

The Companies Officer
Australian Securities Exchange Ltd
Level 40, Central Park
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Perth WA 6000

21 August 2020

Dear Madam or Sir

#### **Fortescue Mineral Resources Update: Development Properties**

Fortescue Metals Group (ASX: FMG, Fortescue) presents the attached Mineral Resources statement for its Development Properties as at 30 June 2020.

The report updates the Measured, Indicated and Inferred Mineral Resource estimates in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, December 2012 (the 2012 JORC Code) as required by the Australian Securities Exchange. The annual summary will be included in Fortescue's FY20 Annual Report which should be read in conjunction with the enclosed statement (Mineral Resources Update – Development Properties).

#### **Summary Mineral Resources Development Properties – Hematite**

	June 2	020	June 20	)19
	Million tonnes (in-situ)	Fe %	Million tonnes (in-situ)	Fe %
Greater Chichester Hub	433	56.4	433	56.4
Greater Solomon Hub	2,682	56.9	2,580	56.8
Greater Western Hub	2,086	57.2	2,047	57.2
Nyidinghu	2,475	57.3	2,463	57.4
Pilbara Other	384	57.1	384	57.1
Total Development Mineral Resources	8,060	57.1	7,907	57.1

The Greater Solomon Hub Mineral Resource has increased by 102 million tonnes (mt) to 2,682 mt, including updates to the Sheila Valley and Raven deposits. The Greater Western Hub Mineral Resource has increased by 39mt to 2,086mt including updates to the Flying Fish, Cobra, Lora and Wyloo North deposits. At Cobra, 99mt of the Mineral Resource is now classified as Indicated. The Nyidinghu deposit has been updated with an overall increase of 12mt to the Mineral Resource to 2,475mt. The additional tonnes include high grade bedded iron deposits (BID) in the Brockman and Marra Mamba Iron Formations, along with channel iron deposits (CID) and detrital iron deposits (DID).

Chief Executive Officer, Elizabeth Gaines said, "It is pleasing to see the continued growth in Mineral Resources at our Development Properties. With the increase in Mineral Resources at the Greater Solomon Hub, Greater Western Hub and Nyidinghu, our total Development Mineral Resources now exceeds eight billion tonnes."

Yours sincerely Fortescue Metals Group Ltd

Authorised by Cameron Wilson Company Secretary

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## **Greater Solomon location and geology**

Updated estimates have been produced for deposits within our Greater Solomon Hub to add 102 million tonnes (mt). The Mineral Resource estimates are reported in accordance with the 2012 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (the 2012 JORC Code). The Mineral Resources are classified as Inferred.

Deposits in the Greater Solomon Hub are located approximately within 20-70km of our operations at Solomon in the Pilbara region of Western Australia, Figure 1. Updated estimates have been completed for the Sheila Valley and Raven deposits, Figure 2.

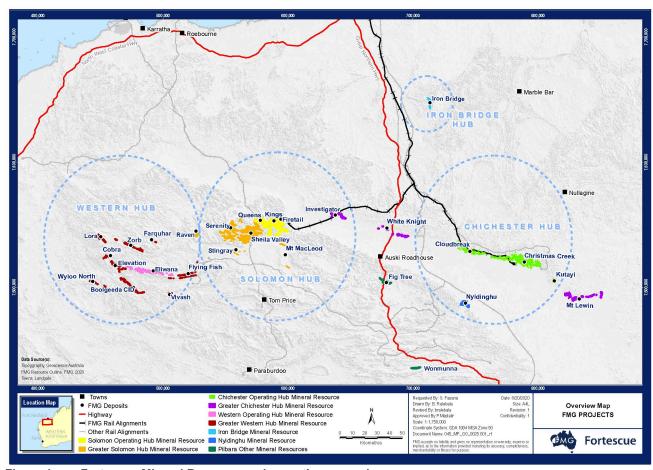


Figure 1: Fortescue Mineral Resource and operations overview.

Mineralisation within these deposits is hosted by Detrital Iron Deposits (DID), buried Channel Iron Deposits (CID) and Bedded Iron Deposits (BID). Outcropping geology in the area is the Dales Gorge, Whaleback Shale and Joffre members of the Brockman Iron Formation which contain BID mineralisation. Incised into this bedrock geology are large channel systems which contain the DID and CID mineralisation.

Sheila Valley is 20km west of the operations at Solomon. The deposit consists of a series of northwest-southeast trending valleys between 5km and 20km in length with a central north-south channel. The width of mineralisation across the valley is up to 2km. Mineralisation occurs from surface and up to depths of approximately 200m. The defined mineralised units are between 20 and 150m thick with an average thickness of 30m. Further drilling in the project has resulted in an increase of the Inferred Mineral Resource by 32mt.

The Raven deposit is located in the Hamersley range 65km west of the operations at Solomon and 75km northwest of Tom Price. Mineralisation consists of BID hosted by the Dales Gorge member of the Brockman Iron Formation. Outcropping geology is the Dales Gorge and Whaleback Shale members of the Brockman Iron Formation and McRae Shale. Mineralisation at Raven covers an area of approximately 3.5km by 3km. Mineralisation occurs at surface and up to depths of 75m. The thickness of mineralisation averages 20m. Further drilling in the project has resulted in an increase of the Inferred Mineral Resource by 70mt.

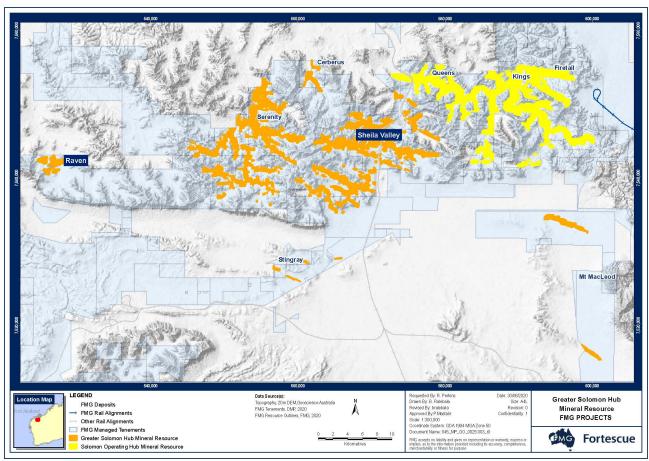


Figure 2: Location of Greater Solomon Hub Mineral Resources.

# **Greater Western Hub location and geology**

Updated Mineral Resource estimates have been produced for deposits within our Greater Western Hub to add 39mt. The Mineral Resource estimates are reported in accordance with the 2012 JORC Code and are classified as Indicated and Inferred.

Deposits in the Greater Western Hub are located within 45km of our operations at Eliwana in the Pilbara region of Western Australia, Figure 1. Updated estimates have been completed for the Flying Fish, Cobra, Lora and Wyloo North deposits, Figure 3.

The Flying Fish deposit is situated on the northern limb of the Brockman Syncline in the western Hamersley Province. The deposit covers a narrow zone that follows the outcrop of mineralised Marra Mamba and Brockman Iron Formations. Tertiary sediments overlie the Mt McRae Shale, Mt Sylvia and Wittenoom Formations that separate the two Iron Formations. Mineralisation predominantly occurs as BID with some DID. Mineralisation is distributed variably within an area of approximately 25km along strike and 3.5km across strike. Mineralisation occurs at surface and

extends to depths of 300m below surface with an average thickness of 20m to 30m. A portion of E47/1373 has been surrendered and these tonnes have been removed from the inventory resulting in a decrease of the Inferred Mineral Resource by 6mt.

The Cobra and Lora deposits are found along the western margin of the Hamersley Basin. These deposits contain BID mineralisation hosted by Brockman Iron Formation, with some DID and minor CID. Cobra and Lora contain BID mineralisation hosted by the Joffre, Whaleback Shale and Dales Gorge members of the Brockman Iron Formation and minor DID mineralisation. Mineralisation at Cobra covers an area approximately 6km along strike east to west, 800m across strike, and occurs from surface to depths of 200m with an average thickness of 80m. Further drilling over the project areas has resulted in an increase in confidence of the Mineral Resource with 99mt now classified as Indicated with an overall increase of 29mt. Mineralisation at Lora covers an area approximately 9km along strike and 2km across strike. Mineralisation occurs at surface and extends to depths of up to 200m with an average thickness of 30m. Further drilling over the project area has resulted in a change in interpretation leading to a decrease of the Inferred Mineral Resource by 15mt.

The Wyloo North deposit is situated on the northern margin of the Wyloo Dome in an area of significant deformation. The deposit contains BID with mineralisation hosted by the Joffre, Whaleback Shale and Dales Gorge members of the Brockman Iron Formation and is controlled by northwest trending sub-vertical faults. Mineralisation occurs variably with an area approximately 15km along strike and 500m across strike. Mineralisation occurs at surface and extends to depths of 180m at a thickness of 25m to 40m. Further drilling in the project area has resulted in an increase of the Inferred Mineral Resource by 30mt.

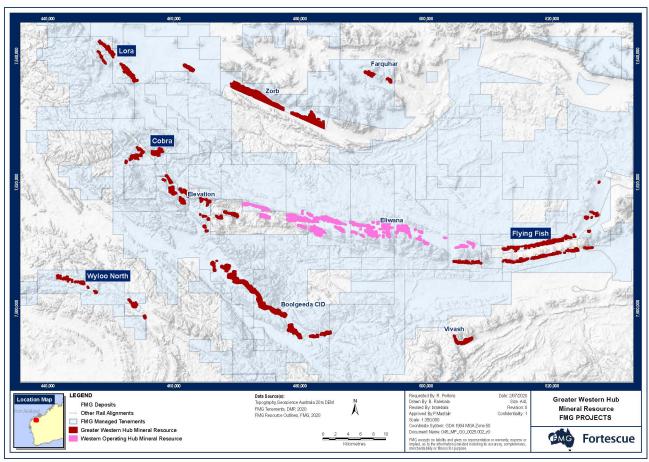


Figure 3: Location of Greater Western Hub Mineral Resources.

## Nyidinghu location and geology

An updated Mineral Resource estimate has been produced for Nyidinghu adding 12mt. The Mineral Resource estimate is reported in accordance with the 2012 JORC Code and is classified as Measured, Indicated, and Inferred.

