and domain control used for estimation of nickel grades. Estimation of Mn used the same constraints used for Co (high- and low-grade cobalt domains). Visual and global mean grade comparisons between the resultant grade estimates compared to the input composites data subdivided by the estimation domains were considered acceptable. • Ordinary kriging of SiO2, CaO, and LOI grades, was undertaken using larger search neighbourhoods to account for the absence of assay data for 20-30% of the samples. Similar validation processes were completed as for the other support grade attributes followed by adjustment of the initial SiO2, CaO, and LOI grade estimates on a relative ratio basis forcing the sum of all the estimated grade attributes (as oxides) to range between 95% and 105%. This was required for robust application of the material type classification scheme discussed below. • Ordinary kriging of scandium grades into 10mE by 10mN by 2mRL size blocks was also undertaken using larger search neighbourhoods to account for the broad data spacing (up to 80mE by 400mN at GS) outside the areas of Ardea infill drilling in the southern half of GS (effectively 80mE by 80mN spacing), the areas of Ardea infill drilling at BF and SD (also effectively 80mE by 80mN spacing), and a crude 80mE by 160mN spacing over selected regions and drillhole intervals at GH. These estimates were further constrained by the regions and drillhole intervals informed with scandium assay data. No adjustments were made to the ordinary kriged scandium estimates. Validation of the scandium grade estimates was undertaken in a similar manner to the support grade attributes with reasonable correlation evident between the input data and the block model grade estimates. • Quantitative XRD mineralogy data for 164 samples from the Ardea 2017 and 2018 diamond drilling at GS and 96 pulps from historical RC and diamond drillholes at GH was merged with the multi-element geochemical data for the samples, and detailed analysis undertaken of the mineralogy data subdivided by the geological interpretation and a combination of grade and grade ratio thresholds based on the major geochemical attributes in the samples (MgO/FeO, Al2O3/SiO2 and SiO2/(MgO+FeO+Al2O3). The analysis resulted in the development of material type classification schemes for GS and GH based on geological and geochemical classification criteria relating to natural

Criteria	JORC Code explanation	Commentary
		mineral groupings present in the Goongarrie Hub weathering profile. Algorithms were developed in MS Excel and Vulcan block model scripts to assign material type codes to the drillhole samples for control in the statistical analysis of the bulk density data, and to control the assignment of determined bulk density values to the resource models.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• All tonnages are reported as dry tonnes for all models. Wet and dry bulk density and moisture measurements were determined for a comprehensive suite of diamond and sonic drill core samples from each of the Goongarrie deposits. • Density measurements including moisture were initially collected using the Archimedes method with the samples sealed in wax or a vacuum bag prior to weighing submerged in water. The wax was then removed and the sample re-weighed before and after oven drying. • Sample volumes were calculated based on the sample dimensions (length and diameter) measured for each sample. The moisture content of each sample was determined by weighing the sample when wet (as recovered from the drillhole) and then weighing it again after thorough oven drying and calculation of moisture by (wet_wt – dry_wt) / wet_wt * 100. Wet and dry bulk density measurements were determined by dividing the respective sample weight by the volume determined based on the core sample dimension measurements.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• Cut-off grades of 0.25% Ni and 0.05% or 0.03% Co were used to interpret and model the nickel and cobalt mineralisation envelopes used to constrain the Goongarrie Hub resource estimates. These thresholds were chosen based on geological observation of the continuity of the nickel and cobalt grades within various regions of the weathering profile that could be of potential economic value to the project. Ardea has undertaken internal mining studies since the Ardea 2018 PFS that indicate the potential for significant nickel credits from saprock material rich in dolomite and magnesite (carbonate minerals), typically containing an average of 0.25% Ni, that could be used as a neutraliser in the proposed pressure acid leach processing flow sheet and contribute additional nickel units to production (Mineralised Neutraliser). • Mineral Resource reporting has been undertaken using a 0.5% Ni cut-off grade which is the common industry threshold used for resource reporting for typical nickel laterite deposits. While cobalt and scandium contribute to the project value, the grades and associated value are much less than nickel and therefore are not incorporated into the resource reporting cut-off grade criteria. The 0.5% Ni cut-off has also consistently been used by Heron, Vale Inco and Ardea since 2004 for reporting the overall Mineral Resources in the KNP which have been updated in this report to include the updated resource estimates for the Goongarrie Hub. All the other Mineral Resources outside the Goongarrie Hub, stated in this report, have previously been reported in the public domain. • Ardea notes that while scandium would inherently be taken into solution with nickel-cobalt in the proposed pressure acid leach processing flowsheet, it would unlikely be economic to recover scandium from solution when present in low concentrations. Scandium was also noted within the Goongarrie Hub assay suite in higher grade concentrations above the 0.25% nickel grade shell envelope. None of this material has been domained or included in the resource estimate. On this basis, Ardea has also reported scandium resources using a 20 ppm Sc cut-off grade applied to the Ni and Co resources based on a 0.5% Ni cut-off grade.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is* • *always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining* • *methods, but the assumptions made regarding mining methods and* • *parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• Open pit mining via conventional dig and haul is assumed for all the Goongarrie Hub deposits. The need for blasting is likely to be limited to pedogenic calcrete at surface, a layer of indurated ferruginous laterite that often overlies the nickel and cobalt mineralisation at GS, BF and SD, and underlying saprock rich in serpentine and the carbonate minerals dolomite and magnesite, should saprock be mined for use as acid neutralising material for ore processing. • For the purposes of removing unlikely to be economic resources from the resource statement, TME Mine Consulting (TME) carried out a pit optimization for each of the Goongarrie Hub deposits using a "blue sky" US$27,558 per tonne nickel price (consistent with the price used for similar pit optimisation work as part of the Ardea PFS in 2018, and Heron in 2013 when converting earlier JORC 2004 compliant resource estimates to JORC 2012 compliant estimates). A "blue sky" US$64,485 per tonne cobalt price was also applied in the resource pit optimisation work undertaken by TME. Mining and processing costs and other appropriate costs were also used to complete the resource optimisation work. • All the Goongarrie Hub resource model blocks based on a 0.5% Ni cut-off were deemed potentially economic based on the resource optimisation parameters and therefore have been reported as Mineral Resources in this report.

Criteria	JORC Code explanation	Commentary

		• The Goongarrie Hub deposits have been the subject of detailed metallurgical studies. The preferred metallurgical approach is based on an "off-the-shelf" HPAL flow sheet with a particular focus on improving the recovery of reagents during processing to improve unit costs.
		• A key component of the PFS was replacement of limestone sourced from third parties with mineralised neutralising (MN) material sourced from within the deposits mined. The PFS identified that the quantity of MN required for neutralisation could not be supplied using the 0.5% Ni cut-off used for estimating the Mineral Resource. Therefore, it was necessary to consider lower grade material to meet supply requirements for the Goongarrie Hub. Whilst ostensibly used for neutralisation of free acid from the discharge stream of the leaching circuits, both high pressure and atmospheric pressure, the material identified as MN also contributes to the nickel and cobalt production of the Goongarrie Hub. Key specifications for the MN were:
		  o LOI >25% and Ni >0.3%., or
		  o LOI >25% and Ni >0.2% and Si <= 23%
		• As this specification was based on the characteristics of the material that demonstrated acid neutralising capacity and not economics, each deposit contained surplus requirements. The preferred source of MN was defined as a subset of this material type using pit optimisation and scheduling analysis undertaken as part of the PFS.

Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining* • *reasonable prospects for eventual economic extraction to consider potential* • *metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should* • *be reported with an explanation of the basis of the metallurgical* • *assumptions made.*	• The Goongarrie deposits have been the subject of detailed metallurgical studies. • The current focus of studies and the preferred metallurgical approach is high pressure acid and atmospheric leaching methods with a particular focus on improving the recovery of reagents during processing to improve unit costs.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining* • *reasonable prospects for eventual economic extraction to consider the* • *potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• It is expected that waste rock material will largely be disposed of inside previously completed pits during the life of mine. Tailings disposal will consist of a mixture of conventional tailings dams and disposal in mined out pits. All of the material mined will be of an oxidised nature and as such there is not expected to be any acid generating minerals in the waste rock material. The processed tailings will need to be neutralised or recovered from the tailings stream prior to disposal in waste storage facilities. The expected landforms at the conclusion of the project will be of similar profile to the current landforms. • Environmental studies for the project have commenced with base line surveys for flora and fauna. However, as the final process route is currently subject to research, the final environmental plans are yet to be developed. It is reasonable, given the existing nickel laterite operations in WA, that all environmental issues can be resolved and it will be possible to mine the resources within current environmental guidelines.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of* • *the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Wet and dry bulk density and moisture measurements were determined for a representative suite of diamond and sonic drill core samples from the Goongarrie deposits, including 105 samples from 3 diamond and 8 sonic drillholes at GH, 828 samples from 36 diamond holes at GS, 402 samples from 21 diamond drillholes at BF and SD and 261 diamond and sonic drill core samples at HW. All the material types (mineralised and waste) in the weathering profile were targeted for density determinations. • Core Sample Density Measurements: Wet density values of the Vale Inco diamond and sonic core samples were measured using the Archimedes method including either coating the samples with wax or vacuum sealing them in plastic bags prior to weighing them submerged in water. Wet sample weights were recorded pre–wax coating or vacuum sealing, after coating or sealing, and after removal of the coating or sealing (after weighing submerged in water). The samples were thoroughly oven dried after removing the coating or sealing, and subsequently re-weighed to determine the dry sample weight and moisture content. The dry bulk density was then calculated by multiplying the wet density by (1 – moisture) with percentage moisture in the wet sample expressed as a proportion value between 0 and 1. Also, for Heron and Ardea density sample volumes were calculated based on the sample dimensions (length and diameter) measured for each sample.

Criteria	JORC Code explanation	Commentary

		• Downhole Geophysical Density Measurements: Downhole geophysical density logging was also undertaken by Vale Inco of 14 sonic and 8 RC drillholes at GS, and 11 sonic and 13 RC holes at GH. Caliper (hole diameter), short space density and long space density values were recorded at 10cm downhole increments in each hole. The resulting data were composited to 1m downhole intervals coinciding with the dominant sub-sampling interval used by Vale Inco during their RC drilling.
		• The manually determined bulk density and moisture data for the core samples and 1m composites of the geophysical density data were merged with the corresponding assay data (if available) for the samples or sample intervals and material types assigned based on the geochemical criteria derived from the analysis of the XRD mineralogy data. The holes were drilled primarily to collect bulk material for metallurgical testwork and therefore no detailed downhole sampling and assaying was undertaken, and typically twinned earlier Heron RC holes. If assay data for sufficient grade attributes (including SiO_2 and CaO) were available for the twinned RC hole, material type assignments were calculated and assigned to the same downhole interval in the more recent sonic or diamond drillhole for which downhole geophysical density logging had been undertaken. Assays were available for all the grade attributes required to calculate material type assignments for the following bulk density datasets:
		  ○ 828 manual bulk density measurements for GS, and 402 manual bulk density measurements for BF and SD based on assays of samples from the same diamond drillholes.
		  ○ 105 manual bulk density measurements for GH based on assays of samples from the twinned RC holes.
		  ○ 349 x 1m composites of the geophysical density data for GS, and 500 x 1m composites of the geophysical density data for GH based on assays of samples from the twinned RC holes.
		  ○ 261 manual bulk density measurements and 971 sample intervals coinciding with downhole geophysical density logging for HW.
		• Average wet and dry bulk density and moisture were calculated subdivided by the material type classification scheme based on the density and moisture measurements of the core samples.
		• Composites of the long and short spaced geophysical density data (matching the corresponding downhole subsample intervals and assay data) were assessed in a similar manner subdivided by the respective material type classification schemes. The long space density averages were found to reconcile closely with the wet density averages based on the manual measurements and therefore, were treated as the preferred geophysical wet density average values. This is well justified as the short space geophysical density values are highly susceptible to low bias in drillholes with significant variations in diameter over short downhole intervals, which is expected within the very soft earthy goethite rich material and local variations in material type hardness within the weathering profile.
		• Given the close overall agreement between the wet density averages based on the manual density measurements of core samples and geophysical density measurements, the average moisture values determined based on the core samples subdivided by the material type classification were used to convert the average wet bulk density values based on the geophysical density dataset, to dry bulk density values and weighted average dry bulk density values were calculated based on a combination manual and geophysical bulk density datasets subdivided by the material type classification scheme.
		• The resulting average dry bulk density values range from 1.4 t/m3 to 2.1 t/m3 and were assigned to the resource models for the GS, GH, BF, SD and HW deposits.
		• Material types and density values for the SN were assigned to each block based on algorithms supplied by Ardea. This was based on statistical analysis of bulk SN deposit. Estimated carbonate mineral content and total assay have been calculated and used for these assignments rather than using the kriged values. In addition, several ratios as well as the estimated magnesia in silicate minerals are calculated. Values range from 1.51 t/m3 to 1.88 t/m3.
		• The magnitude and variation of the average dry bulk density values are aligned with expectations of the variations in bulk density observed in the core samples collected from the extensive diamond and sonic drilling completed at the Goongarrie deposits.

Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data,*	• The Mineral Resource Estimates for the Goongarrie Hub have been classified in accordance with the JORC Code (2012 Edition) guidelines. • With consideration of all the classification criteria in JORC Table 1 and the dominance of nickel in the overall value

Criteria	JORC Code explanation	Commentary
	• *confidence in continuity of geology and metal values, quality, quantity and* • *distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of* • *the deposit.*	of the Goongarrie Hub, slope of regression and kriging efficiency statistics recorded for the ordinary kriged panel nickel estimates were reviewed and suitable confidence thresholds selected as a guide to subdividing the combined nickel, cobalt and scandium estimates for the Goongarrie Hub deposits into Measured, Indicated and Inferred Mineral Resources. A slope of regression threshold of 0.7 was used to define boundaries between Indicated Resources (> 0.7) and Inferred Resources (< 0.7) within the insitu regolith domains of all the Goongarrie Hub deposits, while a kriging efficiency threshold of 0.6 was used to define boundaries between Measured Resources (> 0.6) and Indicated Resources (< 0.6) at the GS deposit. • Initial resource classification assignments based on these criteria were applied to the resource models and used as a basis for defining 3-D envelopes constraining the resource model blocks showing strong continuity of blocks with the same classification assignments and downgrading the confidence of blocks showing poor continuity in terms of the initial classification. • Wireframe solids of the modified resource classification boundaries were used to assign final resource classification codes to all blocks within the nickel mineralisation domains, with any mineralised blocks in transported material classified as Inferred Resources. • It must be emphasised that the resource classification is based on the nickel estimates, which Ardea considers to be equally applicable to the cobalt estimates. However, the confidence in the scandium resource estimates is less due to the variable broader data spacing reflecting the assay data based only on the Ardea drilling and pulp re-assay programmes. • The Competent Person (CP) considers the resource classification applied to the Goongarrie Hub resource models to reflect appropriate confidence in the input exploration data, geological interpretation and resource grade and tonnage estimates.
Audits or reviews	• *The results of any Audits or reviews of Mineral Resource estimates.*	• In December 2020 Ardea commissioned consultants, Optiro Pty Ltd, to undertake a high-level independent review of Ardea's new resource estimate for Goongarrie South (GS) in order to provide comment on the exploration input data, resource modelling processes and results for the largest Goongarrie deposit. Optiro concluded there are no material issues with the GS Mineral Resource Estimate. • Snowden completed an internal peer review of the Siberia North (SN) estimate upon completion in 2009.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure* • *deemed appropriate by the Competent Person. For example, the* • *application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates,* • *and, if local, state the relevant tonnages, which should be relevant to* • *technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The classification of Mineral Resources in the Goongarrie Hub is based on consistent criteria determined according to measures of estimation confidence and accuracy (slope of regression and kriging efficiency) relating to the ordinary kriging of panel nickel grades that form the basis of the recoverable resource estimates for nickel based on LUC. The slope of regression and kriging efficiency thresholds used to guide definition of the resource classification boundaries are similar to those used throughout the mining industry when developing resource classification criteria based on these measures. • These geostatistical criteria and overall approach to the classification of the Goongarrie Mineral Resources is considered appropriate by the CPs and has recently been endorsed by Optiro in their high-level review of Ardea's resource estimate for GS. On the basis on uniformity of estimation methodology, the GS conclusion should be applicable to the greater Goongarrie Hub.

Appendix 3 - Representative Plans and Cross sections for Goongarrie Hub PFS subset deposits

- Highway Geological Interpretation

LEGEND

Geological Interpretation

- Nickel mineralisation envelope
- Cobalt mineralisation envelope
- Surface topography
- Base of calcrete
- Base of transported sediments
- Top of saprock

Drill hole Traces

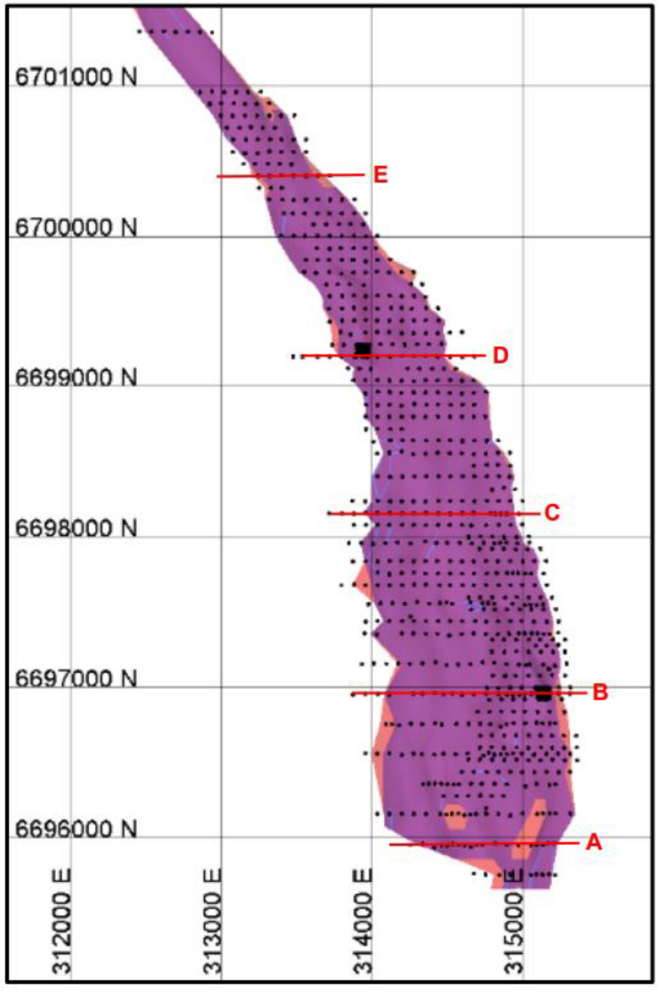
MgO %

-99.000 <= < 0.000
0.000 <= < 3.000
3.000 <= < 5.000
5.000 <= < 10.000
10.000 <= < 15.000
15.000 <= < 20.000
20.000 <= < 30.000
30.000 <= < 99.000

Plan

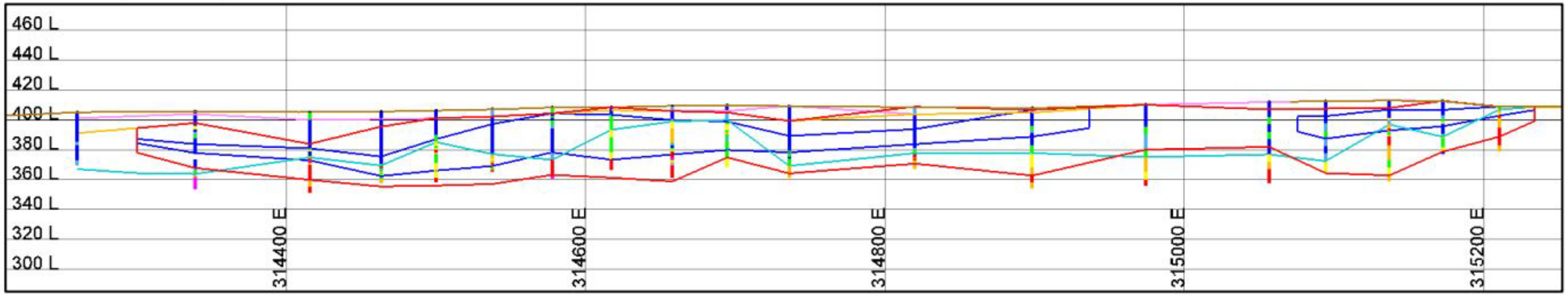
Nickel mineralisation envelope >>
Cobalt mineralisation envelope >>

Cross Section Locations



Geological Interpretation

6695960N (Section A)



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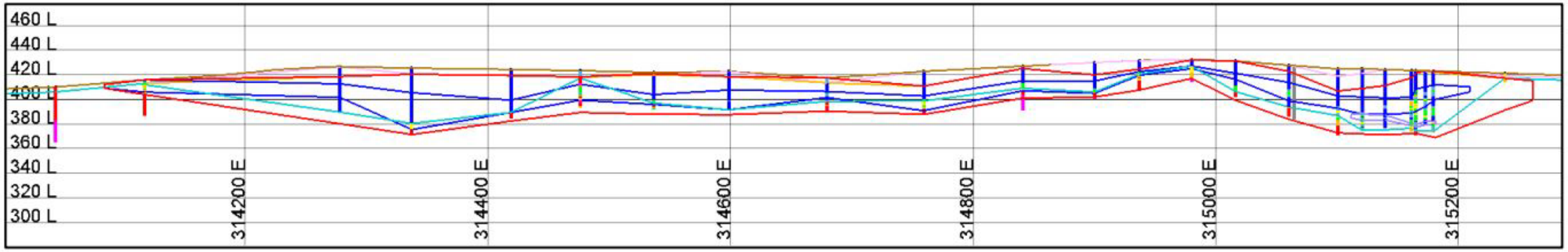
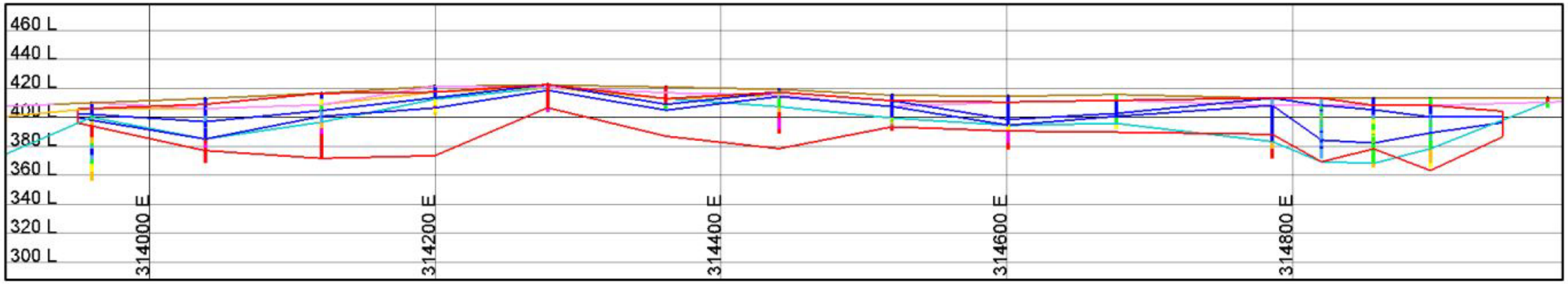
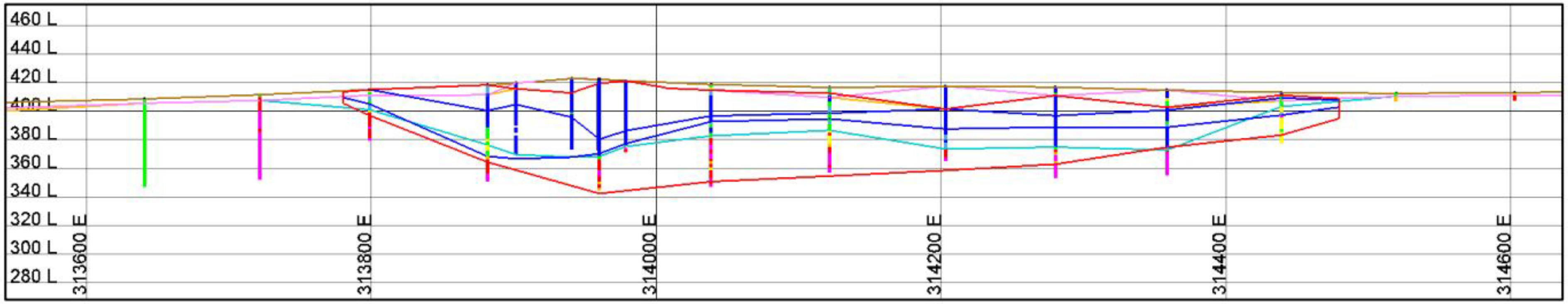


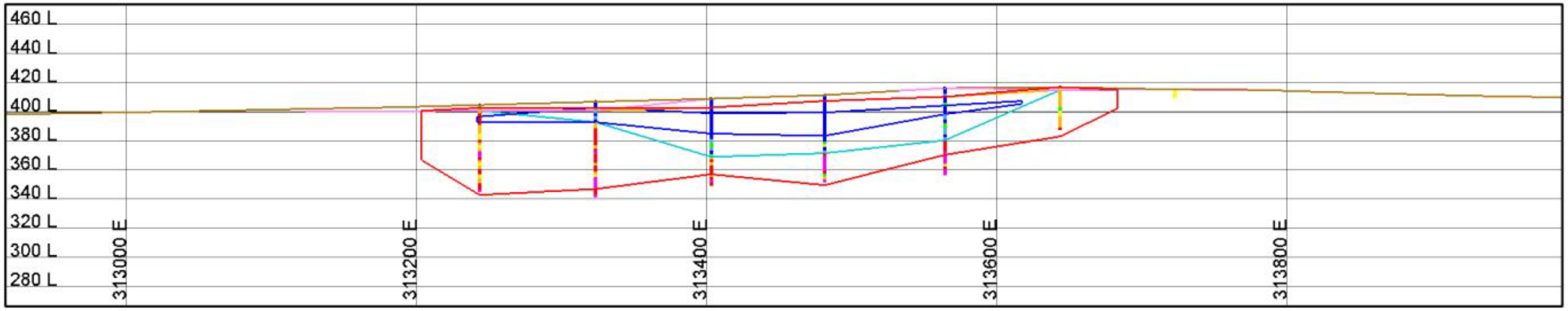
6698160N (Section C)



6699200N (Section D)



6700400N (Section E)



- Highway Block Model

LEGEND

Geological Interpretation

- Nickel mineralisation envelope
- Cobalt mineralisation envelope
- Surface topography
- Base of calcrete
- Base of transported sediments
- Top of saprock

Drill hole Traces & Block Model

Upper Section (Ni%)

-999.000 <=		< 0.000
0.000 <=		< 0.250
0.250 <=		< 0.500
0.500 <=		< 0.800
0.800 <=		< 1.000
1.000 <=		< 1.500
1.500 <=		< 99.000

Drill hole Traces & Block Model

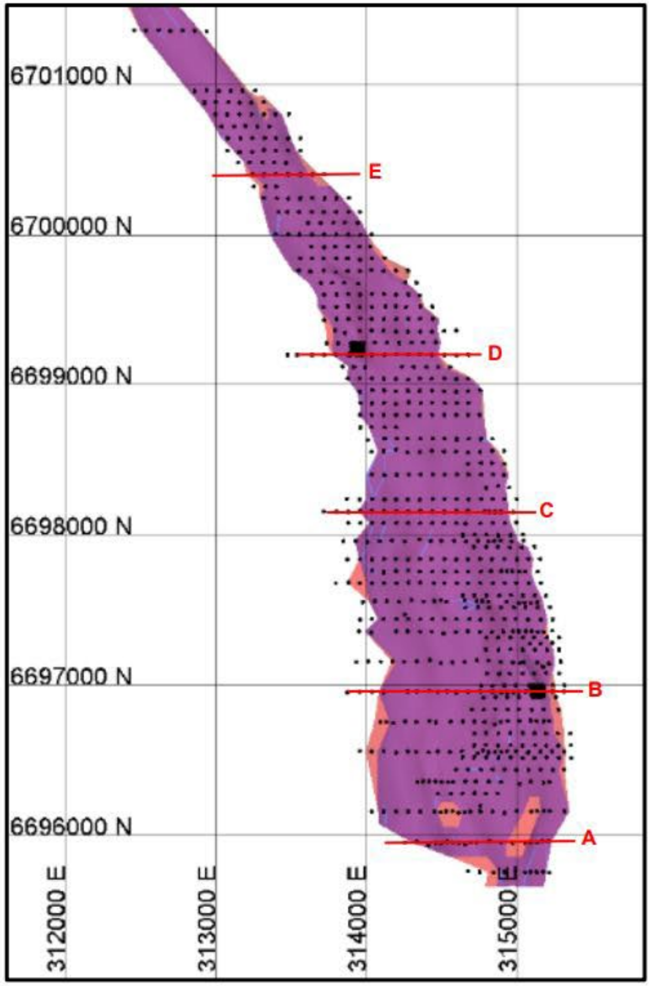
Middle Section (Co%)

-999.000 <=		< 0.000
0.000 <=		< 0.010
0.010 <=		< 0.030
0.030 <=		< 0.050
0.050 <=		< 0.100
0.100 <=		< 0.200
0.200 <=		< 99.000

Lower Section
(Material Type)

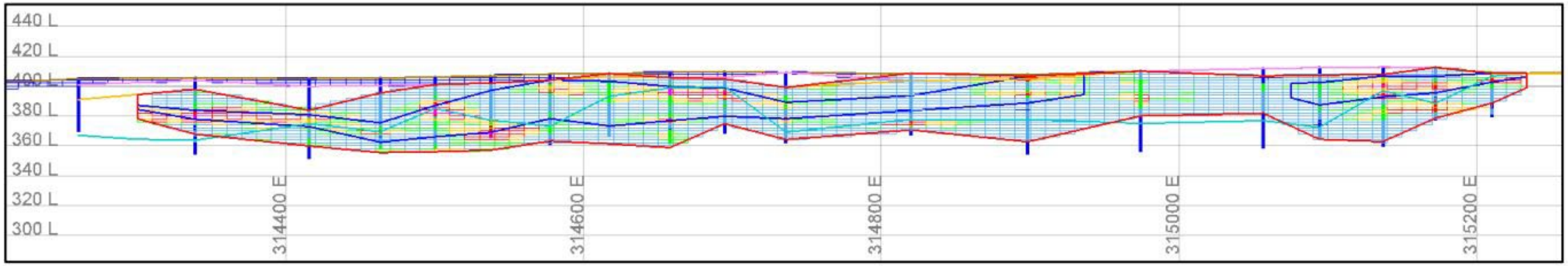
PSQ	CUGK*	SRSE
PSQB	CUGF	SRSB
PCF	CUGFZ	SREB
PCFB	CUSF*	SRBS
ALB	CUGFB	SRBE
ALQK		SRGR
ACKS		SREF
ACKG		
ALKFS		
LAFKH		

Cross Section Locations

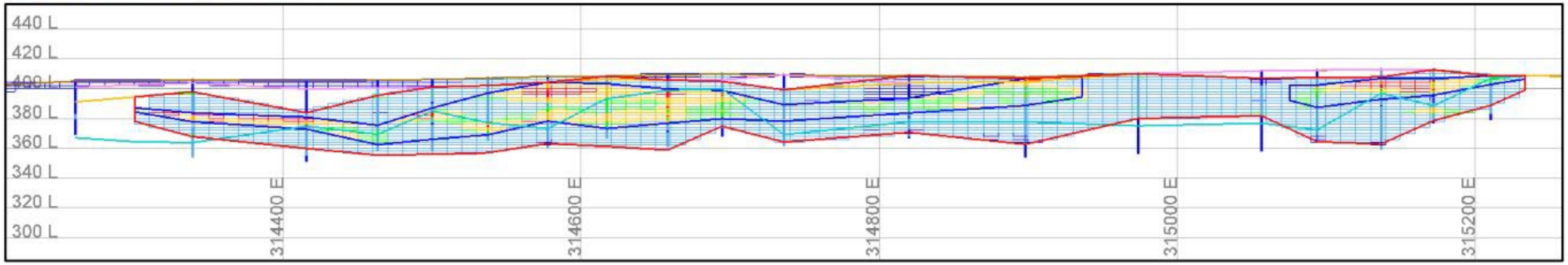


6695960N (Section A)

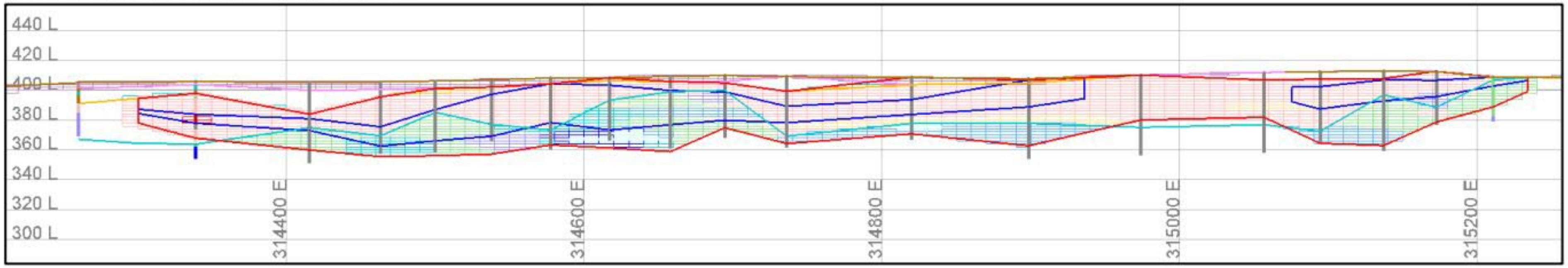
Block model LUC nickel estimates



Block model LUC cobalt estimates

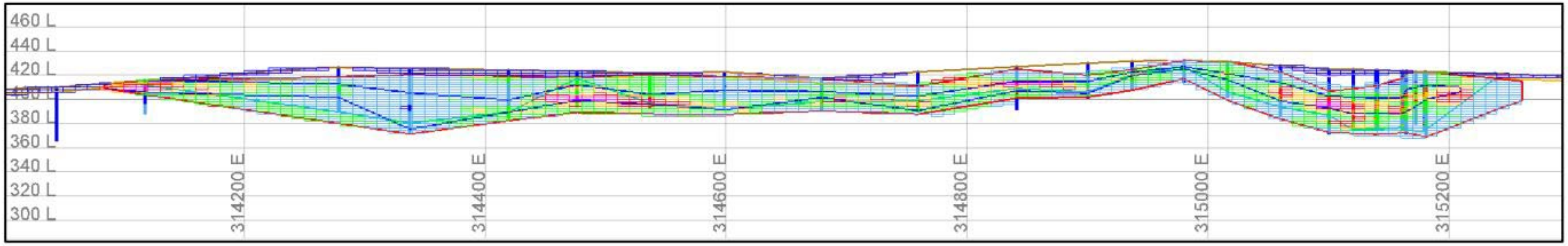


Block model material type assignments

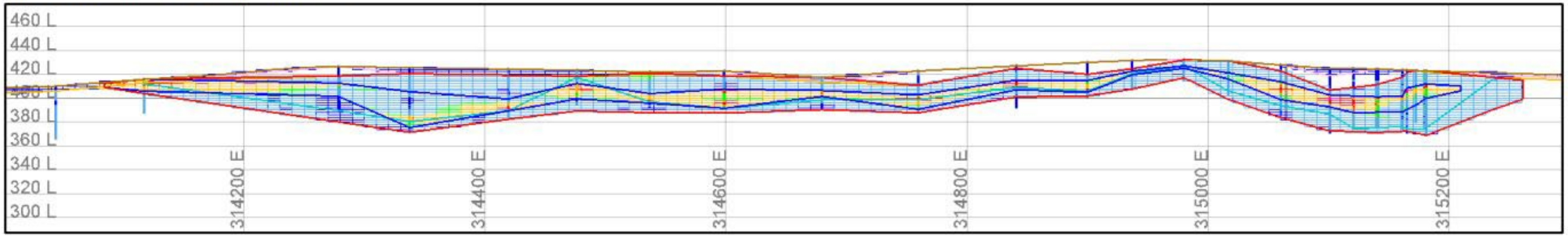


6696960N (Section B)

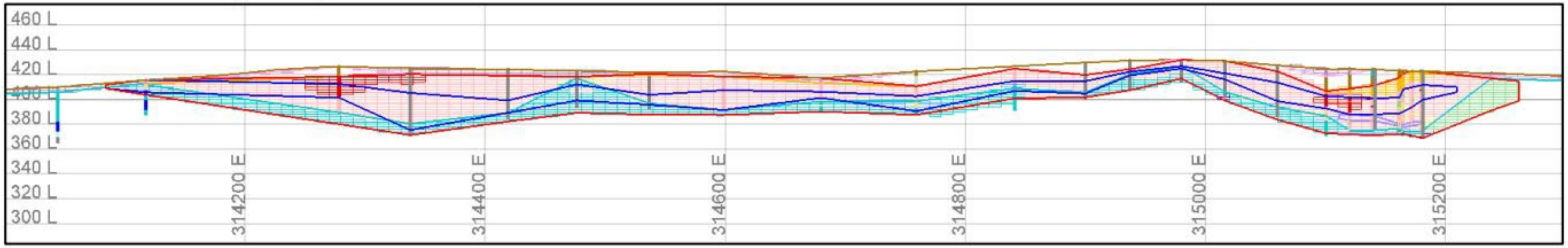
Block model LUC nickel estimates



Block model LUC cobalt estimates

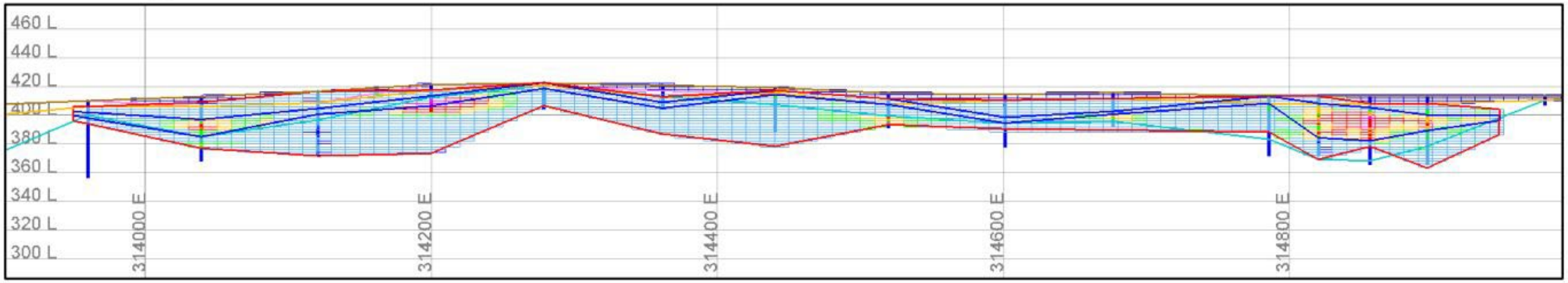


Block model material type assignments

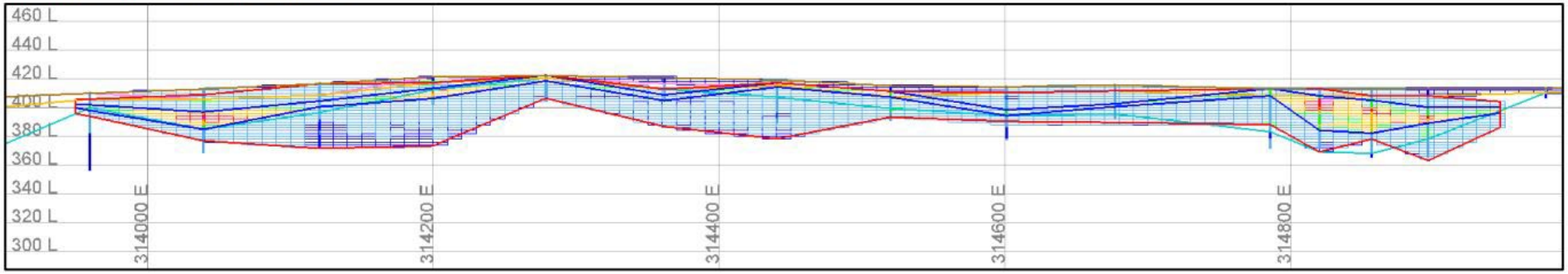


6698160N (Section C)