Nyidinghu is located approximately 40km south of our operations at Christmas Creek, and 100km northwest of Newman in the central Pilbara region of Western Australia, Figure 1.

Mineralisation within the Nyidinghu deposit occurs as DID, CID and BID. BID mineralisation is hosted by the Joffre, Whaleback Shale and Dales Gorge members of the Brockman Iron Formation. The bedded stratigraphy is broken up into fault blocks controlled by two generations of northeast and northwest striking faults which show vertical displacements in the order of 50-100m. The majority of the mineralisation is associated with the BID and occurs as a supergene zone near the base of the overburden. The CID mineralisation overlies much of the BID material and generally trends northeast. The mineralisation extends to eastern, western, and southern tenement boundaries, resulting in mineralisation dimensions of approximately 7km in a northwest southeast direction and 4.5km in the northeast southwest direction. The mineralisation remains open to the north. Mineralisation occurs from surface and extends to depths of up to 300m. The BID mineralisation has an average thickness of 85m. Further drilling in the project area has resulted in an increase of the Mineral Resource by 12mt.

#### **Data**

Drill samples are from Reverse Circulation (RC) drilling rigs with cone splitters. In the Greater Western Hub projects, RC drill holes have been drilled predominantly on a 200m  $\times$  100m and 400m  $\times$  100m spaced grid, with some 100m  $\times$  100m and 100m  $\times$  50m spaced drill holes. In the Greater Solomon projects, RC drill holes have been drilled on a nominal 400m  $\times$  100m, 200m  $\times$  100m and 100m  $\times$  50m spaced grid. Drill spacing at Nyidinghu is predominantly on a 100m  $\times$  100m and 50m  $\times$  100m grid, with some areas at 25m  $\times$  25m and 100m  $\times$  200m.

All data is captured electronically and must pass extensive quality assurance and quality control (QAQC) procedures. QAQC is an ongoing analysis and includes validation of drill hole collar coordinates, field certified reference materials (CRMs), laboratory CRMs, field duplicates, twin holes as well as 'round robin' checks between laboratories. No major issues were identified with precision, accuracy, or bias. The estimations incorporate all the validated RC holes drilled in the area by Fortescue that have collar and assay information loaded into the acQuire database. Geological logging, geochemistry and geophysical data were used to identify the stratigraphic units which were then modelled in 3D.

Grades estimated in the models were Fe, SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, P, Mn, MgO, CaO, TiO<sub>2</sub>, Na<sub>2</sub>O, S, K<sub>2</sub>O, and LOI total. However, only Fe, SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, P and LOI total are quoted here as the other elements are not considered significant. Variography and detailed statistics using Snowden Supervisor software were used to determine the estimation parameters for the grade modelling. Ordinary Kriging and inverse distance methods were used as modelling techniques to estimate grades. Estimation was done using Maptek Vulcan software.

Density has been determined from down-hole geophysical measurements throughout the deposits. For the Brockman and Marra Mamba BID deposits in the Greater Western Hub, these density values have been compared with down-hole geophysical measurements and bulk density measurements on diamond core drilled at the nearby and analogous Eliwana deposit. Sheila Valley has been compared with measurements at the analogous Kings and Queens deposits. Nyidinghu

has been compared with Brockman Iron Formation at the Solomon and Western Hubs. Average rounded densities by geological unit and mineralisation have been applied globally to the models.

The cut-offs used to report these Mineral Resources vary slightly across the deposits to deliver similar grades to our current production specifications. At Sheila Valley all BID material is reported at greater than or equal to 50% Fe, DID and CID is reported at greater than or equal to 54% Fe. At Raven all BID material is reported at greater than or equal to 50% Fe, DID is reported at greater than or equal to 56% Fe. BID and red ochre detritals at Flying Fish are reported at greater than or equal to 50% Fe and DID is reported at greater than or equal to 52% Fe. All material at Cobra is reported at greater than or equal to 50% Fe. All material at Lora is reported at greater than or equal to 54% Fe. All material at Wyloo North is reported at greater than or equal to 50% Fe. All material at Nyidinghu is reported at greater than or equal to 52% Fe.

#### Mineral resource

The estimates at Sheila Valley, Raven, Flying Fish, Lora and Wyloo North have been classified as Inferred Mineral Resources, Cobra has been classified as Indicated and Inferred Mineral Resources and Nyidinghu has been classified as Measured, Indicated and Inferred Mineral Resources. These estimates are all reported in accordance with the 2012 JORC Code. The classification is derived from consideration of the confidence in geological and mineralisation continuity, sample spacing, sample statistics, estimation parameters, interpretational uncertainties, mapping and the potential for economic extraction. The Mineral Resource summary for these updated and new deposits is shown in Table 1, Table 2, and Table 3.

Table 1: Greater Solomon Hub updated Mineral Resource summary.

Ore Type	In-situ Tonnes (Mt)	Iron Fe %	Silica SiO <sub>2</sub> %	Alumina Al <sub>2</sub> O <sub>3</sub> %	Phos P %	Loss on Ignition LOI %
Sheila Valley: Inferred						
Detritals	373	57.1	7.64	5.22	0.059	4.5
CID	128	55.8	6.50	3.67	0.094	9.2
Brockman BID	346	57.4	5.74	2.96	0.115	8.5
Total	847	57.1	6.69	4.06	0.087	6.9
Raven: Inferred						
Detritals	23	58.8	7.97	4.10	0.053	3.6
Brockman BID	99	58.8	5.20	2.44	0.126	7.7
Total	122	58.8	5.73	2.76	0.112	6.9

Table 2: Greater Western Hub updated Mineral Resource summary.

Ore Type	In-situ Tonnes	Iron Fe	Silica SiO <sub>2</sub>	Alumina Al <sub>2</sub> O <sub>3</sub>	Phos P	Loss on Ignition
	(Mt)	%	%	%	%	LOI %
Flying Fish: Inferred						
Detritals	75	57.7	6.14	4.18	0.062	6.1
Brockman BID	125	57.9	6.52	2.96	0.127	7.1
Marra Mamba BID	168	60.4	4.01	1.97	0.058	6.6
Total	368	59.0	5.30	2.76	0.082	6.7
Cobra: Indicated	'		'			
Brockman BID	99	59.1	5.32	2.45	0.162	7.1
Total	99	59.1	5.32	2.45	0.162	7.1
Cobra: Inferred						
Detritals	18	56.6	7.55	3.89	0.079	6.6
Brockman BID	79	57.5	6.66	2.92	0.141	7.5
Total	96	57.3	6.82	3.10	0.130	7.4
Cobra: Total						
Detritals	18	56.6	7.55	3.89	0.079	6.6
Brockman BID	178	58.4	5.91	2.66	0.153	7.3
Total	196	58.2	6.06	2.77	0.146	7.2
Lora: Inferred						
Detritals	16	57.3	8.72	4.50	0.070	3.8
CID	8	55.6	7.12	2.72	0.064	9.8
Brockman BID	151	58.8	5.07	3.00	0.167	7.1
Total	174	58.6	5.50	3.12	0.154	6.9
Wyloo North: Inferred						
Brockman BID	131	59.6	5.85	2.66	0.116	5.6
Total	131	59.6	5.85	2.66	0.116	5.6

Table 3: Nyidinghu updated Mineral Resource summary.

Ore Type	In-situ Tonnes (Mt)	Iron Fe %	Silica SiO <sub>2</sub> %	Alumina Al <sub>2</sub> O <sub>3</sub> %	Phos P %	Loss on Ignition LOI %
Nyidinghu: Measured						
Brockman BID	22	59.7	3.56	2.08	0.140	8.1
Total	22	59.7	3.56	2.08	0.140	8.1
Nyidinghu: Indicated						
Detritals	7	55.2	8.62	5.51	0.090	5.3
CID	80	55.3	6.73	3.73	0.099	9.4
Brockman BID	488	58.5	4.19	2.81	0.157	8.4
Total	575	58.0	4.60	2.97	0.148	8.5
Nyidinghu: Inferred						
Detritals	23	56.3	8.07	4.54	0.110	5.7
CID	570	55.1	6.53	3.81	0.102	9.9
Brockman BID	1284	58.0	4.51	3.22	0.169	8.3
Total	1,878	57.1	5.17	3.41	0.148	8.8
Nyidinghu: Total						
Detritals	30	56.0	8.20	4.77	0.105	5.6
CID	651	55.1	6.55	3.80	0.102	9.9
Brockman BID	1794	58.1	4.41	3.10	0.165	8.4
Total	2,475	57.3	5.02	3.30	0.148	8.7

Tonnage information has been rounded and as a result the figures may not add up to the totals quoted

The Mineral Resource inventory compared with the previous reporting period for these deposits is shown in Table 4, Table 5, and Table 6. In accordance with the requirements of the 2012 JORC Codefor reporting Mineral Resources, Table 1 Checklist of Assessment and Reporting Criteria for each estimate is provided in the attachment.

Table 4: Greater Solomon Hub total Mineral Resource inventory.

			Jui	ne 2020					Ju	ne 2019		
Project	In-situ Tonnes (Mt)	Iron Fe %	Silica SiO <sub>2</sub> %	Alumina Al <sub>2</sub> O <sub>3</sub> %	Phos P %	Loss on Ignition LOI %	In-situ Tonnes (Mt)	Iron Fe %	Silica SiO <sub>2</sub> %	Alumina Al <sub>2</sub> O <sub>3</sub> %	Phos P %	Loss on Ignition LOI %
Greater Solor	non Hub Ir	dicated			I	ı		I	I			
Serenity	254	56.6	6.70	3.45	0.083	8.3	254	56.6	6.70	3.45	0.083	8.3
Greater Solor	non Hub Ir	ferred										
Serenity	1,146	56.4	7.53	3.83	0.082	7.1	1,146	56.4	7.53	3.83	0.082	7.1
Sheila Valley	847	57.1	6.69	4.06	0.087	6.9	815	57.1	6.84	3.88	0.086	6.7
Cerberus	76	56.7	6.53	4.48	0.076	7.1	76	56.7	6.53	4.48	0.076	7.1
Mt MacLeod	201	57.4	4.95	3.02	0.057	8.7	201	57.4	4.95	3.02	0.057	8.7
Stingray	36	58.5	5.05	2.56	0.052	8.2	36	58.5	5.05	2.56	0.052	8.2
Raven	122	58.8	5.73	2.76	0.112	6.9	52	58.7	5.73	2.32	0.124	7.4
Sub Total	2,427	56.9	6.87	3.79	0.083	7.2	2,325	56.8	6.96	3.74	0.081	7.1
Greater Solor	non Hub C	ombine	d									
Total	2,682	56.9	6.85	3.76	0.083	7.3	2,580	56.8	6.93	3.71	0.082	7.2

Table 5: Greater Western Hub total Mineral Resource inventory.