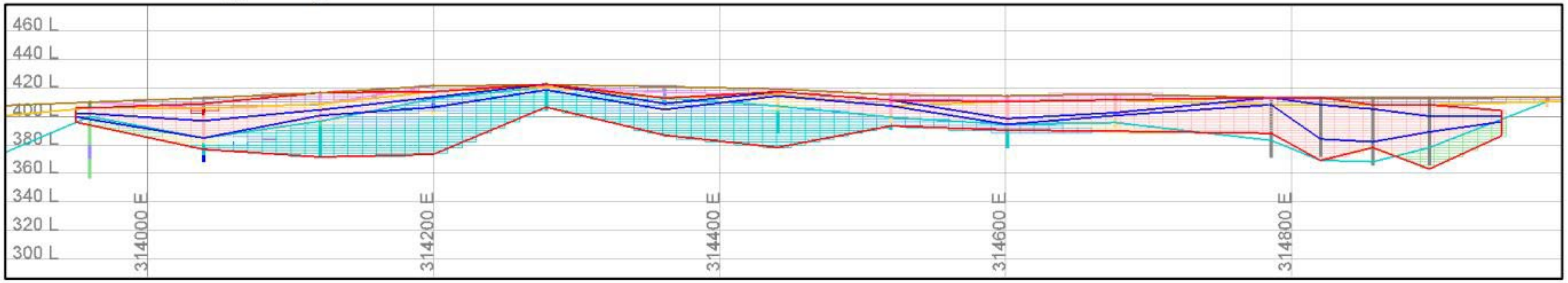
Block model LUC nickel estimates



Block model LUC cobalt estimates

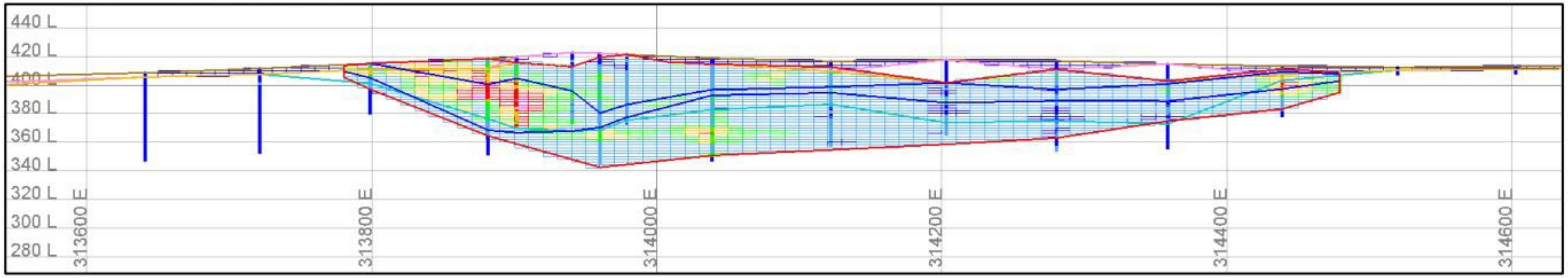


Block model material type assignments

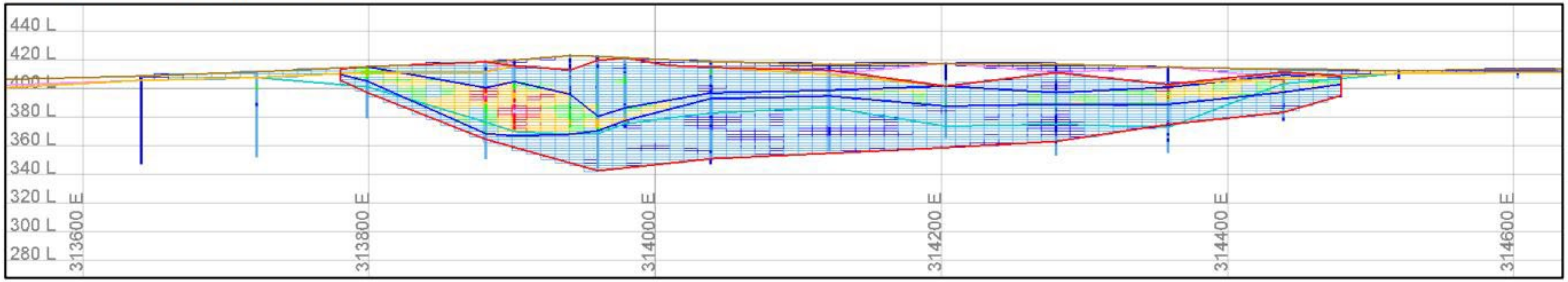


6699200N (Section D)

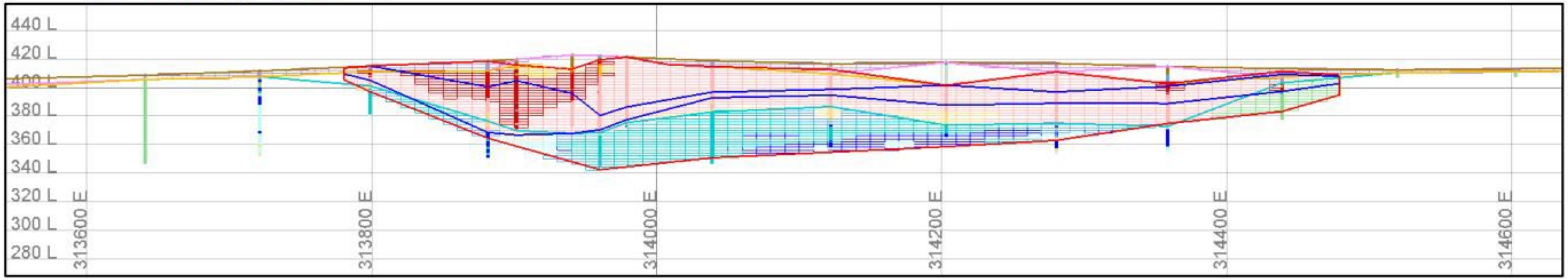
Block model LUC nickel estimates



Block model LUC cobalt estimates

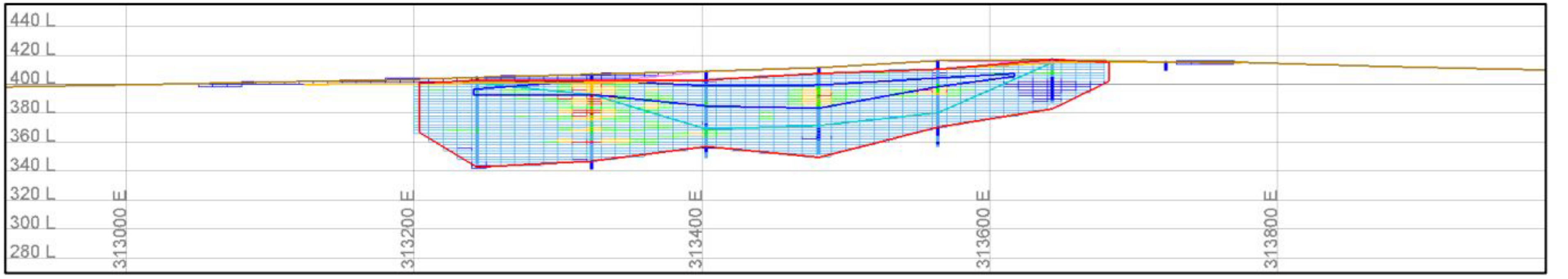


Block model material type assignments

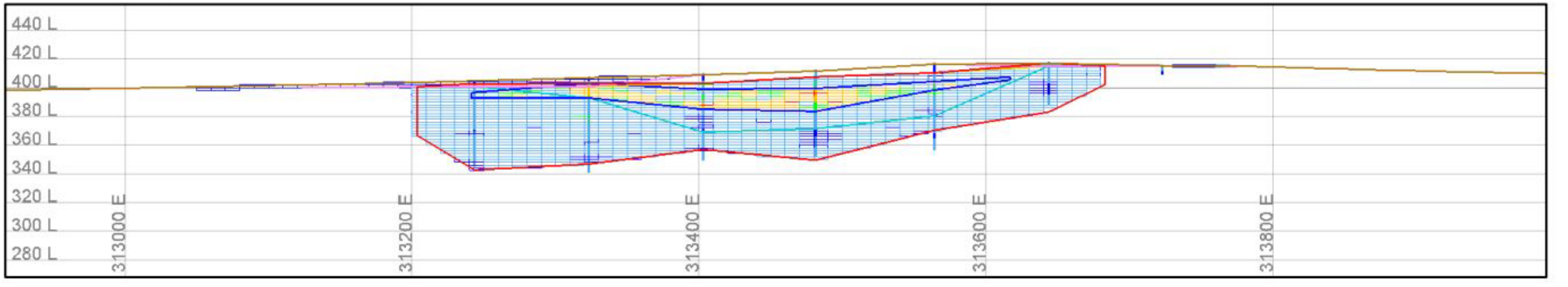


6700400N (Section E)

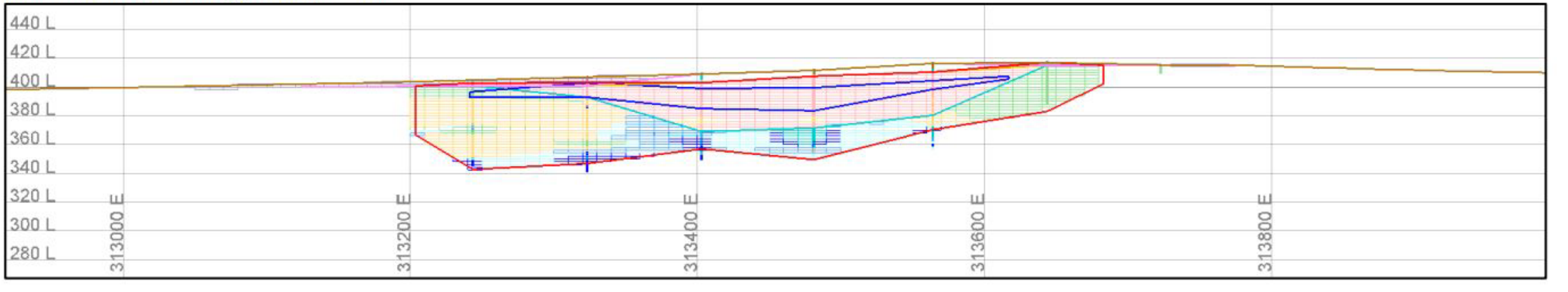
Block model LUC nickel estimates



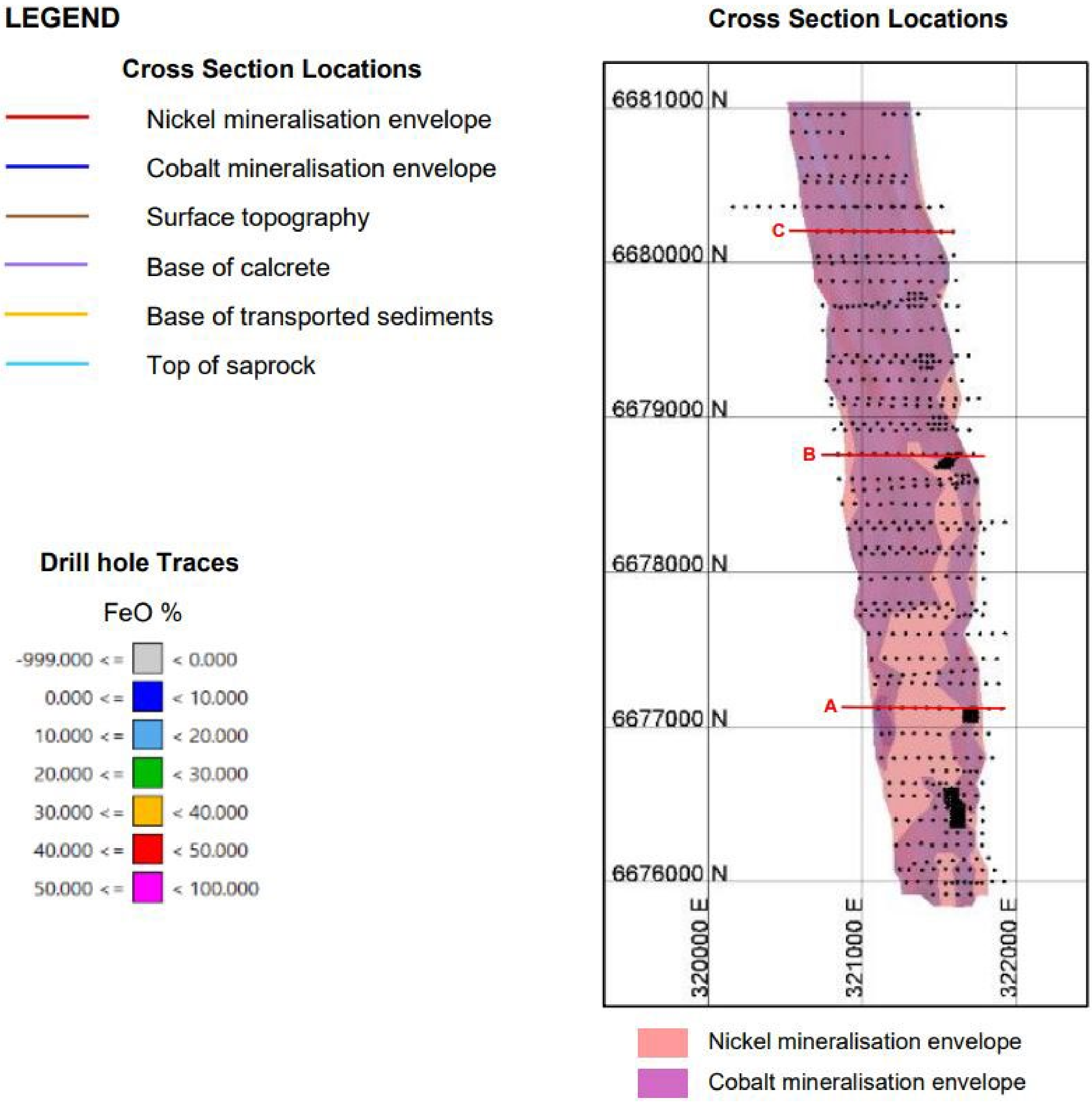
Block model LUC cobalt estimates



Block model material type assignments

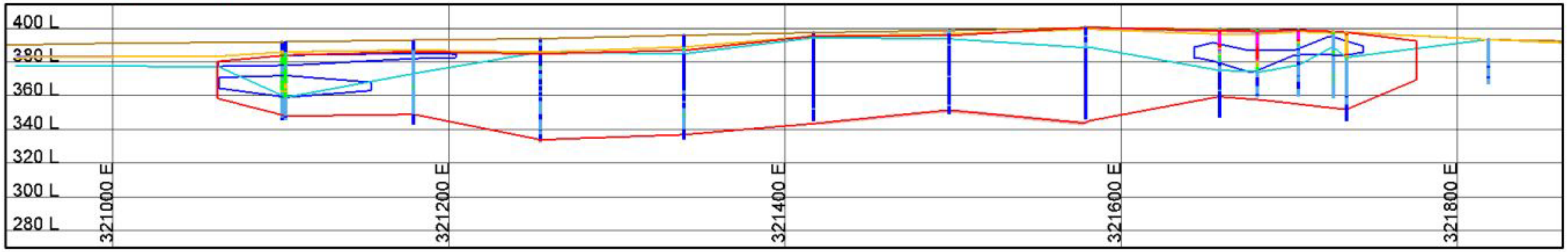


- Goongarrie Hill Geological Interpretation

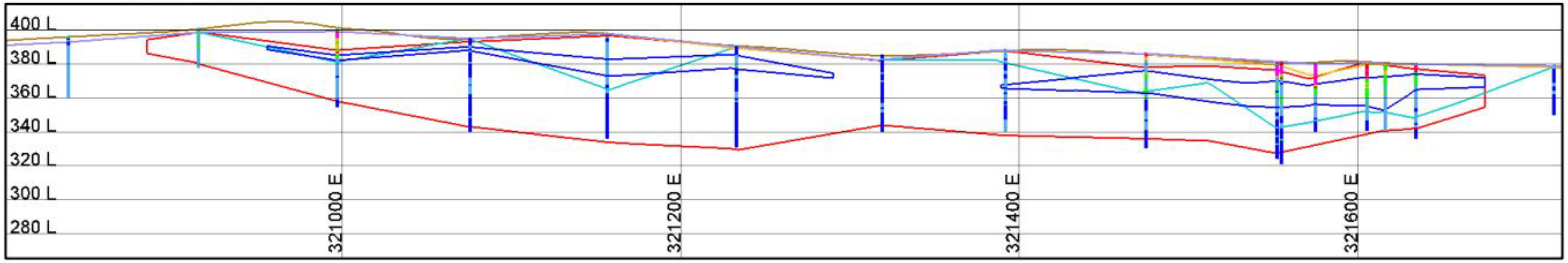


Geological Interpretation

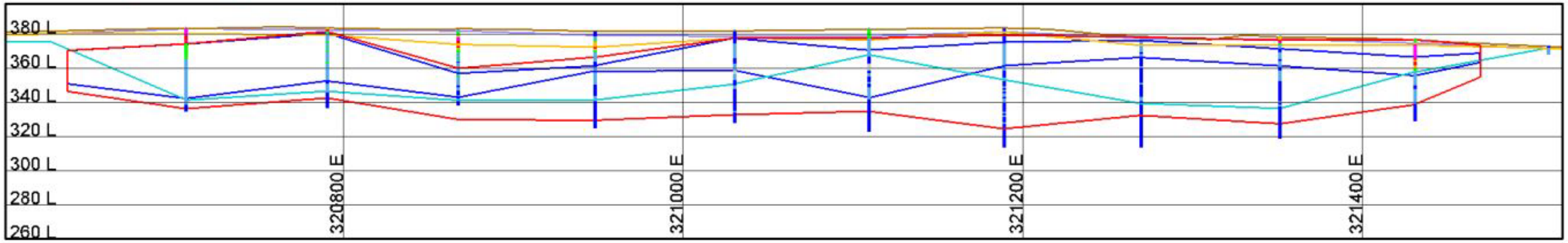
6670125 N (Section A)



6678765 N (Section B)



6680205 N (Section C)



- Goongarrie Hill Block Model

LEGEND

Geological Interpretation (X-Sections)

- Nickel mineralisation envelope
- Cobalt mineralisation envelope
- Surface topography
- Base of calcrete
- Base of transported sediments
- Top of saprock

Drillhole Traces & Block Model (X-S)

Upper X-Section (Ni %)

-99.000 <= < 0.000
0.000 <= < 0.250
0.250 <= < 0.500
0.500 <= < 0.800
0.800 <= < 1.000
1.000 <= < 1.500
1.500 <= < 9.000

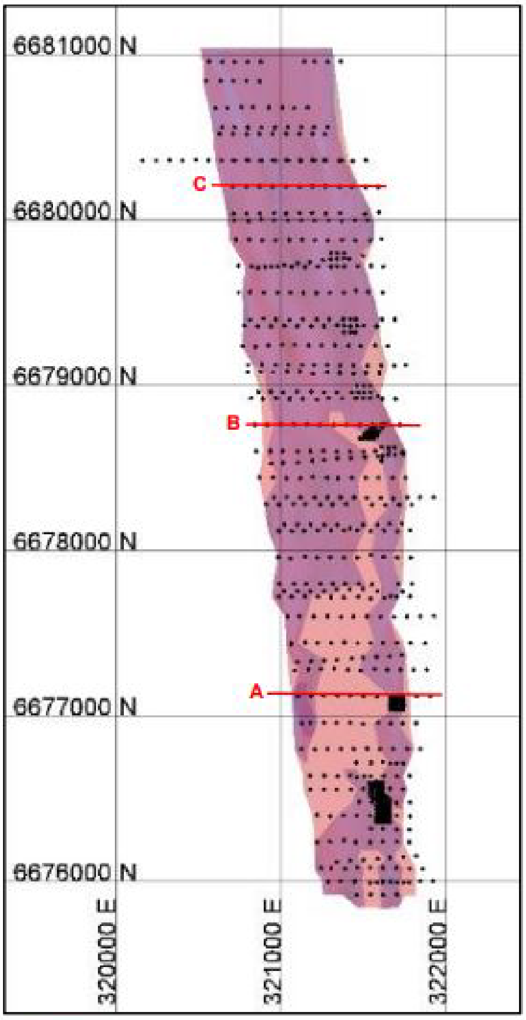
Middle X-Section (Co %)

-99.000 <= < 0.000
0.000 <= < 0.025
0.025 <= < 0.050
0.050 <= < 0.080
0.080 <= < 0.100
0.100 <= < 0.200
0.200 <= < 9.000

Lower X-Section
(Material Type)

NONE	ACK	CLSB*
PSQ	ALQK	CLBS*
PSQB	LAFKH	SREN
PCF	CUSG*	SRES
PCFB	CUSN*	SREBS
PCU	CUN*	SRE
PCUB	CUS*	
ALB	CLSE*	

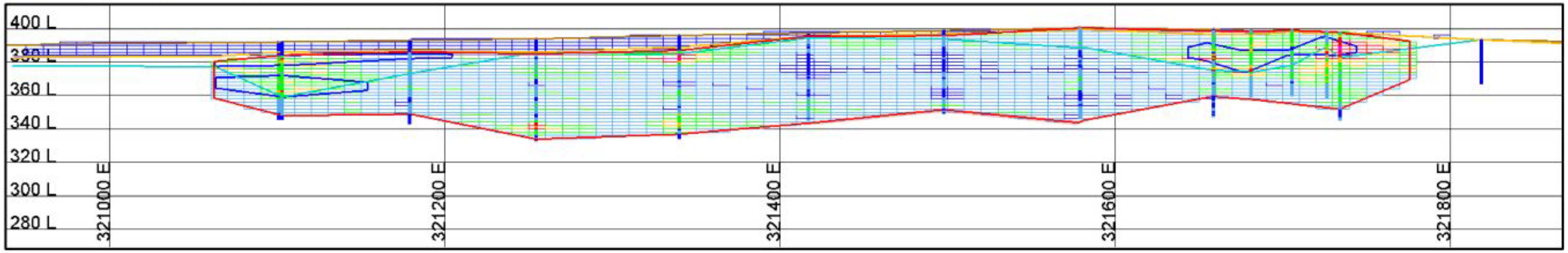
Cross Section Locations



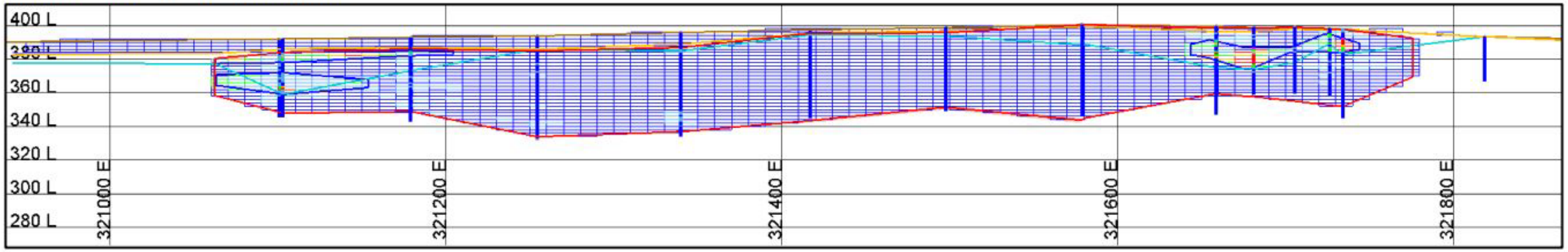
Nickel mineralisation envelope
Cobalt mineralisation envelope

6670125 N (Section A)

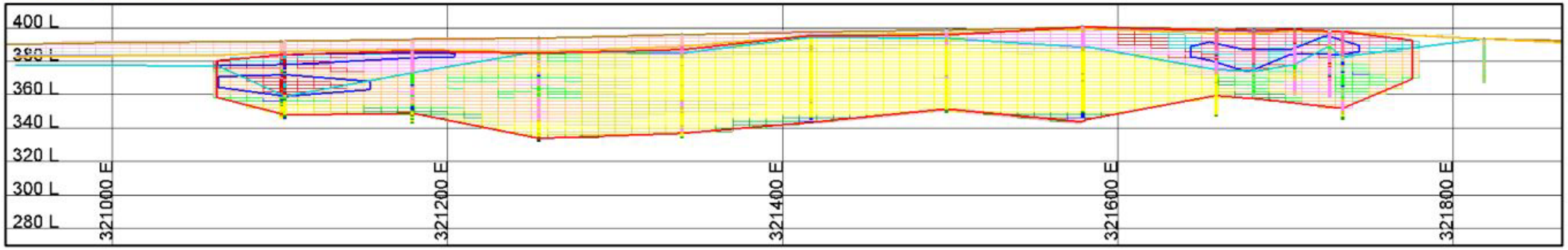
Block model LUC nickel estimates



Block model LUC cobalt estimates

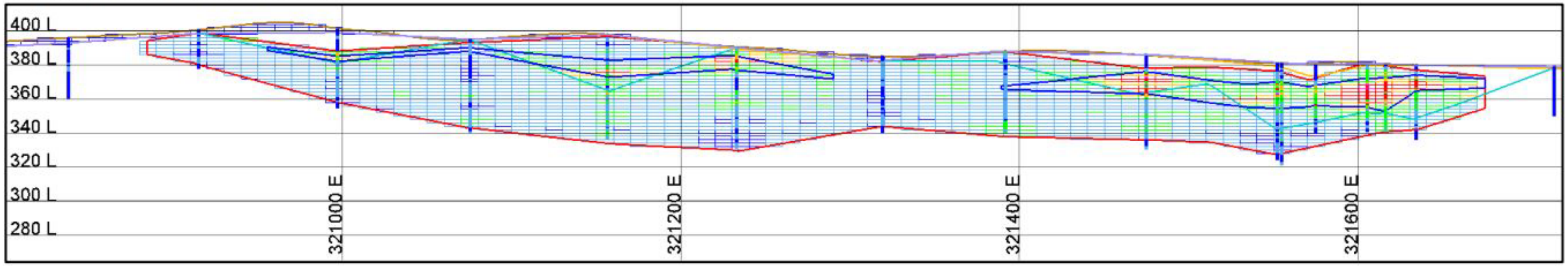


Block model material type determinations

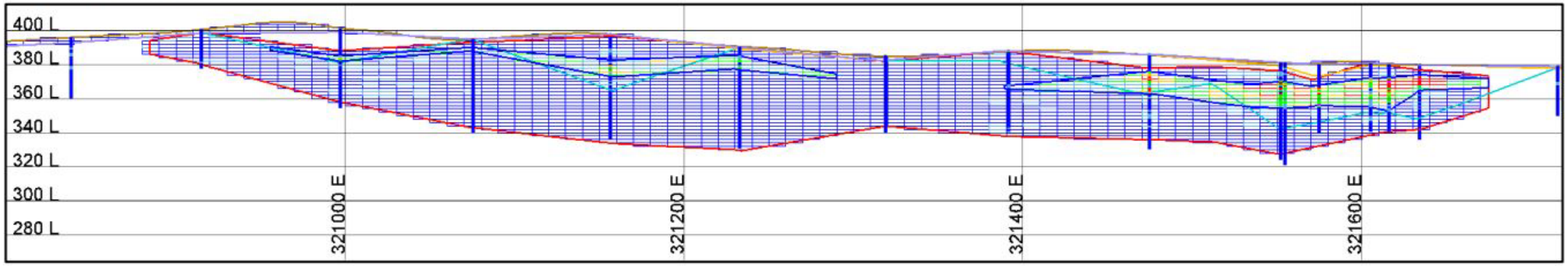


6678765 N (Section B)

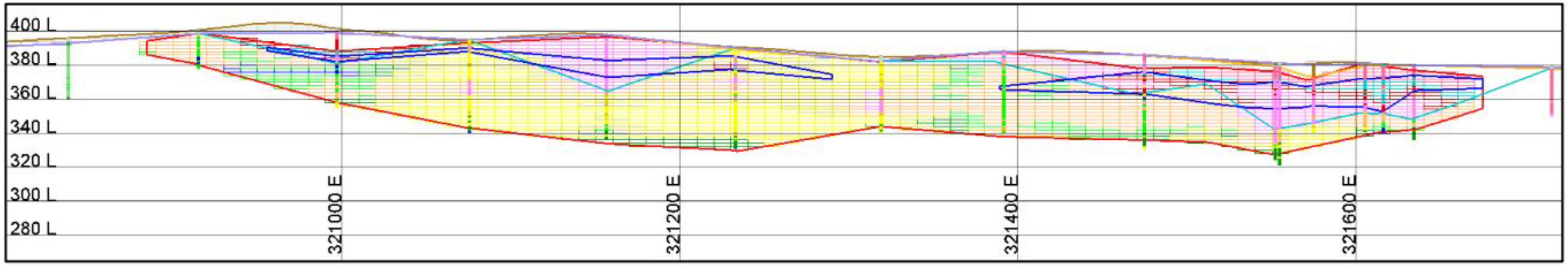
Block model LUC nickel estimates



Block model LUC cobalt estimates

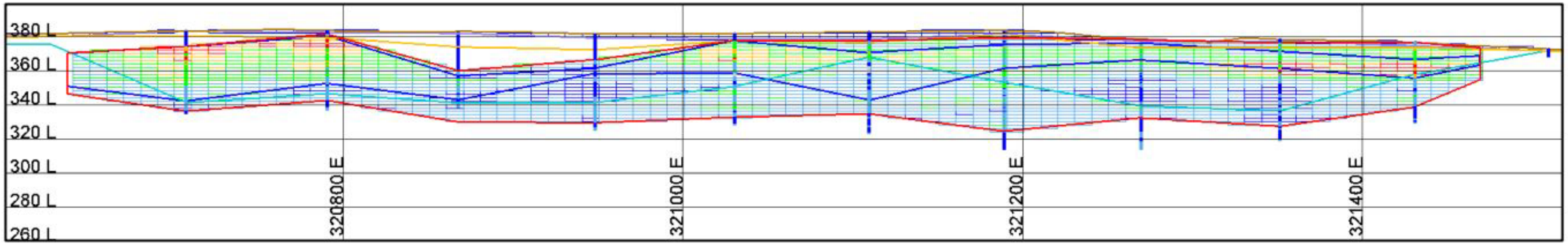


Block model material type determinations

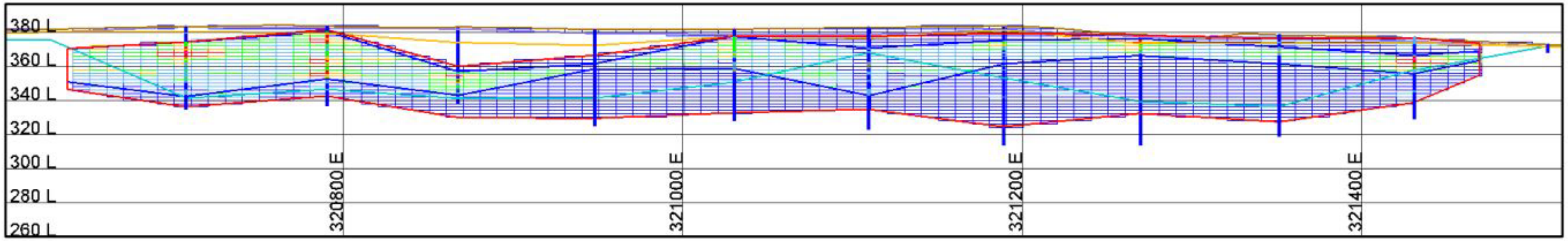


6680205 N (Section C)

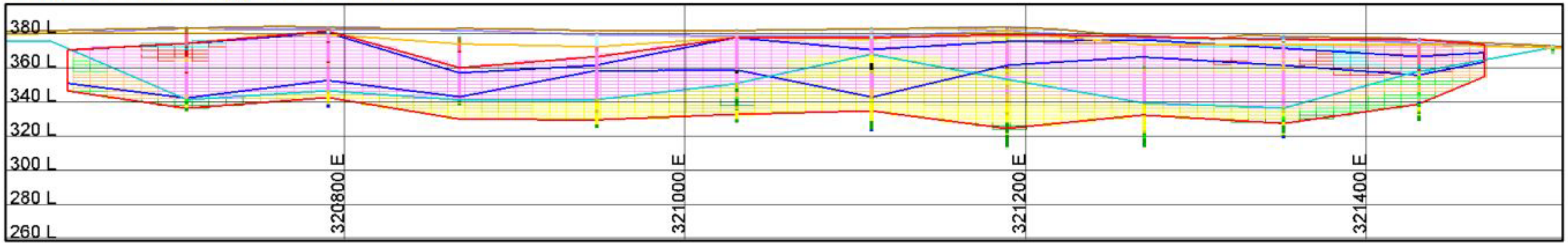
Block model LUC nickel estimates



Block model LUC cobalt estimates



Block model material type determinations



- Goongarrie South Geological Interpretation

LEGEND

Geological Interpretation (X-Sections)

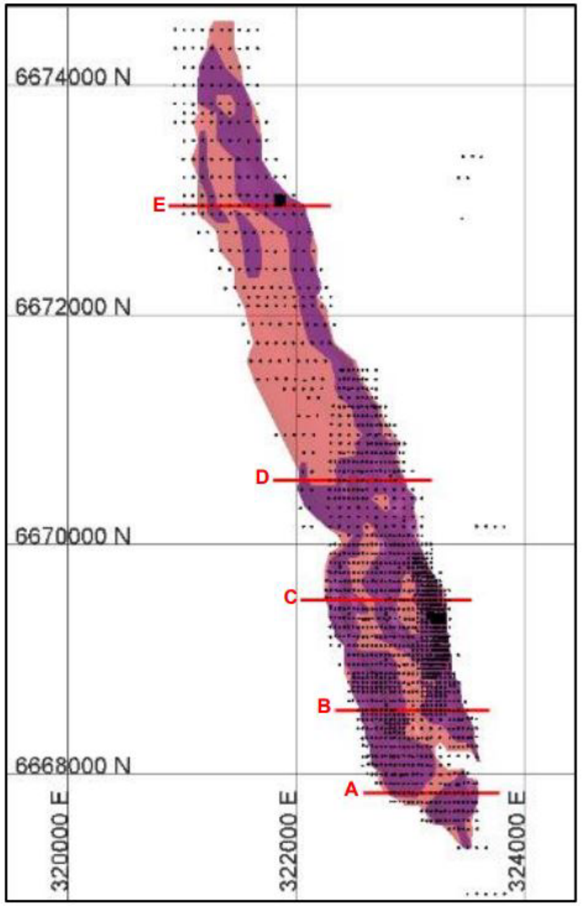
- Nickel mineralisation envelope
- Cobalt mineralisation envelope
- Surface topography
- Base of calcitic calcrete
- Base of dolomitic calcrete
- Paleochannel carbonate
- Base of transported sediments
- Top of saprock

Drill hole Traces (X-S)

FeO %

-999.000 <=		< 0.000
0.000 <=		< 10.000
10.000 <=		< 20.000
20.000 <=		< 30.000
30.000 <=		< 40.000
40.000 <=		< 50.000
50.000 <=		< 100.000

Cross Section Locations

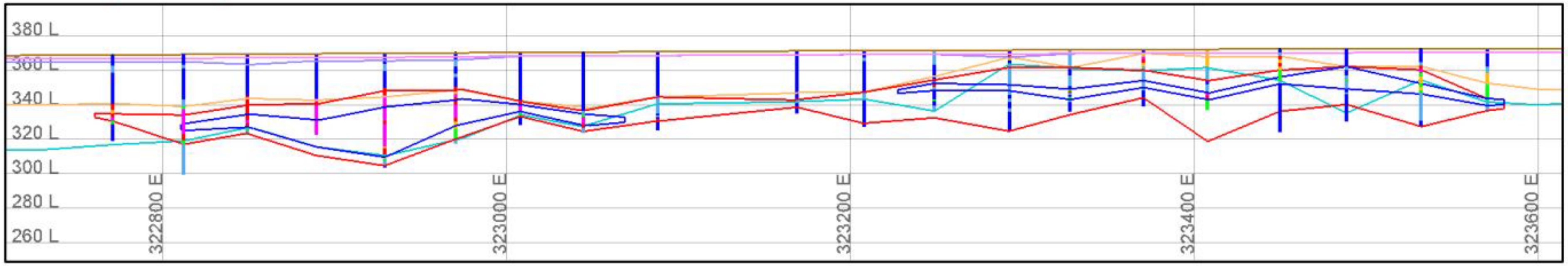


Nickel mineralisation envelope

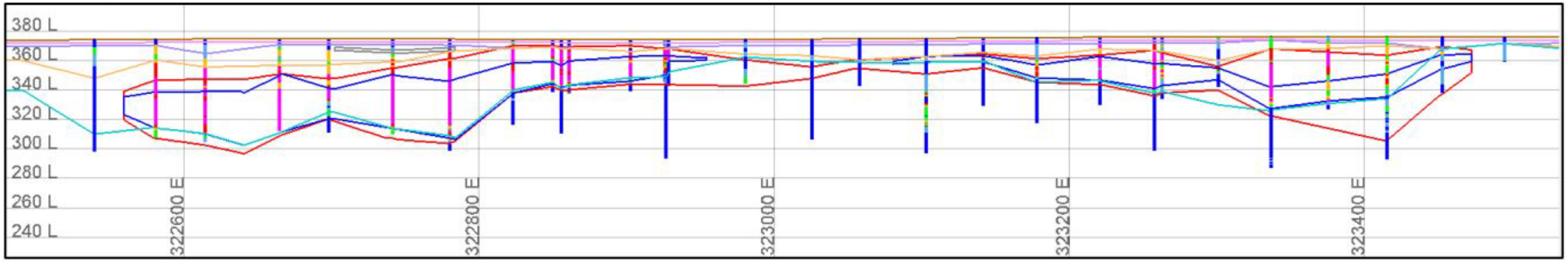
Cobalt mineralisation envelope

Geological Interpretation

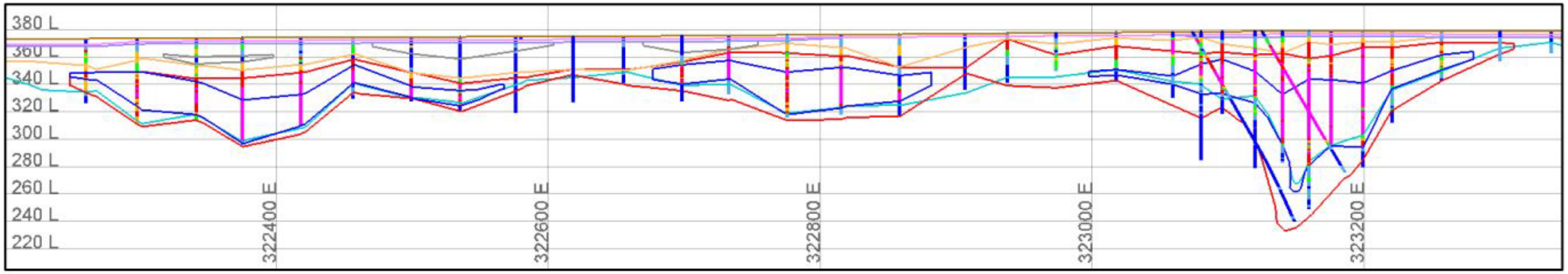
6667840N (Section A)



6668560 (Section B)

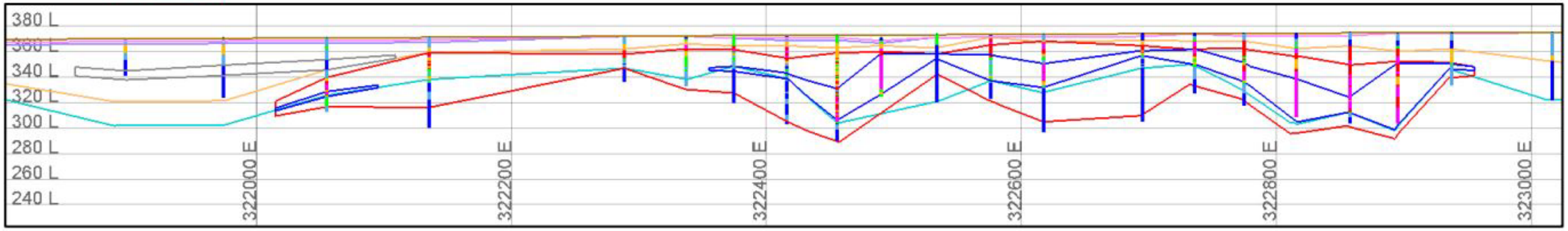


6669520N (Section C)

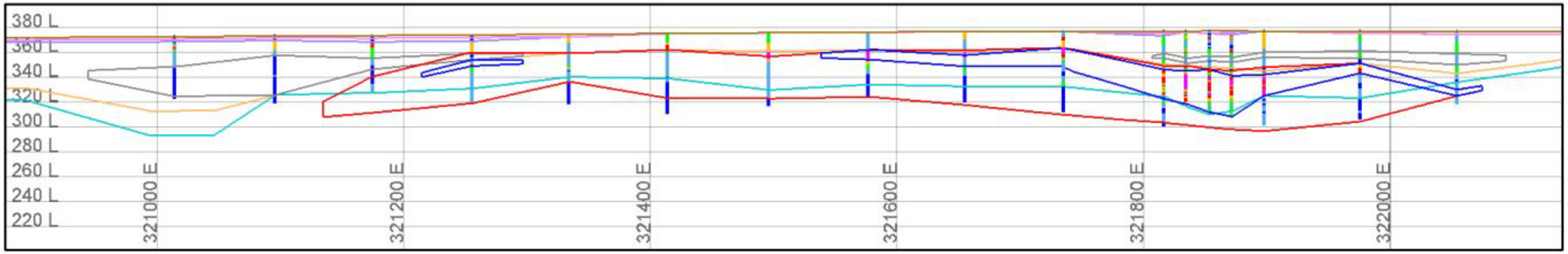


Geological Interpretation

6670560N (Section D)



6672960N (Section E)



- Goongarrie South Block Model

LEGEND

Geological Interpretation (X-Sections)

- Nickel mineralisation envelope
- Cobalt mineralisation envelope
- Surface topography
- Base of calcitic calcrete
- Base of dolomitic calcrete
- Paleochannel carbonate envelop
- Base of transported sediments
- Top of saprock

Drillhole Traces & Block Model (X-S)

Upper X-Section (Ni%)

-999.000 <=		< 0.000
0.000 <=		< 0.250
0.250 <=		< 0.500
0.500 <=		< 0.750
0.750 <=		< 1.000
1.000 <=		< 1.500
1.500 <=		< 99.000

Drillhole Traces & Block Model

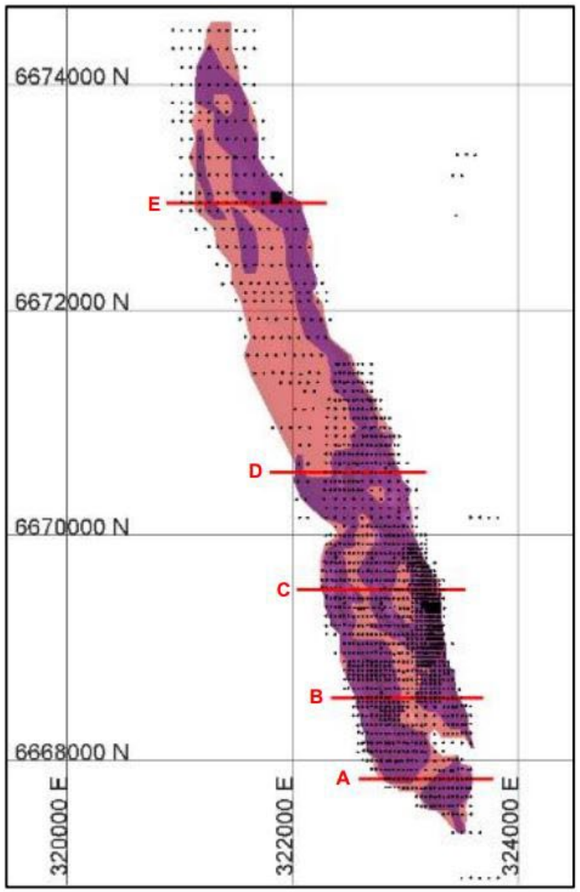
Middle X-Section (Co%)