	June 2020							June 2019				
Project	In-situ Tonnes (Mt)	Iron Fe %	Silica SiO <sub>2</sub> %	Alumina Al <sub>2</sub> O <sub>3</sub> %	Phos P %	Loss on Ignition LOI %	In-situ Tonnes (Mt)	Iron Fe %	Silica SiO <sub>2</sub> %	Alumina Al <sub>2</sub> O <sub>3</sub> %	Phos P %	Loss on Ignition LOI %
Greater West	ern Hub In	dicated										
Cobra	99	59.1	5.32	2.45	0.162	7.1	-	-	-	-	-	-
Greater West	ern Hub In	ferred			,							
Flying Fish	368	59.0	5.30	2.76	0.082	6.7	374	58.9	5.34	2.76	0.085	6.7
Vivash	96	58.7	6.21	3.03	0.104	6.2	96	58.7	6.21	3.03	0.104	6.2
Cobra	96	57.3	6.82	3.10	0.130	7.4	166	58.7	5.75	2.55	0.152	7.1
Lora	174	58.6	5.50	3.12	0.154	6.9	189	58.5	5.56	3.13	0.151	6.9
Zorb	337	54.6	6.57	3.14	0.040	11.2	337	54.6	6.57	3.14	0.040	11.2
Farquhar	41	58.2	5.56	2.98	0.123	7.6	41	58.2	5.56	2.98	0.123	7.6
Elevation	254	57.9	5.41	2.73	0.097	8.3	254	57.9	5.41	2.73	0.097	8.3
Boolgeeda	490	55.4	5.92	2.84	0.043	11.4	490	55.4	5.92	2.84	0.043	11.4
Wyloo North	131	59.6	5.85	2.66	0.116	5.6	101	60.4	5.38	2.60	0.107	5.0
Sub Total	1,987	57.1	5.86	2.90	0.080	8.8	2,047	57.2	5.79	2.86	0.083	8.7
Greater West	ern Hub C	ombine	t									
Total	2,086	57.2	5.83	2.88	0.084	8.7	2,047	57.2	5.79	2.86	0.083	8.7

Tonnage information has been rounded and as a result the figures may not add up to the totals quoted

Table 6: Nyidinghu total Mineral Resource inventory.

	June 2020								June 2019			
Project	In-situ Tonnes (Mt)	Iron Fe %	Silica SiO <sub>2</sub> %	Alumina Al <sub>2</sub> O <sub>3</sub> %	Phos P %	Loss on Ignition LOI %	In-situ Tonnes (Mt)	Iron Fe %	Silica SiO <sub>2</sub> %	Alumina Al <sub>2</sub> O <sub>3</sub> %	Phos P %	Loss on Ignition LOI %
Nyidinghu H	lub Measur	ed										
Nyidinghu	22	59.7	3.56	2.08	0.140	8.1	23	59.6	3.56	2.21	0.139	8.0
Nyidinghu H	lub Indicate	ed										
Nyidinghu	575	58.0	4.60	2.97	0.148	8.5	580	58.1	4.52	2.95	0.148	8.6
Nyidinghu H	lub Inferred											
Nyidinghu	1,878	57.1	5.17	3.41	0.148	8.8	1,860	57.2	5.00	3.36	0.147	8.8
Nyidinghu H	lub Combin	ed					,					
Total	2,475	57.3	5.02	3.30	0.148	8.7	2,463	57.4	4.88	3.25	0.147	8.8

### Competent person's statement

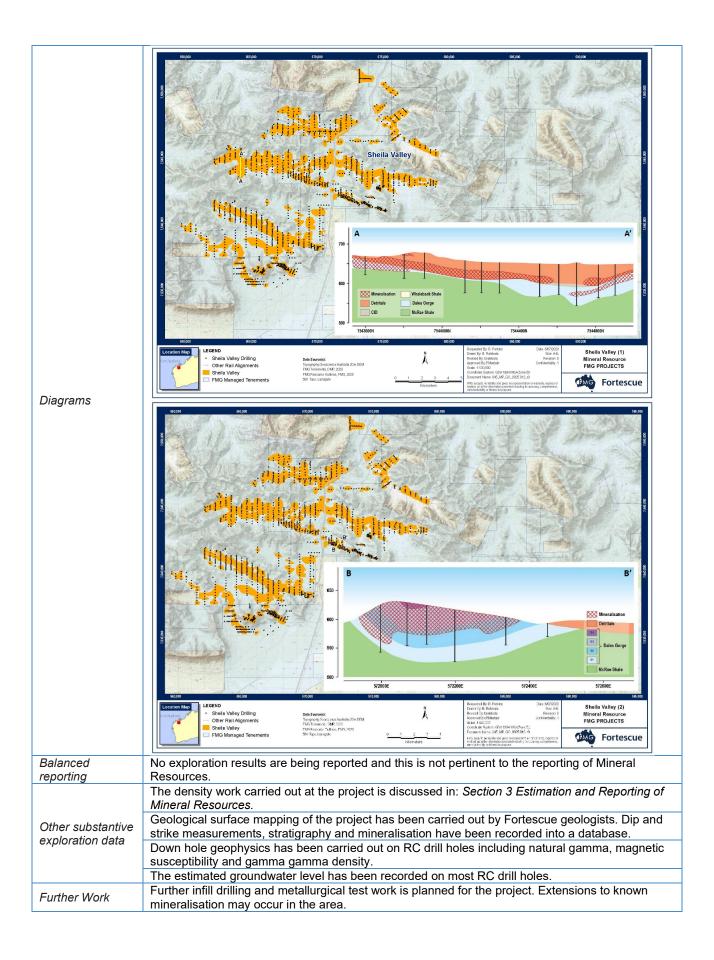
The information in this report that relates to Exploration Targets, Exploration Results and Mineral Resources is based on information compiled by Mr Stuart Robinson who is a Fellow of The Australasian Institute of Mining and Metallurgy, and Mr Nicholas Nitschke and Ms Erin Retz who are Members of The Australasian Institute of Mining and Metallurgy. Mr Stuart Robinson, Mr Nicholas Nitschke and Ms Erin Retz are full time employees and shareholders of Fortescue Metals Group Ltd. Mr Robinson, Mr Nitschke and Ms Retz have sufficient experience that 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 Robinson, Mr Nitschke and Ms Retz consent to the inclusion in this report of the matters based on this information in the form and context in which it appears.

# **Sheila Valley JORC table 1**

Criteria	Commentary
	A total of 1,533 reverse circulation drill holes and 54,445 1m composite samples were used in the model. Samples sent for element and analytical work were selected based on potential ore-grade material with a reasonable envelope both above and below this interval. Most holes where possible undergo down hole geophysical logging.  Applytical CRMs were used to assist in physicing lobeston results. Field duplicates were used to
Sampling techniques	Analytical CRMs were used to assist in checking laboratory results. Field duplicates were used to assist with determining sampling quality at the rig. Geophysical probes were calibrated on a regular basis using static methods and specific calibration holes. Drill hole locations were determined by survey contractors.
	All samples were taken on 1m intervals from reverse circulation drill holes. A sample weighing approximately 1 to 3 kilograms was collected for each metre which was transported to a commercial laboratory and then pulverised for XRF analysis.
Drilling techniques	Reverse circulation (RC) drill holes of approximately 140mm diameter were completed using a standard face sampling hammer. All drill holes are vertical.
Drill sample	The quality of each sample sent to the laboratory was recorded by the logging geologist at the time of drilling and categorised as either poor, moderate, or good. 95% of samples were recorded as good, 4% were recorded as moderate and 1% were recorded as poor.
recovery	No major issues with the sample collection system were identified during drilling. Minimal loss of fines was achieved through the use of an automated sample collection and splitting system.
	There is assumed to be no expected relationship between sample recovery and grade.  Geological logging was completed by geologists experienced in iron ore mineralisation. The standard of logging is suitable to support an estimate of Mineral Resources.
Logging	Stratigraphy, mineralogy, chip size, chip shape, chip recovery, hardness, colour, moisture, and sample quality were recorded for all drill holes. Chip trays from RC holes were collected on an intermittent basis.
	All RC drill holes were geologically logged.
	Drilling samples are collected in labelled bags, which are stored onsite or sent for analysis. These samples are collected using a cone splitter installed directly beneath the cyclone. Wet samples are collected using the same technique as dry samples, with thorough cleaning of sampling system between samples. Wet samples are allowed to dry before being processed.
Sub-sampling	The sample collected from the cone splitter represents approximately 6 to 7% of the total sample interval. Cone splitters are the preferred splitting system used by Fortescue as they generally give the most representative sample in both dry and wet conditions.
techniques and sample	At the laboratory, samples were weighed, dried, and pulverised to either 90% passing through 106 microns (Ultra Trace and SGS) or 85% passing through 75 microns (Genalysis).
preparation	Certified reference materials (CRM) are used in the field (approximately 1 in 100 samples) and laboratory (1 per laboratory job) as a quality control measure at different sub-sampling stages.
	Rig duplicate samples are taken at an average of 3 rig duplicate samples per approximately 100 samples sent to the laboratory. An analysis of these duplicate samples indicates that they are of good quality and repeatable.
	No formal analysis of the appropriateness of sample size compared to grain size has been completed but the sampling regime is considered to be industry best practice.
Quality of assay	All samples were sent to Ultra Trace, SGS or Genalysis laboratories for analysis. All laboratories have National Association of Testing Authorities, Australia (NATA) accreditation. The standard elements tested were Fe, SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , P, MnO/Mn, MgO, CaO, TiO <sub>2</sub> , Na <sub>2</sub> O, S and K <sub>2</sub> O by X Ray Fluorescence (XRF) and a three-point LOI thermo gravimetric analysis at 371, 650 and 1000 degrees Celsius. This is considered a total analysis.
data and laboratory tests	No geophysical tools were used to determine any element concentrations used in the estimate.
laboratory toole	Analysis of laboratory CRM results indicates high confidence in XRF analysis at each laboratory. Analysis of field CRMs have indicated issues with laboratory sample preparation and CRM certification in the past. Field CRM results have been closely monitored and such issues have now been mitigated.
	Significant intersections have been visually verified by Fortescue's Exploration Managers.  No twin holes have been completed at this stage of the project.
Verification of sampling and assaying	Sample data is stored using a customised acQuire database, which includes a series of automated electronic validation checks. Fortescue data entry procedures are documented and readily available. Only trained personnel perform further manual validation in order to confirm results reflect field collected information and geology.
	Samples returning below detection limits were given the result of half the detection limit. Missing data was set to -99 and those samples were excluded from statistical analysis and estimation.

Location of data points	Drill hole collar locations have been surveyed using a Differential Global Positioning System by Down Under Surveys, with an accuracy of better than 3cm for Easting and Northing and 5cm in elevation. Down hole surveys have been completed on six of the drill holes as most holes are vertical and less than 150m in total depth any deviations from vertical are negligible. Collar survey data is validated against planned coordinates and the topographic surface.  Grid coordinates given for each point are Map Grid of Australia (GDA94) and heights are in the Australian Height Datum. The project area lies inside UTM zone 50.  The topography was created from 1 metre contours produced from 2014 LIDAR data. Vertical and beginning the survey of this data is 1/0.45 metres.
	horizontal accuracy of this data is+/-0.15 metres.  The grade estimate used RC drill holes which occur on a grid spacing of 100m × 50m, 200m ×
Data anading and	100m, and 400m × 100m for assays and geology.
Data spacing and distribution	This level of drill spacing is sufficient to establish the degree of geological and grade continuity required for an Inferred Mineral Resource.
	No sample compositing was conducted for this estimation.
Orientation of data in relation to geological	Drill holes have been drilled as vertical holes in drill lines sub-perpendicular to the local bearing of the ore body. The mineralisation is sub-horizontal and these vertical holes are sufficient to imply geological and grade continuity.
structure	No material relationship is apparent between sampling bias and geological orientation.
Sample security	To ensure sample security consignment notes (sample submission information) have been used and direct delivery to Perth laboratories has been carried out.
	All sampling has been carried using Fortescue standard procedures.
Audits or reviews	For analogous deposits, sampling audits have been carried out, which did not highlight any major issues. Similar drill rigs and splitters were used on this deposit as was used on the audited deposits. Fortescue sampling and logging procedure are standard across all sites.
	aspesses is street as sampling and regging prostation and standard delegation of the

Criteria	Commentary
Mineral tenement and land tenure status	FMG Pilbara Pty Ltd is a wholly owned subsidiary of Fortescue Metals Group Ltd and is the holder of the tenements which cover the project area E47/1333, E47/1372, E47/1763, E47/1821, and M47/1417. Fortescue owns 100% of all mineral rights in E47/1763, E47/1821, and M47/1417 and all mineral rights except for diamonds in E47/1333 and E47/1372. These are live, granted tenements. Mining Lease applications 47/1493, 47/1558, 47/1559, 47/1560, 47/1561, and 47/1573 were applied for over the area by FMG Pilbara Pty Ltd and are pending grant.  The tenements are within the Eastern Guruma native title determination (WCD2007/001). Fortescue has a current Land Access Agreement with Wintawari Guruma Aboriginal Corporation on behalf of the Eastern Guruma native title holders.  The tenure is currently in good standing and no impediments to obtaining a licence to operate in
Exploration done by other parties	the area are known to exist.  Both BHP (under The Broken Hill Propriety Company Ltd) and Rio Tinto (under the name of Hamersley Exploration and Hamersley Iron Ltd.) have performed exploration for iron ore within the project boundaries. No historical data has been used by Fortescue.
Geology	Mineralisation within the Sheila Valley deposit is hosted by DID, CID, and BID. Outcropping geology in the project is the Joffre, Whaleback Shale, and Dales Gorge Members of the Brockman Iron Formation which contain BID mineralisation. Incised into this bedrock geology are large channel systems which contain the DID and CID mineralisation.
Drill hole Information	Collar details of the RC drill holes used in the estimate are not being reported here.
Data aggregation methods	No exploration results are being reported. For methods used in the estimation please refer to: Section 3 Estimation and Reporting of Mineral Resources.
Relationship between mineralisation widths and intercept lengths	No exploration results are being reported. Please refer to: Orientation of data in relation to geological structure in Section 1 Sampling Techniques and Data for the geometry of mineralisation with respect to drill hole angle.



Criteria	Commentary
	Field logging and sampling data is captured electronically utilising standard templates ensuring
Database integrity	data integrity.  Data is uploaded and stored in an industry standard database (acQuire) that has inbuilt validation checks. Any manual validation or changes are only completed by trained and authorised personnel.
Site visits	The Competent Person and Competent Persons team conducts regular site visits, approximately every two to three months when drilling operations are in progress to inspect the model area, RC drill hole logging and sampling practices. Discussions are held regularly with site geologists.
	Logging and geological interpretation was completed by geologists experienced in iron ore mineralisation. Geology over the majority of the deposit is relatively well known. There is some risk of misinterpretation in areas of wider spaced drilling with limited assay data, however, this is not considered to be material.
	Geological interpretation is based on geological logging, down hole geophysics and geochemistry of RC drill samples.
Geological interpretation	The stratigraphy of Sheila Valley is reasonably well known, and it is envisaged that any alternative geological interpretation, with or without further drilling, would not have a material impact on the Mineral Resource estimate. Extrapolation of mineralisation has been restricted to approximately half of the nominal drill spacing.
	All samples are flagged with their host geological zone, only samples with the same geological zone as the block to be estimated can be used in grade estimation.
	The main factors impacting the geological and grade continuity include the stratigraphy, structure, erosion, and weathering. The grade and geological continuity is generally good compared with analogous areas.
Dimensions	Mineralisation occurs in an area covering approximately 17km in a north-south direction and 20km in an east west direction. The BID mineralisation occurs at from the surface and up to depths of approximately 200m with a total thickness between 20m and 150m. DID mineralisation occurs variably throughout the project and has an average thickness of 10-20m. CID mineralisation occurs under the DID and has an average thickness of 15m.
	Ordinary Kriging was used to estimate all mineralised units and inverse distance for all waste domains. Estimation was done using Maptek Vulcan software. Mineralisation was extrapolated approximately half the distance of drill spacing away from the drilling. The deposit was domained by stratigraphy, structure, local strike/orientation and mineralised/un-mineralised zones.
	No assumptions regarding the recovery of by-products have been made.  The iron ore suite of Fe, SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , P, Mn, MgO, CaO, TiO <sub>2</sub> , Na <sub>2</sub> O, S, K <sub>2</sub> O, LOI Total, LOI 371, LOI 650 and LOI 1000 has been estimated.
	Estimation into parent cells of 200mE × 50mN × 1mRL, 50mE × 200mN × 1mRL, 100mE × 50mN × 1mRL and 50mE × 25mN × 1mRL was used. Size and orientation of parent blocks reflected half the nominal drill spacing and orientation of mineralisation. Sub blocking down to 6.25mE × 6.25mN × 0.5mRL was used along domain boundaries to better define the domain interface.
	Up to three estimation passes were used for each element, gradually increasing search ellipse distances with each pass. Search distances along strike and across strike varied between each domain. These were primarily defined by sample spacing within each domain and determined by neighbourhood iterative tests.
Estimation and	No assumptions behind the modelling of selective mining units have been made.
modelling techniques	Correlation between some elements has been noted during statistical analysis. Similar variogram parameters were achieved for mineralised domains that had elements with a noted correlation.
<b>,</b>	The definition of mineralised zones within each stratigraphic unit was accomplished using an indicator approach. The probability of any zone being mineralised was estimated using appropriate geochemical indicator thresholds for Fe, SiO <sub>2</sub> and Al <sub>2</sub> O <sub>3</sub> for the individual stratigraphic units. These thresholds were based on data population statistics and visual validation. A domain code was assigned to each sample, defined by the stratigraphic unit and mineralisation.
	Some element grades were top cut during estimation based on coefficient of variation values higher than 1.2.
	Visual validation of the block model coding of the domains was completed prior to estimation. Once estimated, the grade of all elements was also visually validated. Visual validation of both the domains and grade were completed in Vulcan by comparing section and plan slices of the block model against the drill holes. Statistics for the mean grade of the mineralised blocks within each stratigraphic unit were compared to the mean grade of the mineralised samples within each stratigraphic unit. Overall, the mean values between the model and samples are within an
	acceptable range. Trend analysis graphs have been created for each of the mineralised domains. These have been generated in Northing, Easting and RL, for all elements. The trend analysis graphs show the modelled grade vs. the raw data grade at a slice in space. The trend analysis