-999.000 <=		< 0.000
0.000 <=		< 0.025
0.025 <=		< 0.050
0.050 <=		< 0.080
0.080 <=		< 0.100
0.100 <=		< 0.200
0.200 <=		< 9.000

Lower X-Section
(Material Type)

NA	CUGU	SRE
PSQH	CUGK	SRES
PSQB	CUGF	SREB
PCFB	CUGZ	SRSB
ALB	CUGS	SRB
ACK	CUSG	
ALQK	CLGEC	
LAFKH	CLSG	

Cross Section Locations

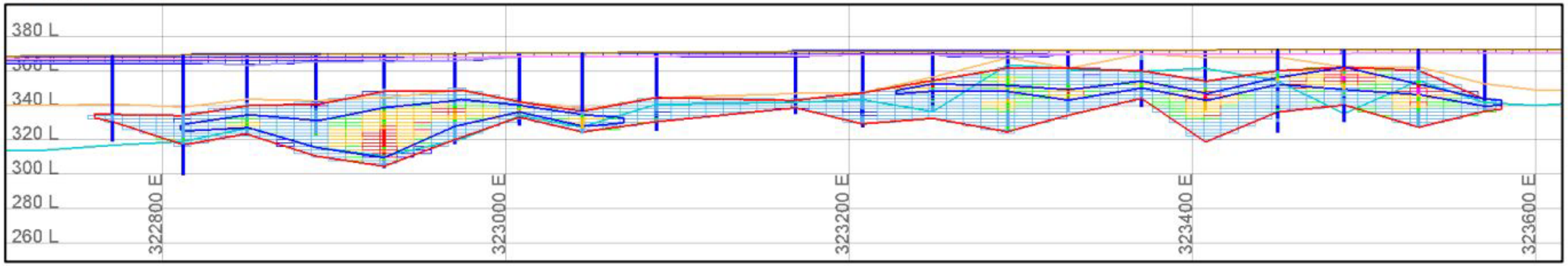


Nickel mineralisation envelope

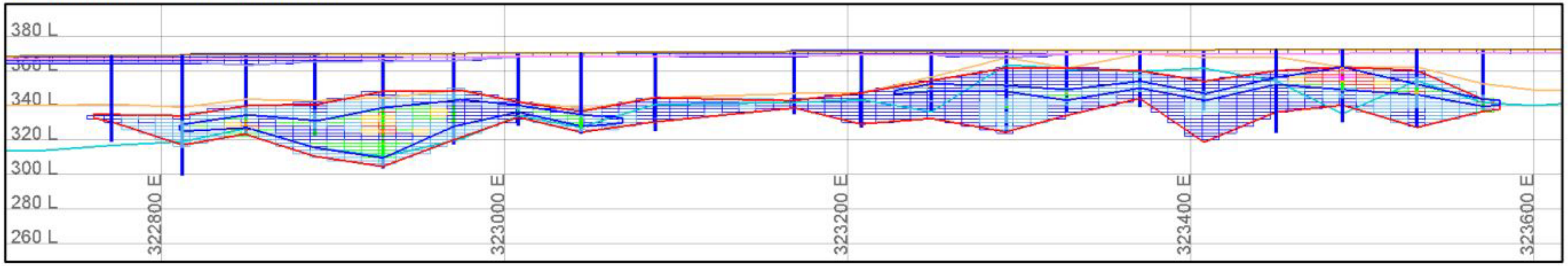
Cobalt mineralisation envelope

6667840N (Section A)

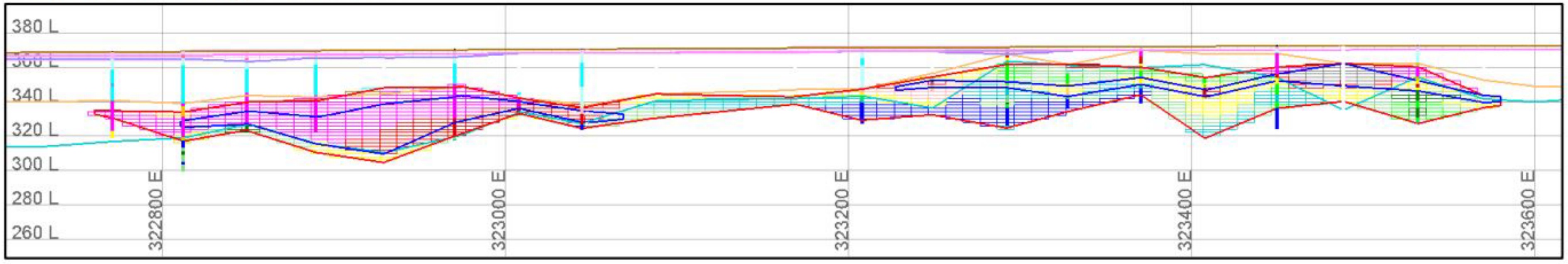
Block model LUC nickel estimates



Block model LUC cobalt estimates

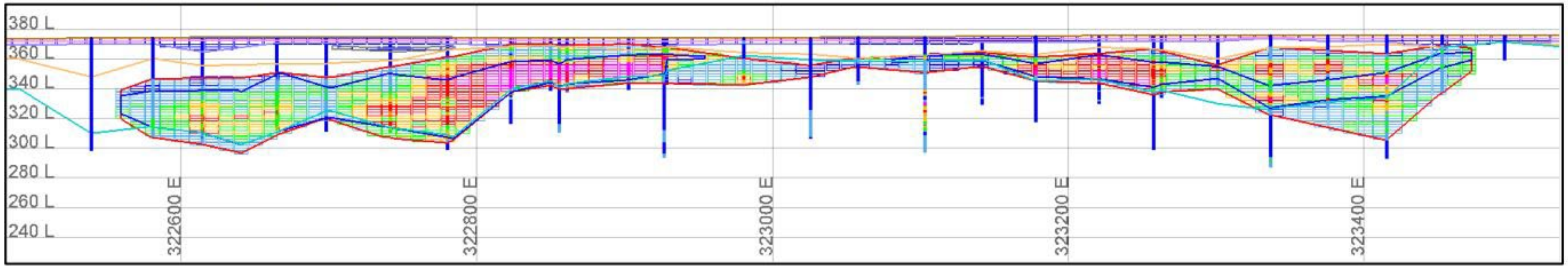


Block model material type assignments

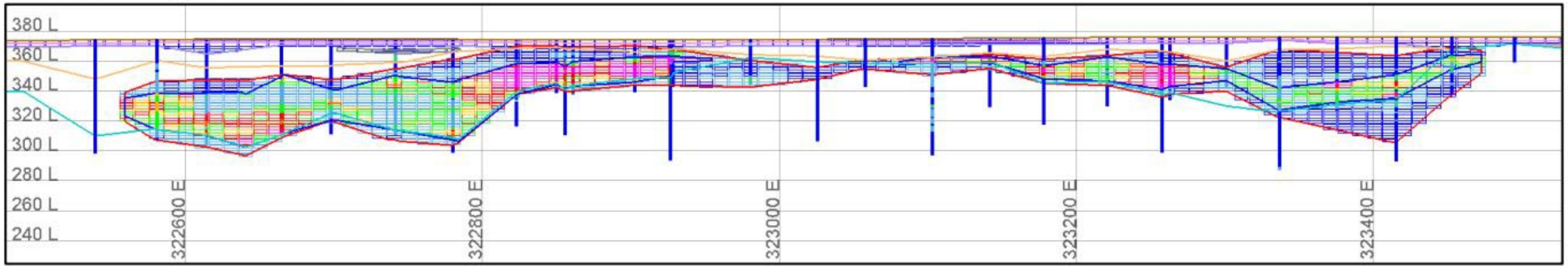


6668560 (Section B)

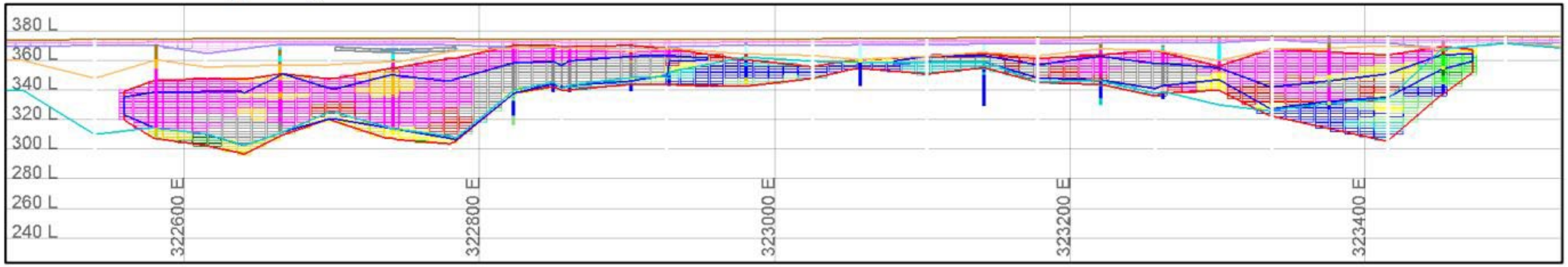
Block model LUC nickel estimates



Block model LUC cobalt estimates

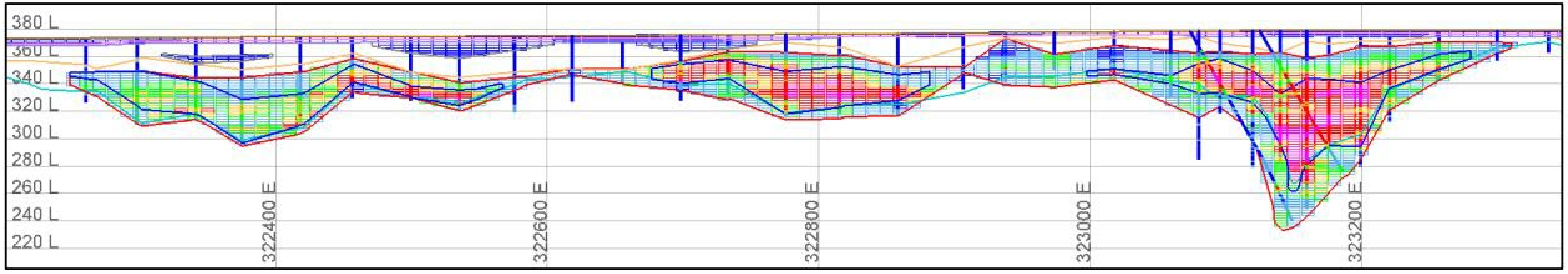


Block model material type assignments

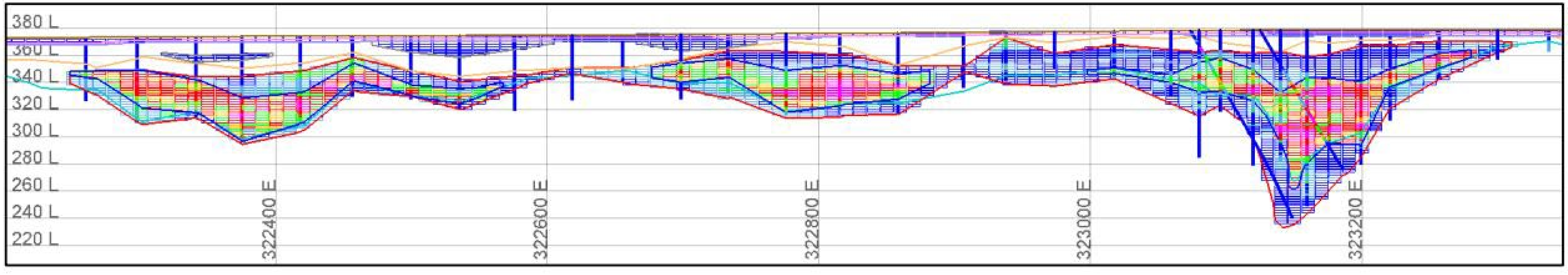


6669520N (Section C)

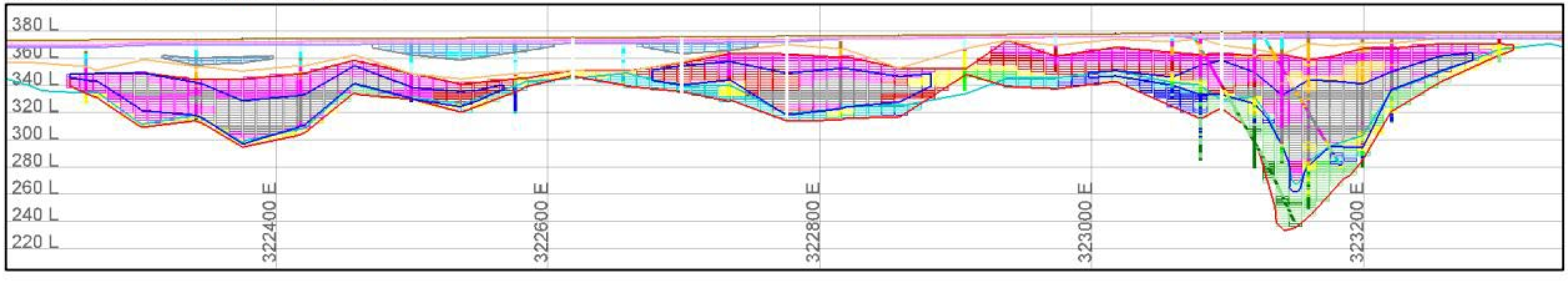
Block model LUC nickel estimates



Block model LUC cobalt estimates

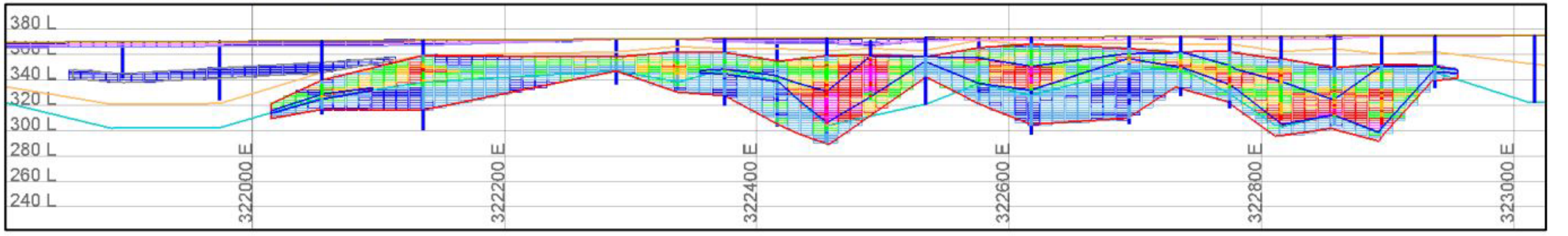


Block model material type assignments

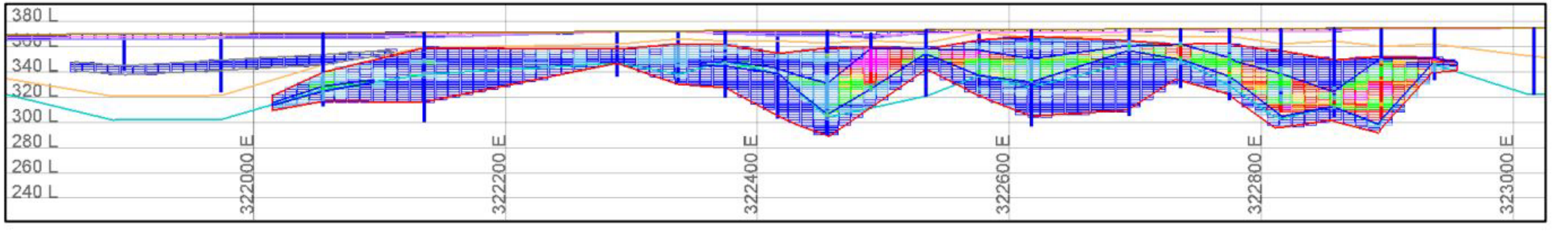


6670560N (Section D)

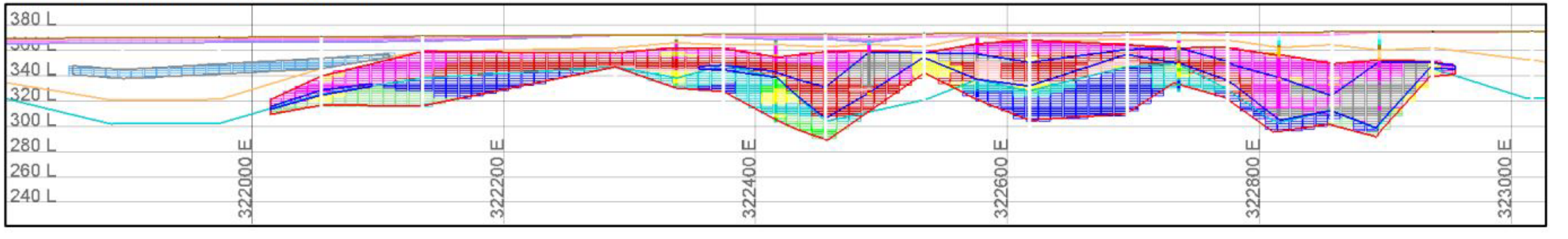
Block model LUC nickel estimates



Block model LUC cobalt estimates

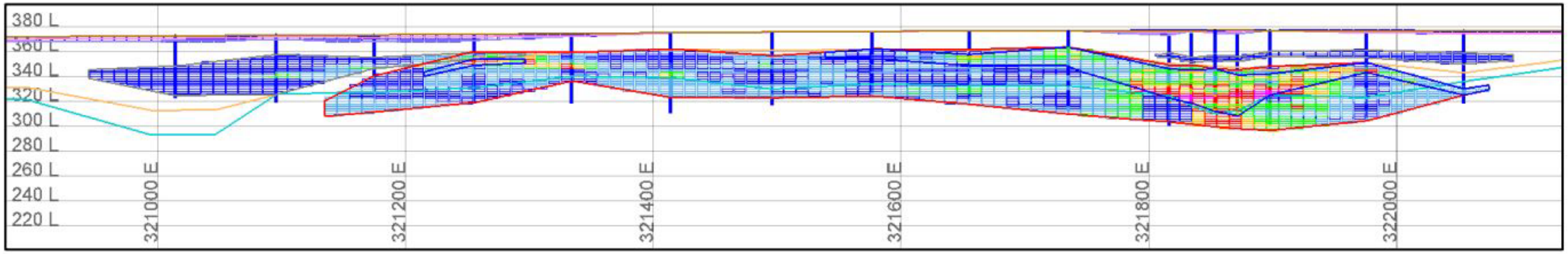


Block model material type assignments

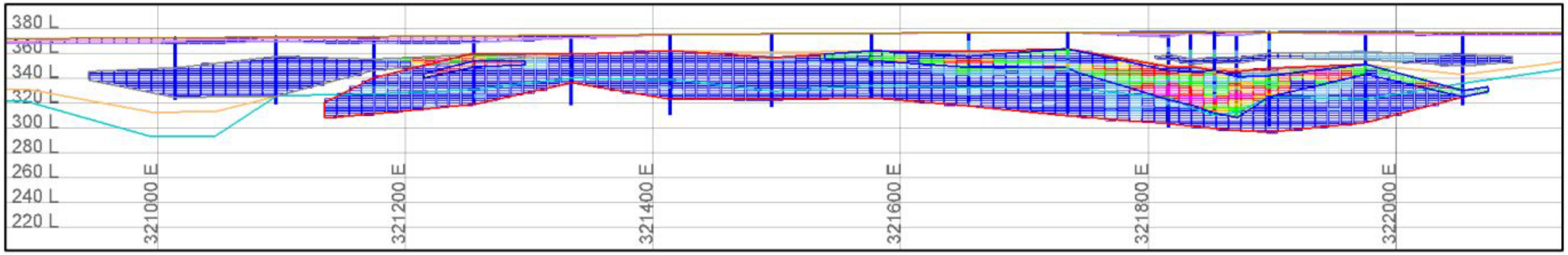


6672960N (Section E)

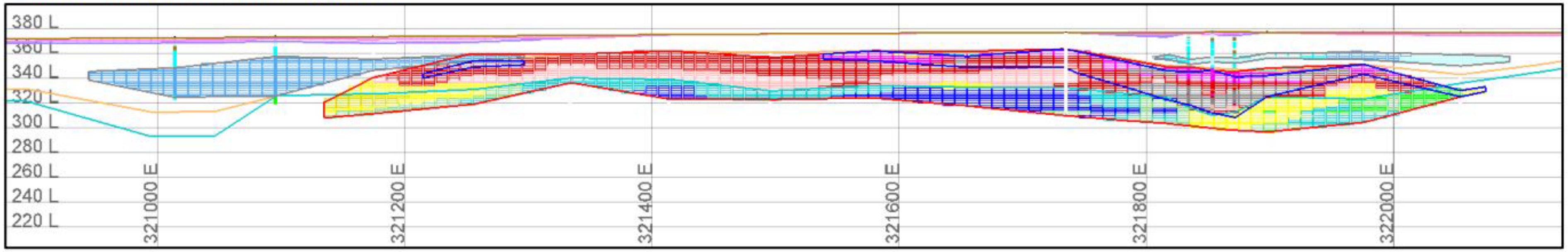
Block model LUC nickel estimates



Block model LUC cobalt estimates



Block model material type assignments



- Big Four and Scotia Dam Geological Interpretation

LEGEND

Geological Interpretation (X-Sections)