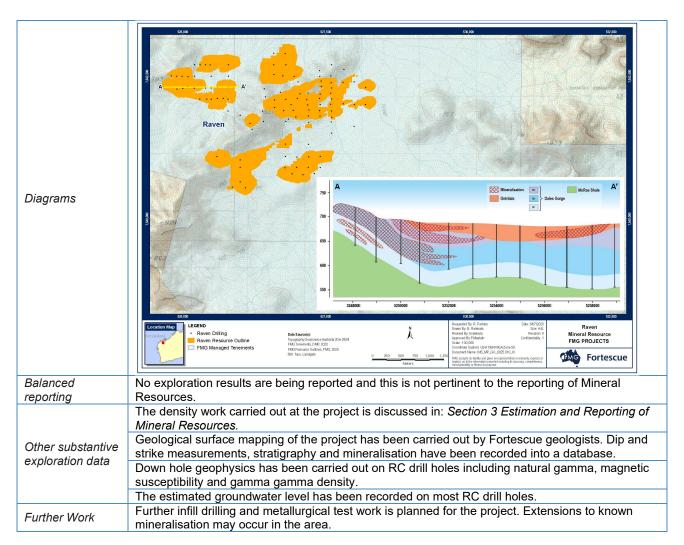
	charts show that overall, the model grade is consistent with the raw data and shows no bias. Areas with many samples correlate much better with the model grade than do areas with few samples.
Moisture	Tonnages are estimated on a dry basis.
Cut-off parameters	BID is reported at a cut-off of greater than or equal to 50% Fe and DID and CID is reported as a cut-off of greater than or equal to 54% Fe. These cut-offs have been used for analogous Fortescue estimates and represents a similar cut-off to current product specifications.
Mining factors or assumptions	It is assumed that mining will be carried out with medium to large scale mining equipment, bench heights will vary depending on mining studies. These methods will be similar to analogous Fortescue deposits where conventional: truck & shovel/excavator; drill & blast and grade control methods are used. The impact of dilution will be assessed as part of the mining studies.
Metallurgical factors or assumptions	It is assumed that similar metallurgical techniques to analogous Fortescue operations will be utilised. The expectation is that material will be dry processed by screens and crushers, with potential for some wet processing. Final processing methods will be defined by further mining studies.
Environmental factors or assumptions	Fortescue has an extensive environmental and heritage approvals process. Waste is considered to be inert and formed waste dumps will conform to WA standards. Waste will be formed as dumps or into mining voids. In the case of acid and fibre mitigation, Fortescue has industry standard procedures. Where beneficiation may take place, reject is considered to be inert and there are no foreseen problems with tailings disposal. No significant concentrations of environmentally deleterious elements have been identified.
Bulk density	Density has been calculated from down-hole geophysical measurements throughout the deposit. Average rounded densities by geological unit and mineralisation have been compared with densities collected from analogous deposits, then applied globally to the model. Whilst on site down-hole geophysical tools are calibrated fortnightly in a designated test diamond drill hole.  Down-hole geophysical probes measure the insitu bulk density which accounts for void spaces. These measurements are not corrected for moisture but are validated against known dry bulk densities from diamond core drilled in analogous Fortescue projects. Down-hole geophysical measurements are grouped by geological and mineralisation domains.  The densities used are similar to known densities for current and historical mines, of similar
Classification	geology and mineralisation, across the Pilbara.  The Mineral Resource has been classified as Inferred. This considers drill spacing and data integrity, geological complexity, grade estimation quality, interpreted risk and mineralisation continuity based on the semivariogram ranges of influence.  The Mineral Resource classification reflects the views of the competent persons.
Audits or reviews	Internal reviews have been completed during all stages of the estimate. External audits of the estimation process have been completed for analogous deposits with no significant flaws identified. Similar processes have been used for this estimate.
Discussion of relative accuracy/confidence	Grade and geological continuity are sufficient for an Inferred Mineral Resource.  Greater confidence in applied density values will be achieved through further physical density and down-hole geophysical measurements.  The global estimate is sufficient to imply the grade and geological continuity in the area of the Inferred Mineral Resource.  No production data is available at this stage.

# **Raven JORC table 1**

Criteria	Commentary
Sampling techniques	A total of 111 reverse circulation drill holes and 6,725 1m composite samples were used in the model. Samples sent for element and analytical work were selected based on potential ore-grade material with a reasonable envelope both above and below this interval. Most holes where possible undergo down hole geophysical logging.
	Analytical CRMs were used to assist in checking laboratory results. Field duplicates were used to assist with determining sampling quality at the rig. Geophysical probes were calibrated on a regular basis using static methods and specific calibration holes. Drill hole locations were determined by survey contractors.
	All samples were taken on 1m intervals from reverse circulation drill holes. A sample weighing approximately 1 to 3 kilograms was collected for each metre which was transported to a commercial laboratory and then pulverised for XRF analysis.
Drilling techniques	Reverse circulation (RC) drill holes of approximately 140mm diameter were completed using a standard face sampling hammer. All drill holes are vertical.
Drill sample recovery	The quality of each sample sent to the laboratory was recorded by the logging geologist at the time of drilling and categorised as either poor, moderate, or good. 83% of samples were recorded as good, 2% were recorded as moderate and 2% were recorded as poor. 13% of samples did not have quality recorded, these samples were logged as waste and were not sent to the laboratory for analysis.  No major issues with the sample collection system were identified during drilling. Minimal loss of fines was achieved through the use of an automated sample collection and splitting system.  There is assumed to be no expected relationship between sample recovery and grade.
Logging	Geological logging was completed by geologists experienced in iron ore mineralisation. The standard of logging is suitable to support an estimate of Mineral Resources.  Stratigraphy, mineralogy, chip size, chip shape, chip recovery, hardness, colour, moisture and sample quality were recorded for all drill holes. Chip trays from RC holes were collected on an intermittent basis.  All RC drill holes were geologically logged.
	Drilling samples are collected in labelled bags, which are stored onsite or sent for analysis. These samples are collected using a cone splitter installed directly beneath the cyclone. Wet samples are collected using the same technique as dry samples, with thorough cleaning of sampling system between samples. Wet samples are allowed to dry before being processed.  The sample collected from the cone splitter represents approximately 6 to 7% of the total sample
Sub-sampling techniques and	interval. Cone splitters are the preferred splitting system used by Fortescue as they generally give the most representative sample in both dry and wet conditions.  At the laboratory, samples were weighed, dried and pulverised to either 90% passing through 106
sample preparation	microns (Ultra Trace and SGS) or 85% passing through 75 microns (Genalysis).  Certified reference materials (CRM) are used in the field (approximately 1 in 100 samples) and laboratory (1 per laboratory job) as a quality control measure at different sub-sampling stages.
	Rig duplicate samples are taken at an average of 3 rig duplicate samples per approximately 100 samples sent to the laboratory. An analysis of these duplicate samples indicates that they are of good quality and repeatable.
	No formal analysis of the appropriateness of sample size compared to grain size has been completed but the sampling regime is considered to be industry best practice.
Quality of assay data and laboratory tests	All samples were sent to Ultra Trace, SGS or Genalysis laboratories for analysis. All laboratories have National Association of Testing Authorities, Australia (NATA) accreditation. The standard elements tested were Fe, SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , P, MnO/Mn, MgO, CaO, TiO <sub>2</sub> , Na <sub>2</sub> O, S and K <sub>2</sub> O by X Ray Fluorescence (XRF) and a three-point LOI thermo gravimetric analysis at 371, 650 and 1000 degrees Celsius. This is considered a total analysis.  No geophysical tools were used to determine any element concentrations used in the estimate.
	Analysis of laboratory CRM results indicates high confidence in XRF analysis at each laboratory.  Analysis of field CRMs have indicated issues with laboratory sample preparation and CRM certification in the past. Field CRM results have been closely monitored and such issues have now been mitigated.
N/ 15 . // 5	Significant intersections have been visually verified by Fortescue's Exploration Managers.  No twin holes have been completed at this stage of the project.
Verification of sampling and assaying	Sample data is stored using a customised acQuire database, which includes a series of automated electronic validation checks. Fortescue data entry procedures are documented and readily available. Only trained personnel perform further manual validation in order to confirm results reflect field collected information and geology.

S	Samples returning below detection limits were given the result of half the detection limit. Missing
	data was set to -99 and those samples were excluded from statistical analysis and estimation.
Location of data	Orill hole collar locations have been surveyed using a Differential Global Positioning System by Down Under Surveys, with an accuracy of better than 3cm for Easting and Northing and 5cm in elevation. No down hole surveys have been completed on the drill holes, as most holes are vertical and less than 150m in total depth any deviations from vertical are negligible. Collar survey data is ralidated against planned coordinates and the topographic surface.
	Grid coordinates given for each point are Map Grid of Australia (GDA94) and heights are in the Australian Height Datum. The project area lies inside UTM zone 50.
	The topography was created from 2 metre contours produced from LIDAR data. Vertical and norizontal accuracy of this data is+/-0.15 metres.
Data spacing and T	The grade estimate used RC drill holes which occur on a grid spacing of 200m × 100m for assays and geology.  This level of drill spacing is sufficient to establish the degree of geological and grade continuity
_	equired for an Inferred Mineral Resource.  No sample compositing was conducted for this estimation.
data in relation to the	Orill holes have been drilled as vertical holes in drill lines sub-perpendicular to the local bearing of he ore body. The mineralisation is sub-horizontal and these vertical holes are sufficient to imply geological and grade continuity.
	No material relationship is apparent between sampling bias and geological orientation.
	o ensure sample security consignment notes (sample submission information) have been used and direct delivery to Perth laboratories has been carried out.
Α	All sampling has been carried using Fortescue standard procedures.
Audits of Teviews is	For analogous deposits, sampling audits have been carried out, which did not highlight any major ssues. Similar drill rigs and splitters were used on this deposit as was used on the audited deposits. Fortescue sampling and logging procedure are standard across all sites.

Section 2 Reporting of Exploration Results	
Criteria	Commentary
Mineral tenement and land tenure status	FMG Pilbara Pty Ltd is a wholly owned subsidiary of Fortescue Metals Group Ltd and is the holder of the tenement which covers the project area E47/1523. Fortescue owns all mineral rights except for diamonds in the tenure. This is live, granted tenure.
	The tenements are within the Eastern Guruma native title determination (WCD2007/001).  Fortescue has a current Land Access Agreement with Wintawari Guruma Aboriginal Corporation on behalf of the Eastern Guruma native title holders.
	The tenure is currently in good standing and no impediments to obtaining a licence to operate in the area are known to exist.
Exploration done by other parties	BHP has performed exploration for iron ore nearby to the project area. No historical data has been used by Fortescue.
Geology	Mineralisation within the Raven deposit is predominantly considered to be BID. The BID is contained within the Whaleback Shale and Dales Gorge Members of the Brockman Iron Formation. Smaller occurrences of DID are present.
Drill hole Information	Collar details of the RC drill holes used in the estimate are not being reported here.
Data aggregation methods	No exploration results are being reported. For methods used in the estimation please refer to: Section 3 Estimation and Reporting of Mineral Resources.
Relationship between mineralisation widths and intercept lengths	No exploration results are being reported. Please refer to: <i>Orientation of data in relation to geological structure</i> in <i>Section 1 Sampling Techniques and Data</i> for the geometry of mineralisation with respect to drill hole angle.