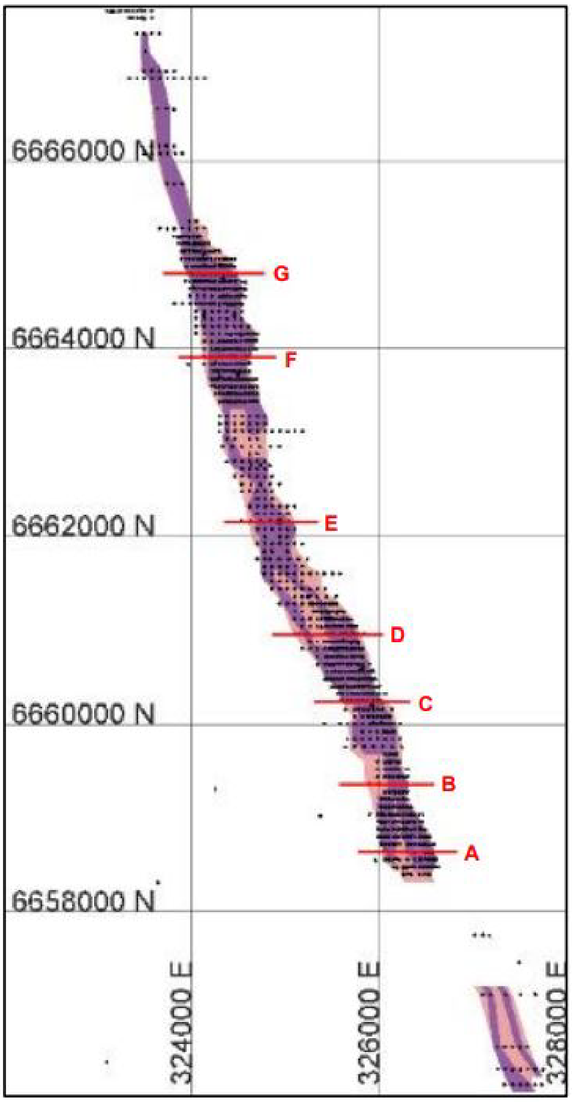
- Nickel mineralisation envelope
- Cobalt mineralisation envelope
- Surface topography
- Base of dolomitic calcrete
- Paleochannel carbonate
- Base of transported sediments
- Top of saprock

Drill hole Traces (X-S)

FeO %

-999.000 <=	< 0.000
0.000 <=	< 10.000
10.000 <=	< 20.000
20.000 <=	< 30.000
30.000 <=	< 40.000
40.000 <=	< 50.000
50.000 <=	< 100.000

Cross Section Locations

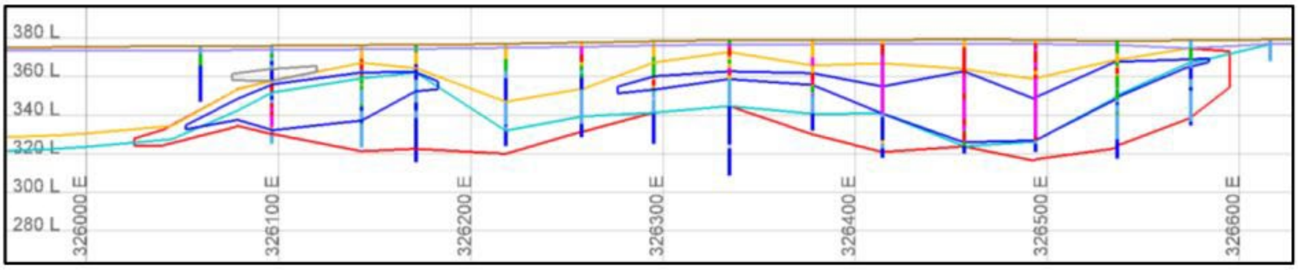


Nickel mineralisation envelope

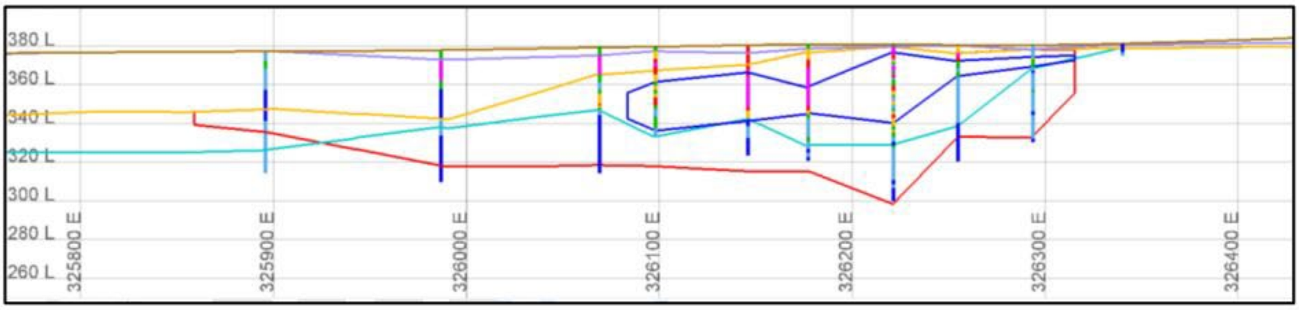
Cobalt mineralisation envelope

Geological Interpretation

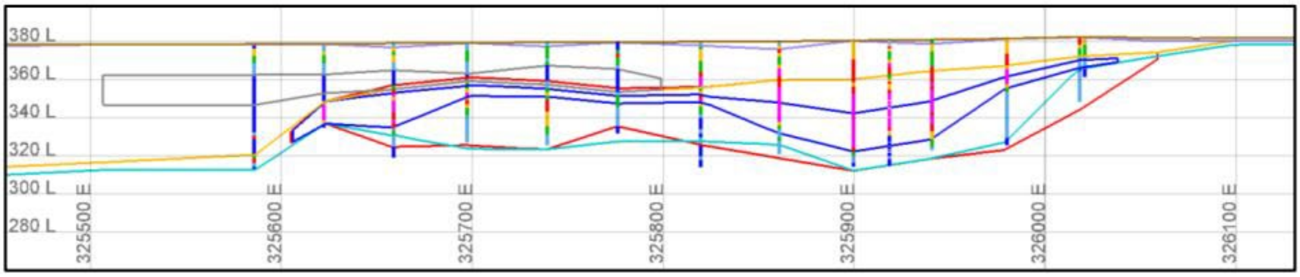
6658640N (Section A)



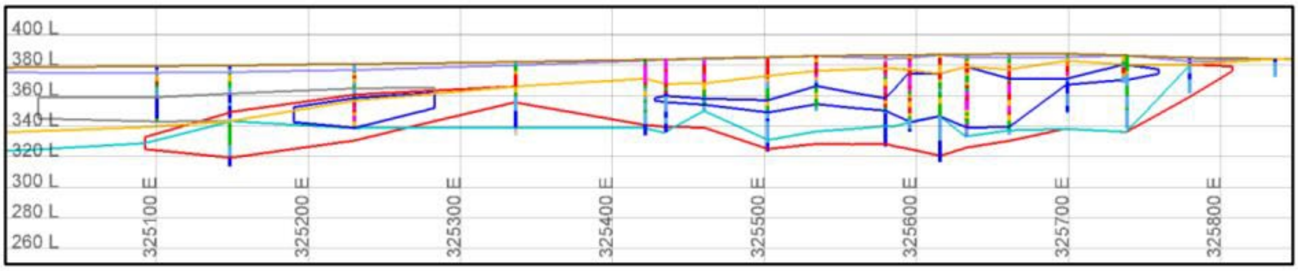
6659360N (Section B)



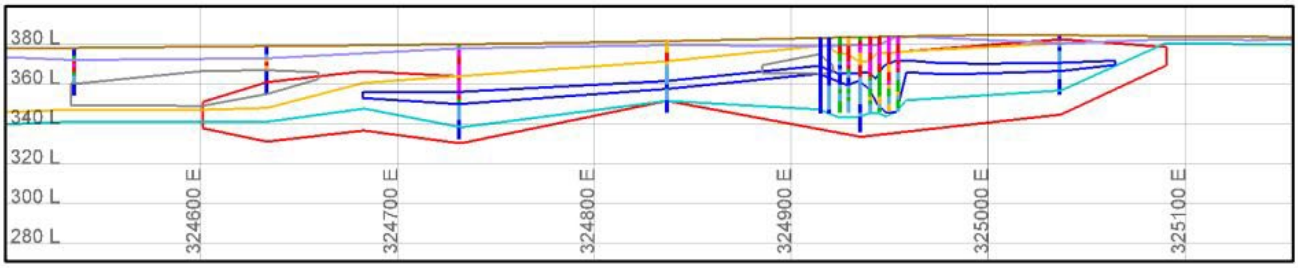
6660240N (Section C)



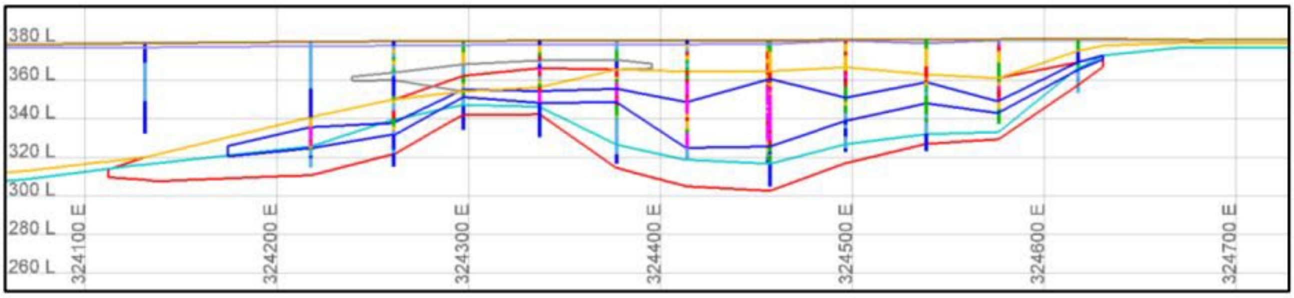
6660960N (Section D)



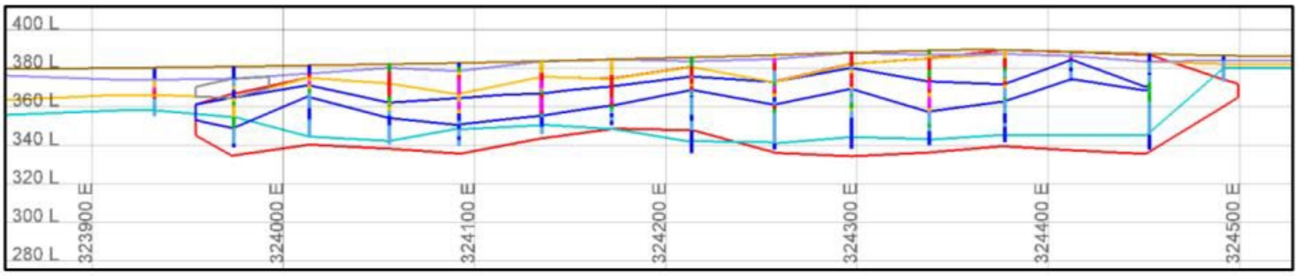
6662160N (Section E)



6663920N (Section F)



6664800N (Section G)



- Big Four and Scotia Dam Block Model

LEGEND

Geological Interpretation (X-Sections)

- Nickel mineralisation envelope
- Cobalt mineralisation envelope
- Surface topography
- Base of dolomitic calcrete
- Paleochannel carbonate
- Base of transported sediments
- Top of saprock

Drill hole Traces & Block Model (X-S)

Upper X-Section (Ni %)

- -999.000 <= < 0.000
- 0.000 <= < 0.100
- 0.100 <= < 0.250
- 0.250 <= < 0.500
- 0.500 <= < 0.750
- 0.750 <= < 1.000
- 1.000 <= < 1.500
- 1.500 <= < 99.000

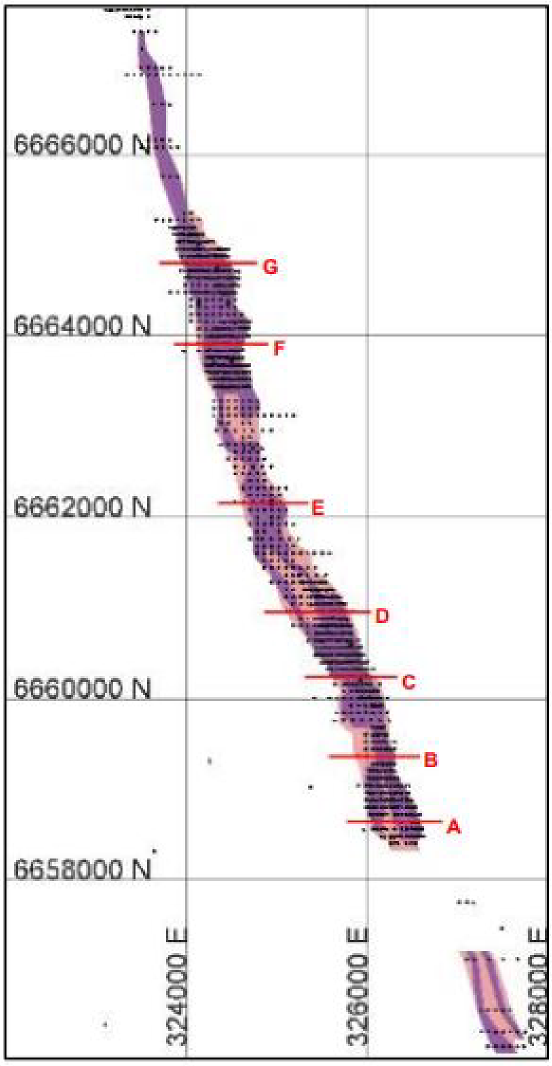
Middle X-Section (Co %)

- -9999.000 <= < 0.000
- 0.000 <= < 0.030
- 0.030 <= < 0.050
- 0.050 <= < 0.080
- 0.080 <= < 0.100
- 0.100 <= < 0.200
- 0.200 <= < 100.000

Lower X-Section (Material Type)

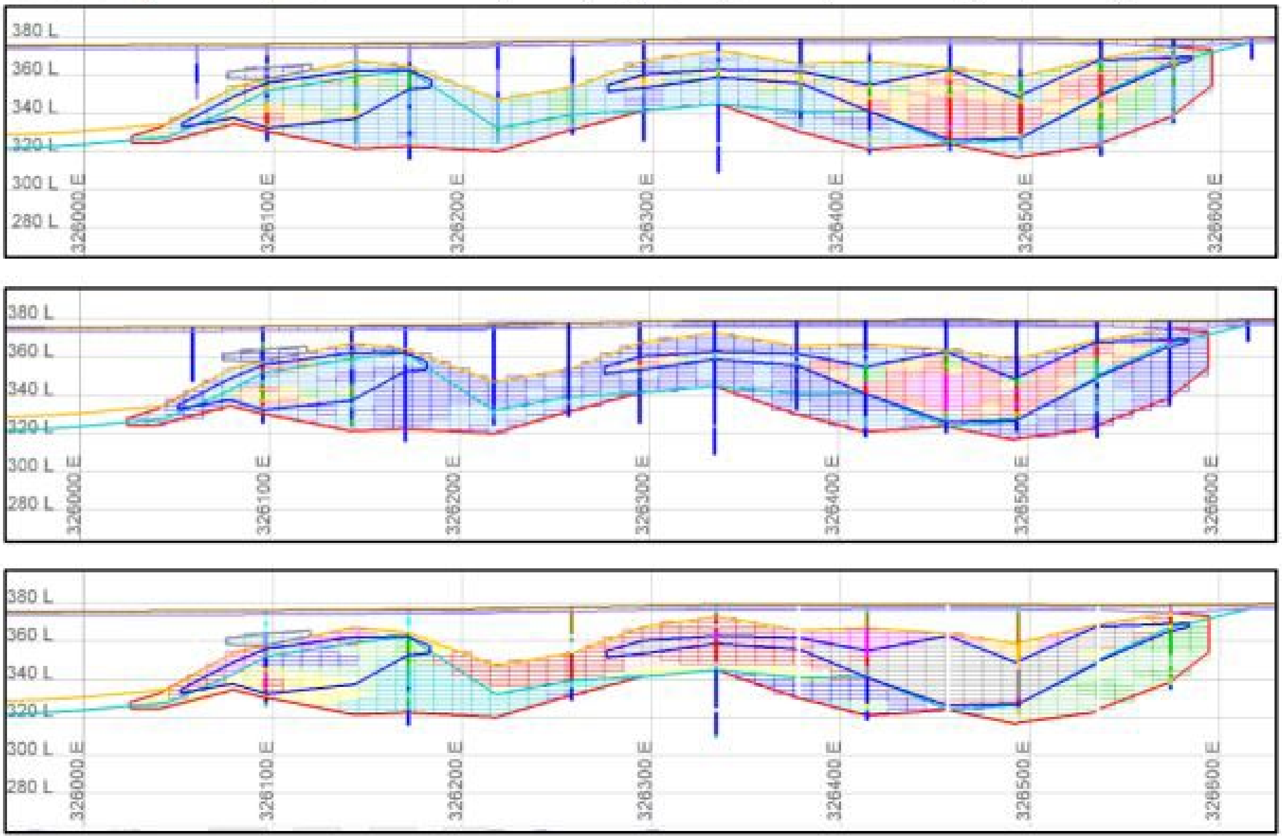
NA	CUGU	SRE
PSQH	CUGK	SRES
PSQB	CUGF	SREB
PCFB	CUGZ	SRSB
ALB	CUGS	SRB
ACK	CUSG	
ALQK	CLGEC	
LAFKH	CLSG	