**Section 3 Estimation and Reporting of Mineral Resources** 

Criteria	Commentary
Database integrity	Field logging and sampling data is captured electronically utilising standard templates ensuring data integrity.
	Data is uploaded and stored in an industry standard database (acQuire) that has inbuilt validation checks. Any manual validation or changes are only completed by trained and authorised personnel.
Site visits	The Competent Person and Competent Persons team conducts regular site visits, approximately every two to three months when drilling operations are in progress to inspect the model area, RC drill hole logging and sampling practices. Discussions are held regularly with site geologists.
	Logging and geological interpretation was completed by geologists experienced in iron ore mineralisation. Geology over the majority of the deposit is relatively well known. There is some risk of misinterpretation in areas of wider spaced drilling with limited assay data, however, this is not considered to be material.
	Geological interpretation is based on geological logging, down hole geophysics and geochemistry of RC drill samples.
Geological interpretation	The stratigraphy of Raven is reasonably well known, and it is envisaged that any alternative geological interpretation, with or without further drilling, would not have a material impact on the Mineral Resource estimate. Extrapolation of mineralisation has been restricted to approximately half of the nominal drill spacing.
	All samples are flagged with their host geological zone, only samples with the same geological zone as the block to be estimated can be used in grade estimation.
	The main factors impacting the geological and grade continuity include the stratigraphy, structure, erosion, and weathering. The grade and geological continuity is generally good compared with analogous areas.
Dimensions	Mineralisation occurs over an area approximately 3.5km along strike and 3km across strike. The BID mineralisation occurs at the surface and extends to depths of up to 75m, with an average thickness of 20m. DID mineralisation overlies the BID and has an average thickness of 10m.

	Ordinary Kriging was used to estimate all mineralised units and inverse distance for all waste domains. Estimation was done using Maptek Vulcan software. Mineralisation was extrapolated approximately half the distance of drill spacing away from the drilling. The deposit was domained by stratigraphy, structure, local strike/orientation and mineralised/un-mineralised zones.  No assumptions regarding the recovery of by-products have been made.
	The iron ore suite of Fe, SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , P, Mn, MgO, CaO, TiO <sub>2</sub> , Na <sub>2</sub> O, S, K <sub>2</sub> O, LOI Total, LOI 371, LOI 650 and LOI 1000 has been estimated.
	Estimation into parent cells of 50mE × 50mN × 1mRL was used. Size and orientation of parent blocks reflected half the nominal drill spacing and orientation of mineralisation. Sub blocking down to 6.25mE × 6.25mN × 0.5mRL was used along domain boundaries to better define the domain interface.
	Up to three estimation passes were used for each element, gradually increasing search ellipse distances with each pass. Search distances along strike and across strike varied between each domain. These were primarily defined by sample spacing within each domain and determined by neighbourhood iterative tests.
	No assumptions behind the modelling of selective mining units have been made.
Estimation and	Correlation between some elements has been noted during statistical analysis. Similar variogram parameters were achieved for mineralised domains that had elements with a noted correlation.
modelling techniques	The definition of mineralised zones within each stratigraphic unit was accomplished using an indicator approach. The probability of any zone being mineralised was estimated using appropriate geochemical indicator thresholds for Fe, SiO <sub>2</sub> and Al <sub>2</sub> O <sub>3</sub> for the individual stratigraphic units. These thresholds were based on data population statistics and visual validation. A domain code was assigned to each sample, defined by the stratigraphic unit and mineralisation.
	Some element grades were top cut during estimation based on coefficient of variation values
	higher than 1.2.  Visual validation of the block model coding of the domains was completed prior to estimation.  Once estimated, the grade of all elements was also visually validated. Visual validation of both the domains and grade were completed in Vulcan by comparing section and plan slices of the block
	model against the drill holes. Statistics for the mean grade of the mineralised blocks within each stratigraphic unit were compared to the mean grade of the mineralised samples within each stratigraphic unit. Overall, the mean values between the model and samples are within an acceptable range. Trend analysis graphs have been created for each of the mineralised domains.
	These have been generated in Northing, Easting and RL, for all elements. The trend analysis graphs show the modelled grade vs. the raw data grade at a slice in space. The trend analysis charts show that overall, the model grade is consistent with the raw data and shows no bias. Areas with many samples correlate much better with the model grade than do areas with few samples.
Moisture	Tonnages are estimated on a dry basis.
Cut-off parameters	BID is reported at a cut-off of greater than or equal to 50% Fe and DID is reported as a cut-off of greater than or equal to 56% Fe. These cut-offs have been used for analogous Fortescue estimates and represents a similar cut-off to current product specifications.
Mining factors or assumptions	It is assumed that mining will be carried out with medium to large scale mining equipment, bench heights will vary depending on mining studies. These methods will be similar to analogous Fortescue deposits where conventional: truck & shovel/excavator; drill & blast and grade control methods are used. The impact of dilution will be assessed as part of the mining studies.
Metallurgical factors or assumptions	It is assumed that similar metallurgical techniques to analogous Fortescue operations will be utilised. The expectation is that material will be dry processed by screens and crushers, with potential for some wet processing. Final processing methods will be defined by further mining studies.
Environmental factors or assumptions	Fortescue has an extensive environmental and heritage approvals process. Waste is considered to be inert and formed waste dumps will conform to WA standards. Waste will be formed as dumps or into mining voids. In the case of acid and fibre mitigation, Fortescue has industry standard procedures. Where beneficiation may take place, reject is considered to be inert and there are no foreseen problems with tailings disposal. No significant concentrations of environmentally deleterious elements have been identified.
Bulk density	Density has been calculated from down-hole geophysical measurements throughout the deposit.  Average rounded densities by geological unit and mineralisation have been compared with densities collected from analogous deposits, then applied globally to the model. Whilst on site down-hole geophysical tools are calibrated fortnightly in a designated test diamond drill hole.
	Down-hole geophysical probes measure the insitu bulk density which accounts for void spaces. These measurements are not corrected for moisture but are validated against known dry bulk densities from diamond core drilled in analogous Fortescue projects. Down-hole geophysical measurements are grouped by geological and mineralisation domains.
	The densities used are similar to known densities for current and historical mines, of similar geology and mineralisation, across the Pilbara.

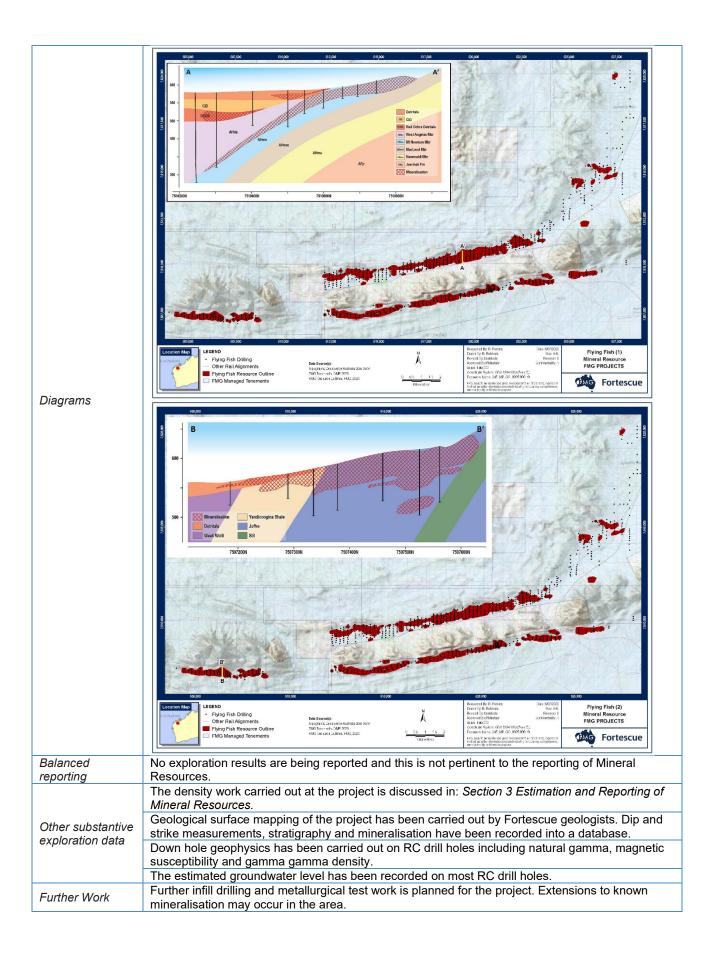
Classification	The Mineral Resource has been classified as Inferred. This considers drill spacing and data integrity, geological complexity, grade estimation quality, interpreted risk and mineralisation continuity based on the semivariogram ranges of influence.  The Mineral Resource classification reflects the views of the competent persons.
Audits or reviews	Internal reviews have been completed during all stages of the estimate. External audits of the estimation process have been completed for analogous deposits with no significant flaws identified. Similar processes have been used for this estimate.
	Grade and geological continuity are sufficient for an Inferred Mineral Resource.
Discussion of relative accuracy/confidence	Greater confidence in applied density values will be achieved through further physical density and down-hole geophysical measurements.
	The global estimate is sufficient to imply the grade and geological continuity in the area of the
	Inferred Mineral Resource.
	No production data is available at this stage.