Cross Section Locations

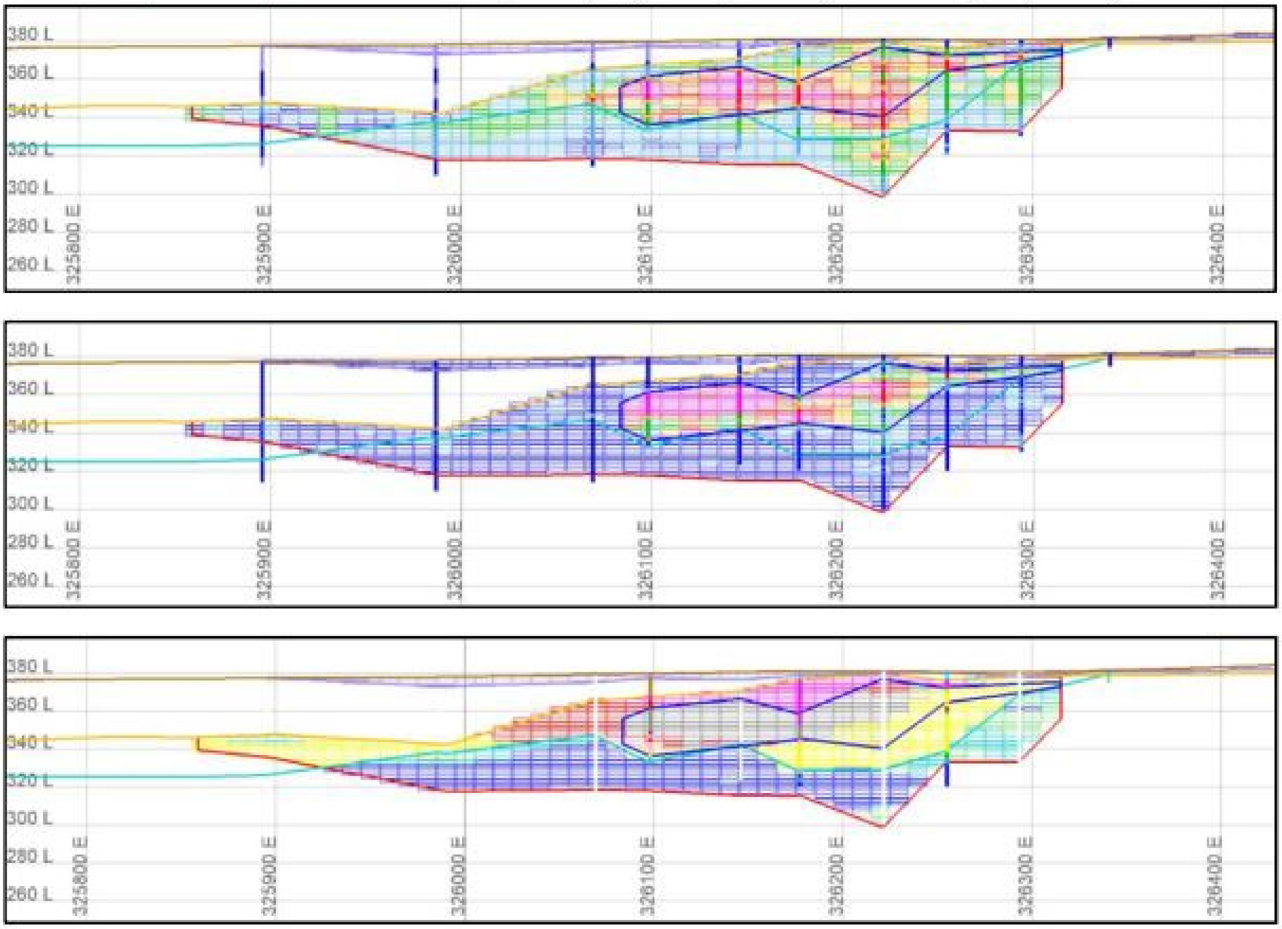


- Nickel mineralisation envelope
- Cobalt mineralisation envelope

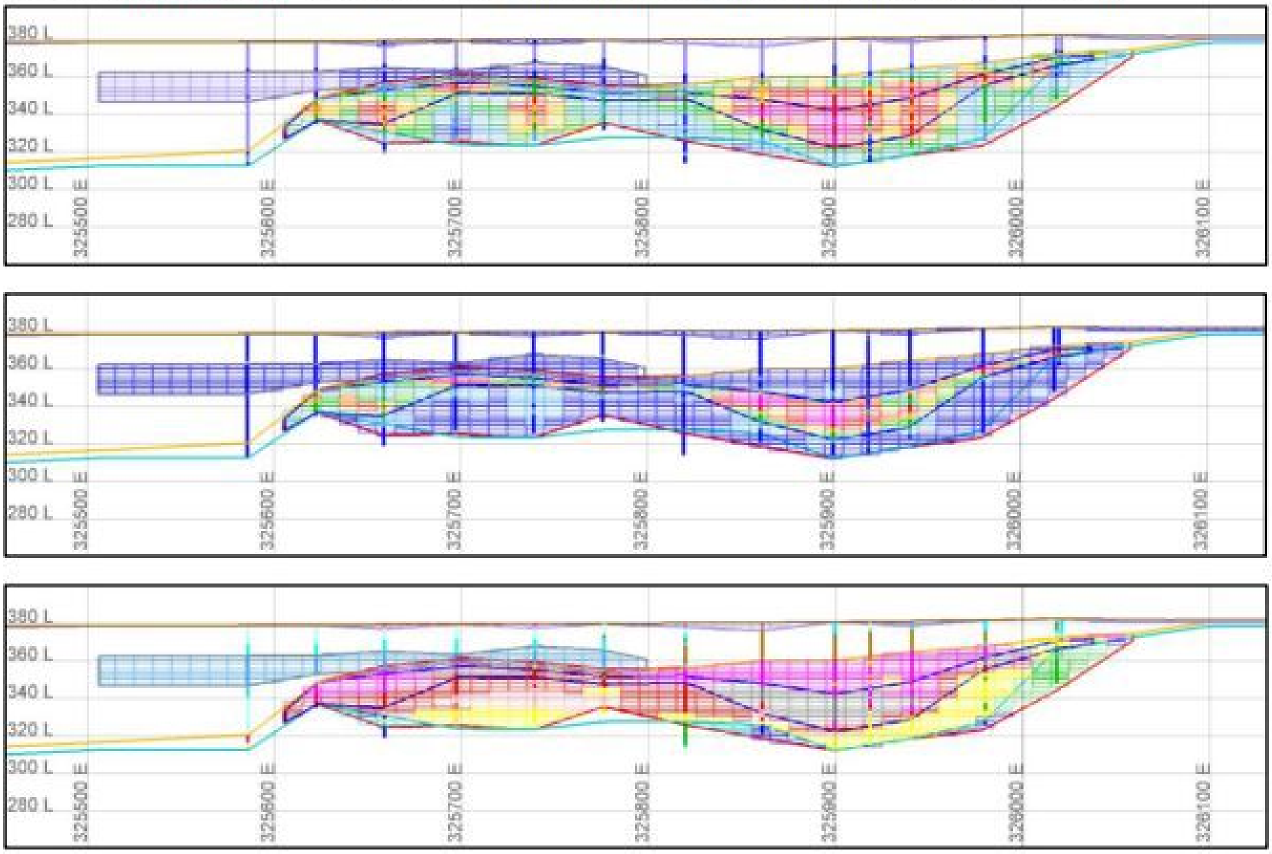
6658640N (Section A) – Colour coded by Ni% (top), Co% (middle), Material Type (bottom)



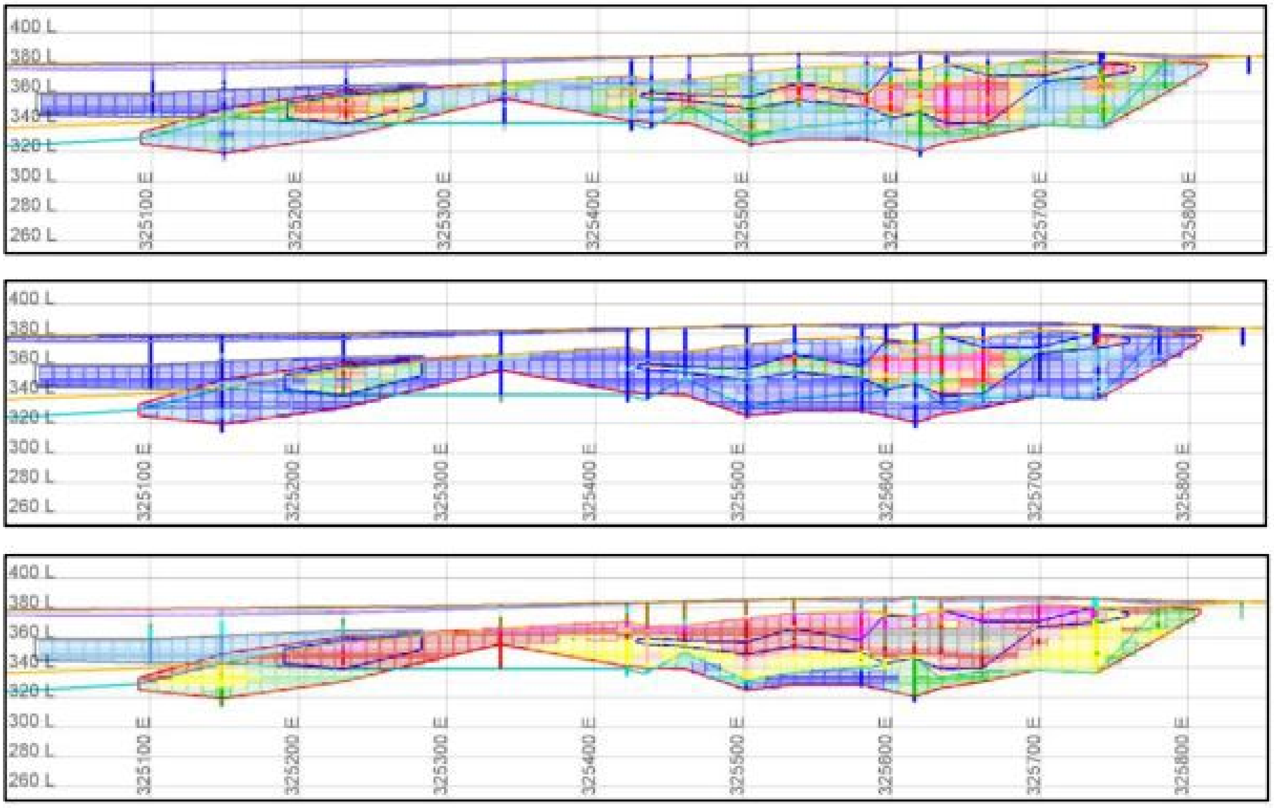
6659360N (Section B) – Colour coded by Ni% (top), Co% (middle), Material Type (bottom)



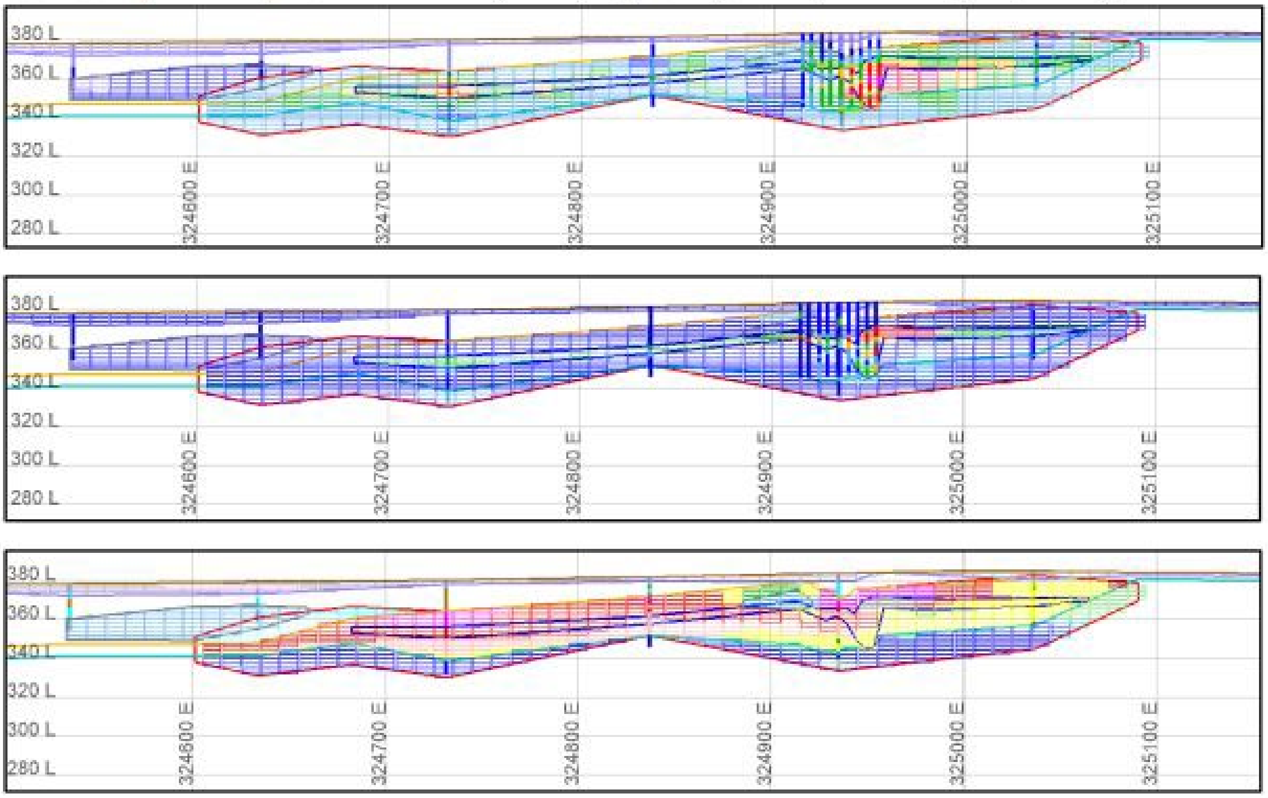
6660240N (Section C) – Colour coded by Ni% (top), Co% (middle), Material Type (bottom)



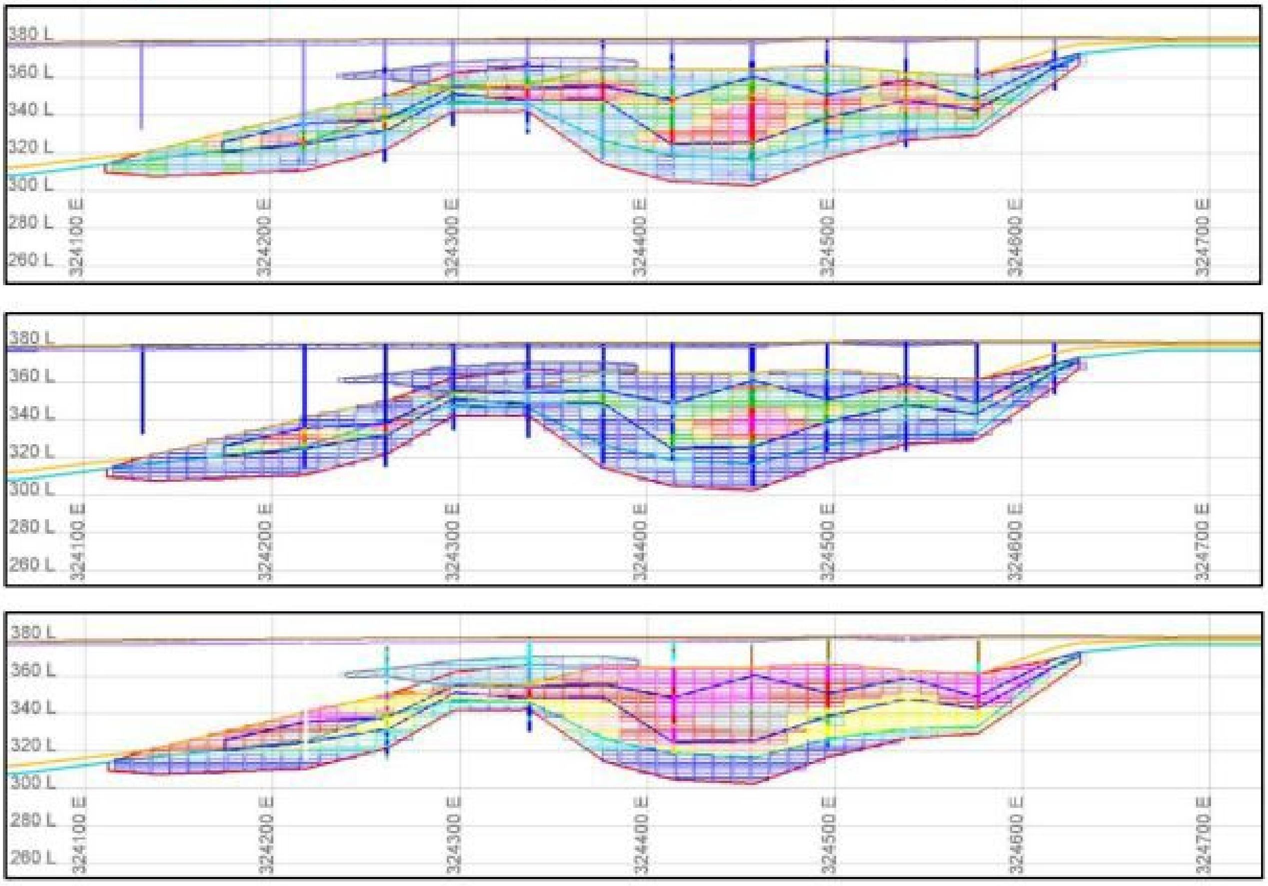
6660960N (Section D) – Colour coded by Ni% (top), Co% (middle), Material Type (bottom)



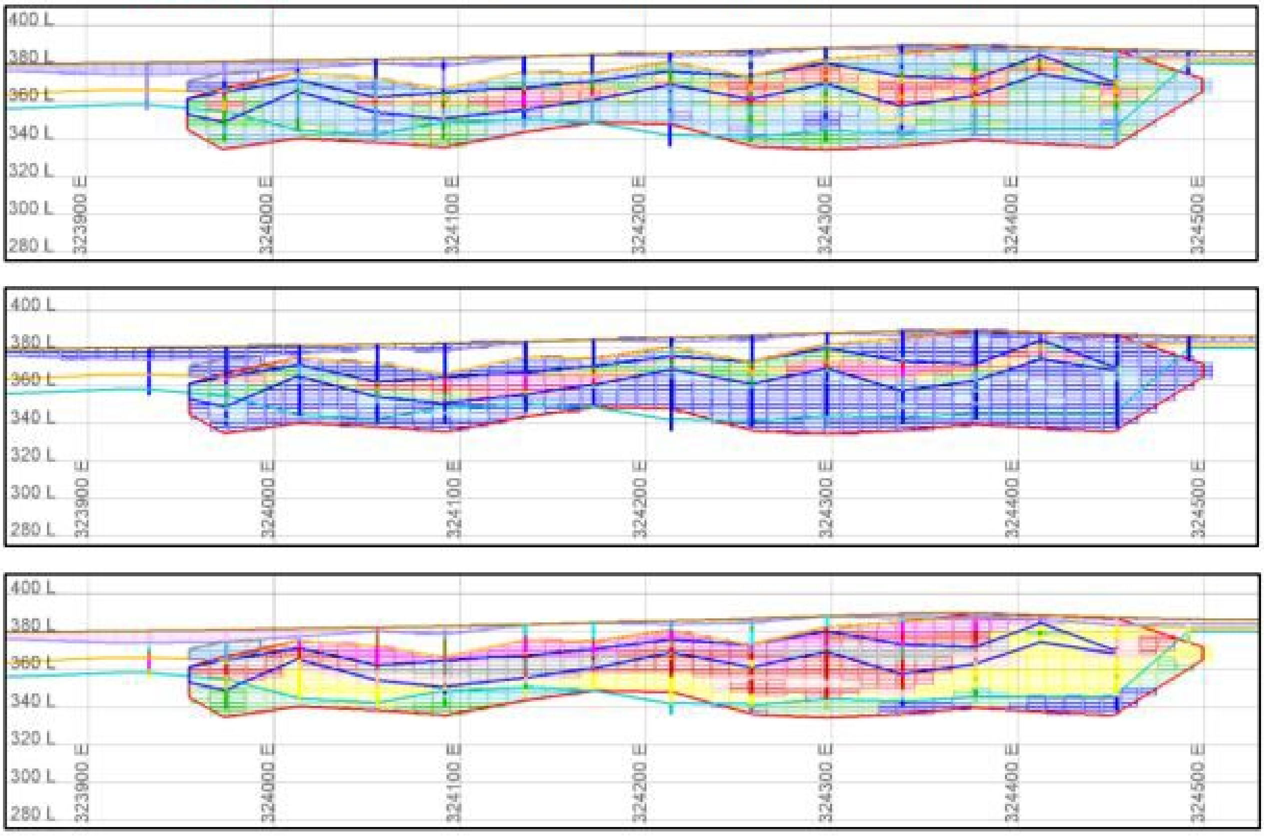
6662160N (Section E) – Colour coded by Ni% (top), Co% (middle), Material Type (bottom)



6663920N (Section F) – Colour coded by Ni% (top), Co% (middle), Material Type (bottom)



6664800N (Section G) – Colour coded by Ni% (top), Co% (middle), Material Type (bottom)



- Siberia North Geological Interpretation

LEGEND

Geological Interpretation

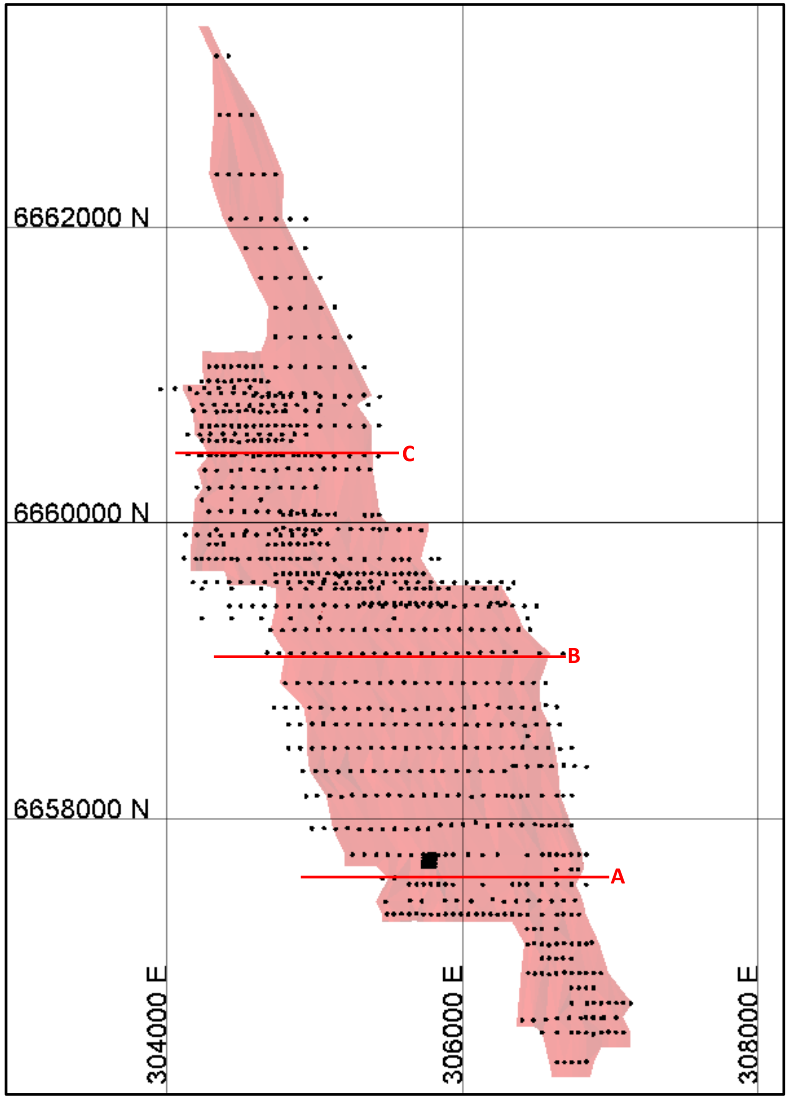
red line	Nickel mineralisation envelope
brown line	Surface topography
yellow line	Base of transported sediments
blue line	Top of saprock