# Flying Fish JORC table 1

Criteria	Commentary
Sampling techniques	A total of 1,030 reverse circulation drill holes and 43,591 1m composite samples were used in the model. Samples sent for element and analytical work were selected based on potential ore-grade material with a reasonable envelope both above and below this interval. Most holes where possible undergo down hole geophysical logging.  Analytical CRMs were used to assist in checking laboratory results. Field duplicates were used to
	assist with determining sampling quality at the rig. Geophysical probes were calibrated on a regular basis using static methods and specific calibration holes. Drill hole locations were determined by survey contractors.
	All samples were taken on 1m intervals from reverse circulation drill holes. A sample weighing approximately 1 to 3 kilograms was collected for each metre which was transported to a commercial laboratory and then pulverised for XRF analysis.
Drilling techniques	Reverse circulation (RC) drill holes of approximately 140mm diameter were completed using a standard face sampling hammer. All drill holes are vertical.
Drill sample recovery	The quality of each sample sent to the laboratory was recorded by the logging geologist at the time of drilling and categorised as either poor, moderate or good. 91% of samples were recorded as good, 5% were recorded as moderate and 3% were recorded as poor. 1% of samples did not have quality recorded, these samples were logged as waste and were not sent to the laboratory for analysis.
	No major issues with the sample collection system were identified during drilling. Minimal loss of fines was achieved through the use of an automated sample collection and splitting system.  There is assumed to be no expected relationship between sample recovery and grade.
	Geological logging was completed by geologists experienced in iron ore mineralisation. The standard of logging is suitable to support an estimate of Mineral Resources.
Logging	Stratigraphy, mineralogy, chip size, chip shape, chip recovery, hardness, colour, moisture and sample quality were recorded for all drill holes. Chip trays from RC holes were collected on an intermittent basis.  All RC drill holes were geologically logged.
Sub-sampling	Drilling samples are collected in labelled bags, which are stored onsite or sent for analysis. These samples are collected using a cone splitter installed directly beneath the cyclone. Wet samples are collected using the same technique as dry samples, with thorough cleaning of sampling system between samples. Wet samples are allowed to dry before being processed.  The sample collected from the cone splitter represents approximately 6 to 7% of the total sample interval. Cone splitters are the preferred splitting system used by Fortescue as they generally give the most representative sample in both dry and wet conditions.  At the laboratory, samples were weighed, dried and pulverised to either 90% passing through 106
techniques and sample preparation	microns (Ultra Trace and SGS) or 85% passing through 75 microns (Genalysis).  Certified reference materials (CRM) are used in the field (approximately 1 in 100 samples) and laboratory (1 per laboratory job) as a quality control measure at different sub-sampling stages.
	Rig duplicate samples are taken at an average of 3 rig duplicate samples per approximately 100 samples sent to the laboratory. An analysis of these duplicate samples indicates that they are of good quality and repeatable.
	No formal analysis of the appropriateness of sample size compared to grain size has been completed but the sampling regime is considered to be industry best practice.
Quality of assay data and laboratory tests	All samples were sent to Ultra Trace, SGS or Genalysis laboratories for analysis. All laboratories have National Association of Testing Authorities, Australia (NATA) accreditation. The standard elements tested were Fe, SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , P, MnO/Mn, MgO, CaO, TiO <sub>2</sub> , Na <sub>2</sub> O, S and K <sub>2</sub> O by X Ray Fluorescence (XRF) and a three-point LOI thermo gravimetric analysis at 371, 650 and 1000 degrees Celsius. This is considered a total analysis.
	No geophysical tools were used to determine any element concentrations used in the estimate.  Analysis of laboratory CRM results indicates high confidence in XRF analysis at each laboratory.  Analysis of field CRMs have indicated issues with laboratory sample preparation and CRM certification in the past. Field CRM results have been closely monitored and such issues have now been mitigated.
Verification of sampling and assaying	Significant intersections have been visually verified by Fortescue's Exploration Managers.  Twin RC holes have been completed in the project area. Results of the analysis shows mostly good correlation between the original RC drill hole and the twin drill hole.  Sample data is stored using a customised acQuire database, which includes a series of automated electronic validation checks. Fortescue data entry procedures are documented and readily
	available. Only trained personnel perform further manual validation in order to confirm results reflect field collected information and geology.

	Samples returning below detection limits were given the result of half the detection limit. Missing data was set to -99 and those samples were excluded from statistical analysis and estimation.
Location of data	Drill hole collar locations have been surveyed using a Differential Global Positioning System by Down Under Surveys, with an accuracy of better than 3cm for Easting and Northing and 5cm in elevation. Down hole surveys have been completed on 69 of the drill holes. Collar survey data is validated against planned coordinates and the topographic surface.
points	Grid coordinates given for each point are Map Grid of Australia (GDA94) and heights are in the Australian Height Datum. The project area lies inside UTM zone 50.
	The topography was created from 2 metre contours produced from LIDAR data. Vertical and horizontal accuracy of this data is+/-0.15 metres.
	The grade estimate used RC drill holes which occur on a grid spacing of 200m × 100m and 200m
Data spacing and distribution	× 50m for assays and geology. This level of drill spacing is sufficient to establish the degree of geological and grade continuity required for an Inferred Mineral Resource.
	No sample compositing was conducted for this estimation.
Orientation of data in relation to geological	Drill holes have been drilled as vertical holes in drill lines sub-perpendicular to the local bearing of the ore body. The mineralisation is sub-horizontal and these vertical holes are sufficient to imply geological and grade continuity.
structure	No material relationship is apparent between sampling bias and geological orientation.
Sample security	To ensure sample security consignment notes (sample submission information) have been used and direct delivery to Perth laboratories has been carried out.
Audits or reviews	All sampling has been carried using Fortescue standard procedures.
	For analogous deposits, sampling audits have been carried out, which did not highlight any major
	issues. Similar drill rigs and splitters were used on this deposit as was used on the audited
	deposits. Fortescue sampling and logging procedure are standard across all sites.

Criteria	Commentary
Mineral tenement and land tenure status	FMG Pilbara Pty Ltd is a wholly owned subsidiary of Fortescue Metals Group Ltd and owns 100% of all mineral rights in the tenements which cover the project area E47/1302, E47/1373, E47/1533, M47/1509 and M47/1525. These are live, granted tenements. Mining Lease application 47/1526 was applied for over the area by FMG Pilbara Pty Ltd and is pending grant.  The tenements are within the Puutu Kunti Kurrama and Pinikura (PKKP) native title determination (WCD2015/003) and the Eastern Guruma native title determination (WCD2007/001). Fortescue has current Land Access Agreements with the PKKP native title holders and Wintawari Guruma Aboriginal Corporation on behalf of the Eastern Guruma native title holders.  The tenure is currently in good standing and no impediments to obtaining a licence to operate in the area are known to exist.
Exploration done by other parties	Rio Tinto has performed exploration for iron ore within the project area. No historical data has been used by Fortescue.
Geology	Mineralisation within the Flying Fish deposit is predominantly considered to be BID. The BID mineralisation is contained by the Yandicoogina Shale and Joffre Members of the Brockman Iron Formation and the Mount Newman Member of the Marra Mamba Iron Formation. Smaller amounts of DID mineralisation are present.
Drill hole Information	Collar details of the RC drill holes used in the estimate are not being reported here.
Data aggregation methods	No exploration results are being reported. For methods used in the estimation please refer to: Section 3 Estimation and Reporting of Mineral Resources.
Relationship between mineralisation widths and intercept lengths	No exploration results are being reported. Please refer to: Orientation of data in relation to geological structure in Section 1 Sampling Techniques and Data for the geometry of mineralisation with respect to drill hole angle.



Criteria	Commentary
	Field logging and sampling data is captured electronically utilising standard templates ensuring
Database integrity	data integrity.  Data is uploaded and stored in an industry standard database (acQuire) that has inbuilt validation
	checks. Any manual validation or changes are only completed by trained and authorised personnel.
Site visits	The Competent Person and Competent Persons team conducts regular site visits, approximately every two to three months when drilling operations are in progress to inspect the model area, RC drill hole logging and sampling practices. Discussions are held regularly with site geologists.
	Logging and geological interpretation was completed by geologists experienced in iron ore mineralisation. Geology over the majority of the deposit is relatively well known. There is some risk of misinterpretation in areas of wider spaced drilling with limited assay data, however, this is not considered to be material.
	Geological interpretation is based on geological logging, down hole geophysics and geochemistry of RC drill samples.
Geological interpretation	The stratigraphy of Flying Fish is reasonably well known, and it is envisaged that any alternative geological interpretation, with or without further drilling, would not have a material impact on the Mineral Resource estimate. Extrapolation of mineralisation has been restricted to approximately half of the nominal drill spacing.
	All samples are flagged with their host geological zone, only samples with the same geological zone as the block to be estimated can be used in grade estimation.
	The main factors impacting the geological and grade continuity include the stratigraphy, structure, erosion, and weathering. The grade and geological continuity is generally good compared with analogous areas.
Dimensions	Mineralisation is distributed variably within an area of approximately 25km along strike and 3.5km across strike. BID mineralisation occurs at surface and extends of depth of up to 300m below surface. The Brockman BID mineralisation has an average thickness of 30m and the Marra Mamba BID mineralisation 20m. DID mineralisation overlies the BID and has an average thickness of 30m.
Estimation and modelling techniques	domains. Estimation was done using Maptek Vulcan software. Mineralisation was extrapolated approximately half the distance of drill spacing away from the drilling. The deposit was domained by stratigraphy, structure, local strike/orientation and mineralised/un-mineralised zones. Stationarity was checked using trend plots of the mean grade along eastings and northings to define statistical domains.  No assumptions regarding the recovery of by-products have been made.  The iron ore suite of Fe, SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , P, Mn, MgO, CaO, TiO <sub>2</sub> , Na <sub>2</sub> O, S, K <sub>2</sub> O, LOI Total, LOI 371, LOI 650 and LOI 1000 has been estimated.  Estimation into parent cells of 100mE × 50mN × 1mRL and 100mE × 25mN × 1mRL was used. Size and orientation of parent blocks reflected half the nominal drill spacing and orientation of mineralisation. Sub blocking down to 6.25mE × 6.25mN × 0.5mRL was used along domain boundaries to better define the domain interface.  Up to three estimation passes were used for each element, gradually increasing search ellipse distances with each pass. Search distances along strike and across strike varied between each domain. These were primarily defined by sample spacing within each domain and determined by neighbourhood iterative tests.  No assumptions behind the modelling of selective mining units have been made.  Correlation between some elements has been noted during statistical analysis. Similar variogram parameters were achieved for mineralised domains that had elements with a noted correlation.  The definition of mineralised zones within each stratigraphic unit was accomplished using an indicator approach. The probability of any zone being mineralised was estimated using appropriate geochemical indicator thresholds for Ea. SiO <sub>2</sub> and Al <sub>2</sub> O <sub>2</sub> for the individual stratigraphic units. These
	geochemical indicator thresholds for Fe, SiO <sub>2</sub> and Al <sub>2</sub> O <sub>3</sub> for the individual stratigraphic units. These thresholds were based on data population statistics and visual validation. A domain code was assigned to each sample, defined by the stratigraphic unit and mineralisation.  Some element grades were top cut during estimation based on coefficient of variation values higher than 1.2.  Visual validation of the block model coding of the domains was completed prior to estimation.  Once estimated, the grade of all elements was also visually validated. Visual validation of both the domains and grade were completed in Vulcan by comparing section and plan slices of the block model against the drill holes. Statistics for the mean grade of the mineralised blocks within each stratigraphic unit were compared to the mean grade of the mineralised samples within an acceptable range. Trend analysis graphs have been created for each of the mineralised domains.