Drill hole Traces

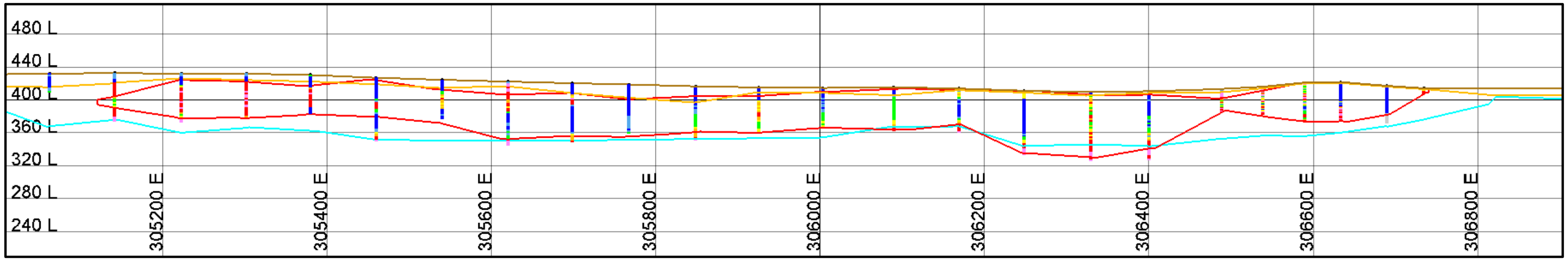
MgO %

-99.000 <=	grey	< 0.000
0.000 <=	blue	< 3.000
3.000 <=	light blue	< 5.000
5.000 <=	green	< 10.000
10.000 <=	yellow	< 15.000
15.000 <=	orange	< 20.000
20.000 <=	red	< 30.000
30.000 <=	magenta	< 99.000

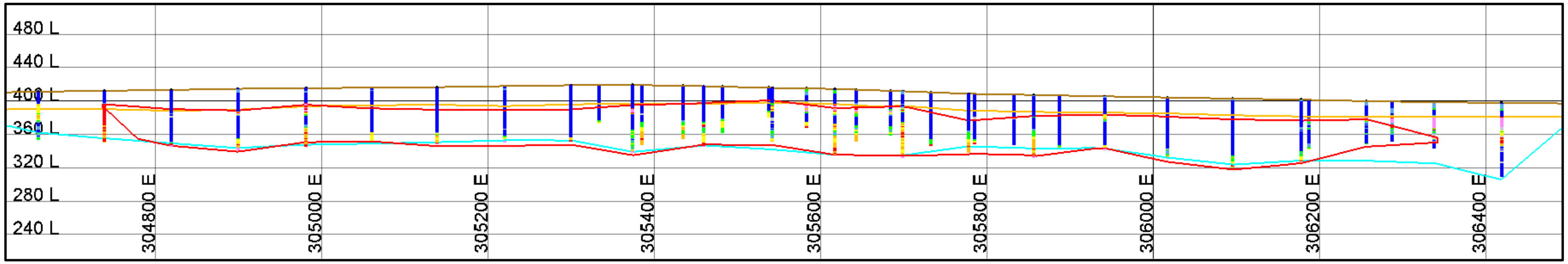
Cross Section Locations



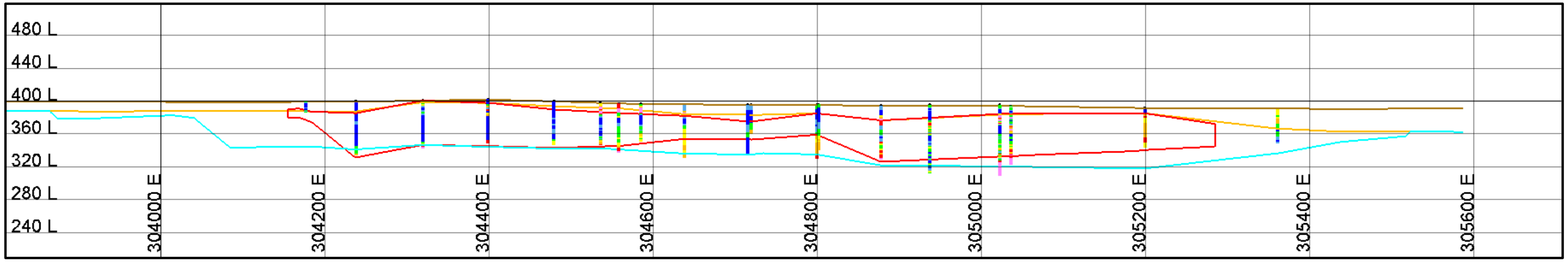
6656650N (Section A)



6659440N (Section B)



6660800N (Section C)



- Siberia North Block Model

LEGEND

Geological Interpretation

- Nickel mineralisation envelope
- Surface topography
- Base of transported sediments
- Top of saprock

Drill hole Traces & Block Model

Middle Section (Co%)

-999.000 <=	(grey)	< 0.000
0.000 <=	(blue)	< 0.025
0.025 <=	(light blue)	< 0.050
0.050 <=	(green)	< 0.080
0.080 <=	(orange)	< 0.100
0.100 <=	(red)	< 0.200
0.200 <=	(magenta)	< 9.000

Drill hole Traces & Block Model

Upper Section (Ni%)

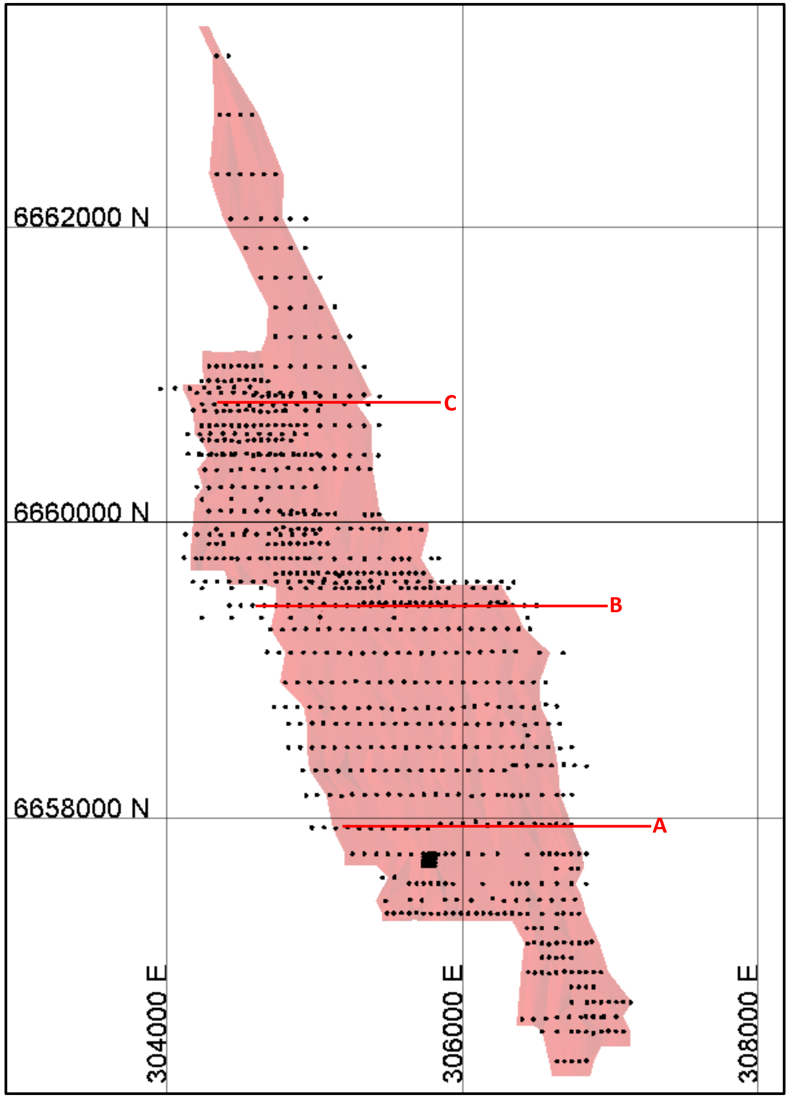
-999.000 <=	(grey)	< 0.000
0.000 <=	(blue)	< 0.250
0.250 <=	(light blue)	< 0.500
0.500 <=	(green)	< 0.800
0.800 <=	(orange)	< 1.000
1.000 <=	(red)	< 1.500
1.500 <=	(magenta)	< 99.000

Lower Section

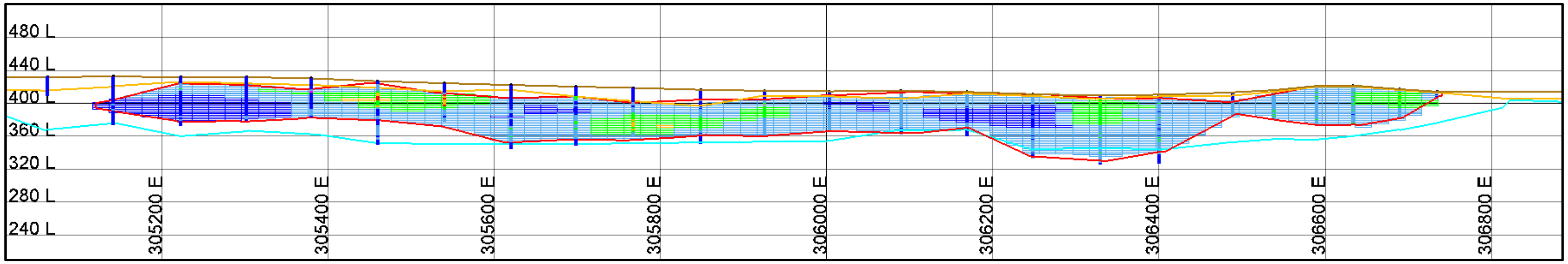
(Material Type)

F	T_NCS	S_S
F_3	T_NCS3	S_S3
F_Q	T_NCSQ	S_SQ
F_Q3	T_NCSQ3	S_SQ3
F_NQ		S_NC
F_NQ3		S_NC3
		NA

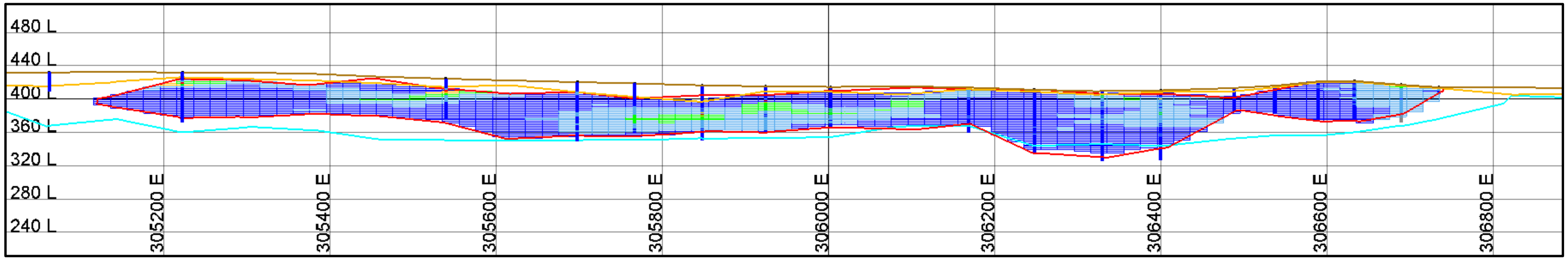
Cross Section Locations



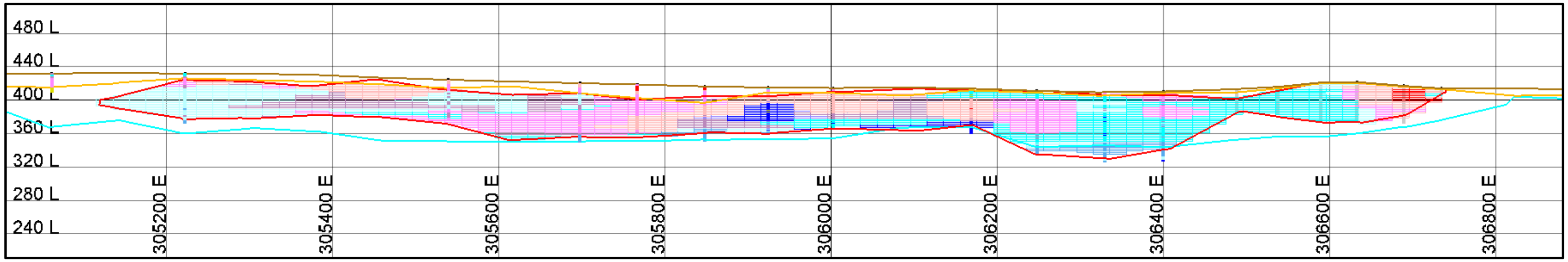
6656650N **(Section A)**



Block model nickel estimates

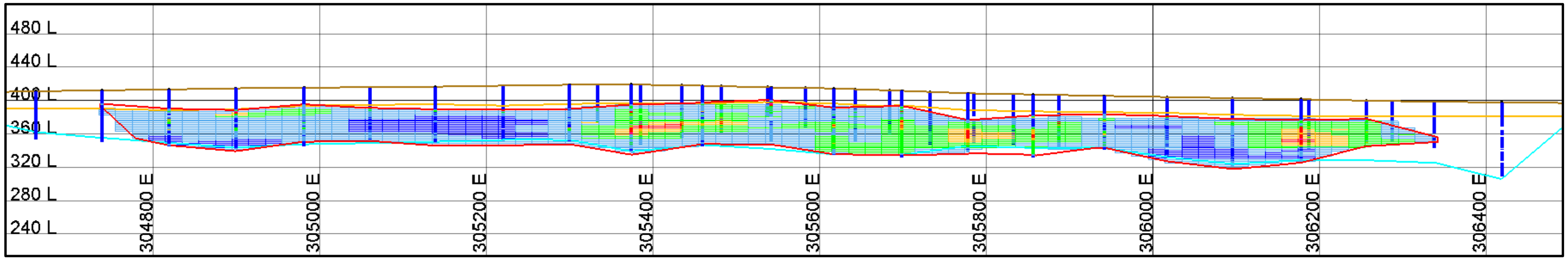


Block model cobalt estimates

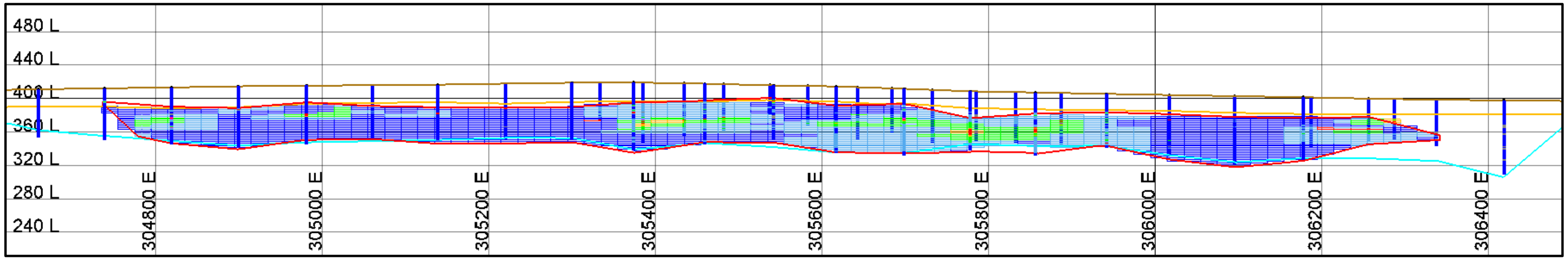


Block model material type assignments

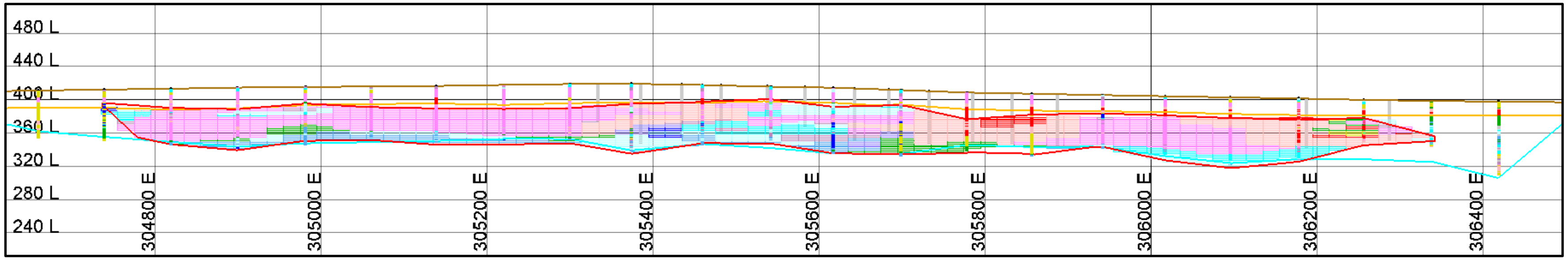
6659440N **(Section B)**



Block model OK nickel estimates

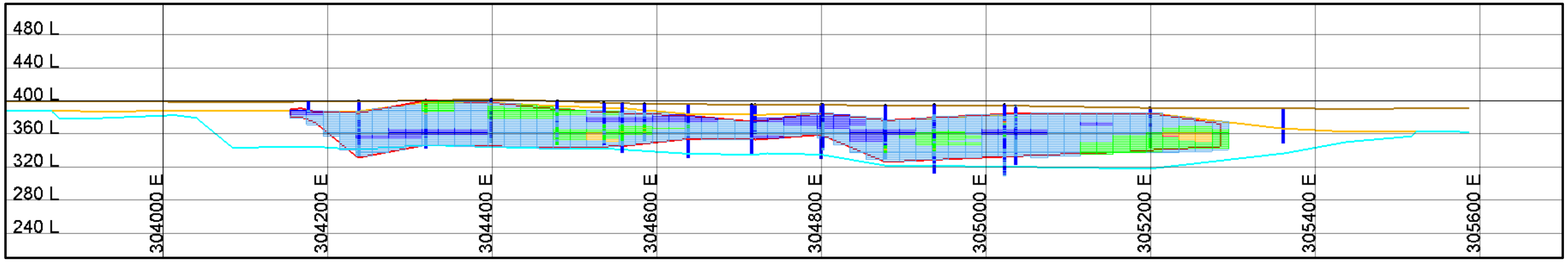


Block model OK cobalt estimates

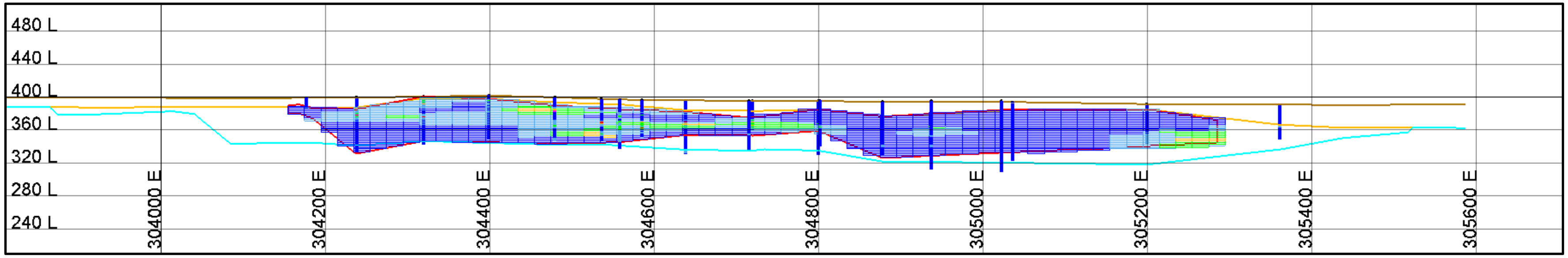


Block model material type assignments

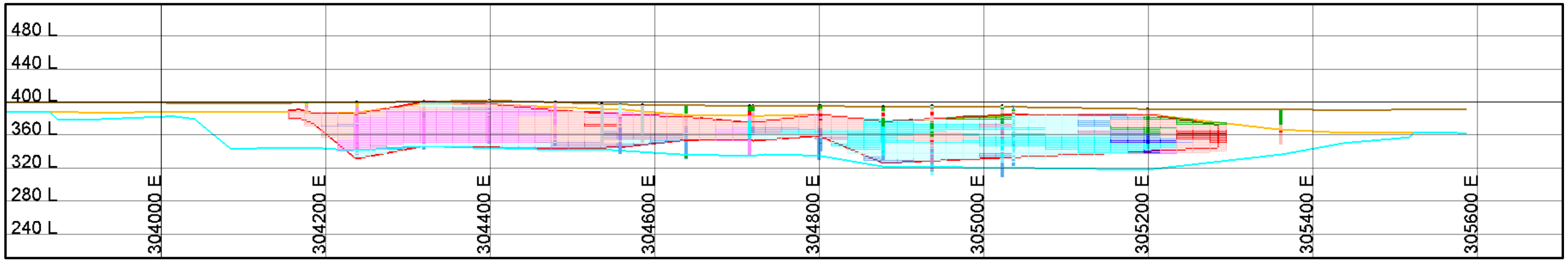
6660800N **(Section C)**



Block model LUC nickel estimates



Block model LUC cobalt estimates



Block model material type assignments