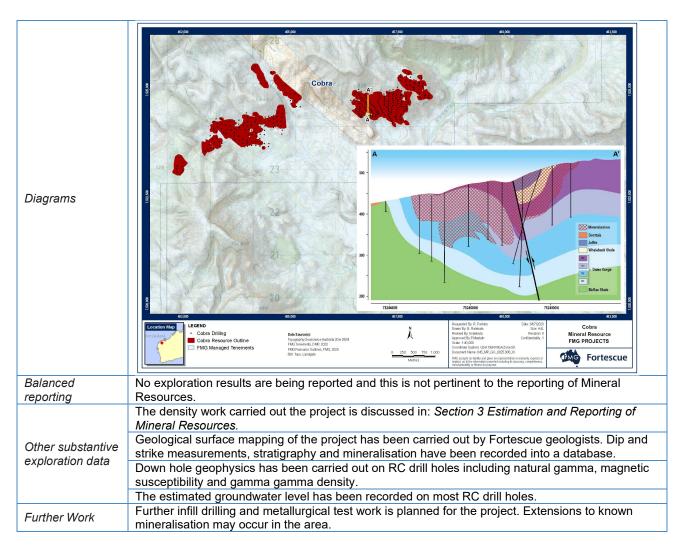
	These have been generated in Northing, Easting and RL, for all elements. The trend analysis graphs show the modelled grade vs. the raw data grade at a slice in space. The trend analysis charts show that overall, the model grade is consistent with the raw data and shows no bias. Areas with many samples correlate much better with the model grade than do areas with few samples.
Moisture	Tonnages are estimated on a dry basis.
Cut-off parameters	BID and red ochre detritals are reported at a cut-off of greater than or equal to 50% Fe and DID is reported as a cut-off of greater than or equal to 52% Fe. These cut-offs have been used for analogous Fortescue estimates and represents a similar cut-off to current product specifications.
Mining factors or assumptions	It is assumed that mining will be carried out with medium to large scale mining equipment, bench heights will vary depending on mining studies. These methods will be similar to analogous Fortescue deposits where conventional: truck & shovel/excavator; drill & blast and grade control methods are used. The impact of dilution will be assessed as part of the mining studies.
Metallurgical factors or assumptions	It is assumed that similar metallurgical techniques to analogous Fortescue operations will be utilised. The expectation is that material will be dry processed by screens and crushers, with potential for some wet processing. Final processing methods will be defined by further mining studies.
Environmental factors or assumptions	Fortescue has an extensive environmental and heritage approvals process. Waste is considered to be inert and formed waste dumps will conform to WA standards. Waste will be formed as dumps or into mining voids. In the case of acid and fibre mitigation, Fortescue has industry standard procedures. Where beneficiation may take place, reject is considered to be inert and there are no foreseen problems with tailings disposal. No significant concentrations of environmentally deleterious elements have been identified.
	Density has been calculated from down-hole geophysical measurements throughout the deposit. Average rounded densities by geological unit and mineralisation have been compared with densities collected from diamond core drilled within the project, and analogous deposits, then applied globally to the model. Whilst on site down-hole geophysical tools are calibrated fortnightly in a designated test diamond drill hole.
Bulk density	Down-hole geophysical probes measure the insitu bulk density which accounts for void spaces. These measurements are not corrected for moisture but are validated against known dry bulk densities from diamond core drilled in analogous Fortescue projects. Down-hole geophysical measurements are grouped by geological and mineralisation domains.  The densities used are similar to known densities for current and historical mines, of similar
	geology and mineralisation, across the Pilbara.
Classification	The Mineral Resource has been classified as Inferred. This considers drill spacing and data integrity, geological complexity, grade estimation quality, interpreted risk and mineralisation continuity based on the semivariogram ranges of influence.
	The Mineral Resource classification reflects the views of the competent persons.
Audits or reviews	Internal reviews have been completed during all stages of the estimate. External audits of the estimation process have been completed for analogous deposits with no significant flaws identified. Similar processes have been used for this estimate.
	Grade and geological continuity are sufficient for an Inferred Mineral Resource.
Discussion of relative accuracy/ confidence	Greater confidence in applied density values will be achieved through further physical density and down-hole geophysical measurements.
	The global estimate is sufficient to imply the grade and geological continuity in the area of the Inferred Mineral Resource.
	No production data is available at this stage.

# **Cobra JORC table 1**

Criteria	Commentary
Sampling techniques	A total of 319 reverse circulation drill holes and 27,900 1m composite samples were used in the model. Samples sent for element and analytical work were selected based on potential ore-grade material with a reasonable envelope both above and below this interval. Most holes where possible undergo down hole geophysical logging.
	Analytical CRMs were used to assist in checking laboratory results. Field duplicates were used to assist with determining sampling quality at the rig. Geophysical probes were calibrated on a regular basis using static methods and specific calibration holes. Drill hole locations were determined by survey contractors.
	All samples were taken on 1m intervals from reverse circulation drill holes. A sample weighing approximately 1 to 3 kilograms was collected for each metre which was transported to a commercial laboratory and then pulverised for XRF analysis.
Drilling	Reverse circulation (RC) drill holes of approximately 140mm diameter were completed using a standard face sampling hammer. Most drill holes are vertical, six are drilled at an angle.
techniques  Drill sample	The quality of each sample sent to the laboratory was recorded by the logging geologist at the time of drilling and categorised as either poor, moderate or good. 95% of samples were recorded as good, 3% were recorded as moderate and 2% were recorded as poor.
recovery	No major issues with the sample collection system were identified during drilling. Minimal loss of fines was achieved through the use of an automated sample collection and splitting system.  There is assumed to be no expected relationship between sample recovery and grade.
	Geological logging was completed by geologists experienced in iron ore mineralisation. The standard of logging is suitable to support an estimate of Mineral Resources.
Logging	Stratigraphy, mineralogy, chip size, chip shape, chip recovery, hardness, colour, moisture and sample quality were recorded for all drill holes. Chip trays from RC holes were collected on an intermittent basis.
Sub-sampling techniques and sample preparation	All RC drill holes were geologically logged.  Drilling samples are collected in labelled bags, which are stored onsite or sent for analysis. These samples are collected using a cone splitter installed directly beneath the cyclone. Wet samples are collected using the same technique as dry samples, with thorough cleaning of sampling system between samples. Wet samples are allowed to dry before being processed.  The sample collected from the cone splitter represents approximately 6 to 7% of the total sample interval. Cone splitters are the preferred splitting system used by Fortescue as they generally give the most representative sample in both dry and wet conditions.  At the laboratory, samples were weighed, dried and pulverised to either 90% passing through 106 microns (Ultra Trace and SGS) or 85% passing through 75 microns (Genalysis).  Certified reference materials (CRM) are used in the field (approximately 1 in 100 samples) and laboratory (1 per laboratory job) as a quality control measure at different sub-sampling stages.
	Rig duplicate samples are taken at an average of 3 rig duplicate samples per approximately 100 samples sent to the laboratory. An analysis of these duplicate samples indicates that they are of good quality and repeatable.  No formal analysis of the appropriateness of sample size compared to grain size has been completed but the sampling regime is considered to be industry best practice.
Quality of assay data and laboratory tests	All samples were sent to Ultra Trace, SGS or Genalysis laboratories for analysis. All laboratories have National Association of Testing Authorities, Australia (NATA) accreditation. The standard elements tested were Fe, SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , P, MnO/Mn, MgO, CaO, TiO <sub>2</sub> , Na <sub>2</sub> O, S and K <sub>2</sub> O by X Ray Fluorescence (XRF) and a three-point LOI thermo gravimetric analysis at 371, 650 and 1000 degrees Celsius. This is considered a total analysis.
	No geophysical tools were used to determine any element concentrations used in the estimate.  Analysis of laboratory CRM results indicates high confidence in XRF analysis at each laboratory.  Analysis of field CRMs have indicated issues with laboratory sample preparation and CRM certification in the past. Field CRM results have been closely monitored and such issues have now been mitigated.
Verification of sampling and assaying	Significant intersections have been visually verified by Fortescue's Exploration Managers.  No twin holes have been completed at this stage of the project.  Sample data is stored using a customised acQuire database, which includes a series of automated electronic validation checks. Fortescue data entry procedures are documented and readily available. Only trained personnel perform further manual validation in order to confirm results reflect field collected information and geology.  Samples returning below detection limits were given the result of half the detection limit. Missing
	data was set to -99 and those samples were excluded from statistical analysis and estimation.

Location of data	Drill hole collar locations have been surveyed using a Differential Global Positioning System by Down Under Surveys, with an accuracy of better than 3cm for Easting and Northing and 5cm in elevation. Down hole surveys have been completed on 56 of the drill holes. Collar survey data is validated against planned coordinates and the topographic surface.
points	Grid coordinates given for each point are Map Grid of Australia (GDA94) and heights are in the Australian Height Datum. The project area lies inside UTM zone 50.
	The topography was created from 1 metre contours produced from LIDAR data. Vertical and horizontal accuracy of this data is+/-0.15 metres.
Data angaing and	The grade estimate used RC drill holes which occur on a grid spacing of 100m × 50m and 100m × 100m for assays and geology.
Data spacing and distribution	This level of drill spacing is sufficient to establish the degree of geological and grade continuity required for an Indicated and Inferred Mineral Resource.
	No sample compositing was conducted for this estimation.
Orientation of	Drill holes have been predominantly drilled as vertical holes in drill lines sub-perpendicular to the
data in relation to	local bearing of the ore body. The mineralisation is sub-horizontal and these vertical holes are
geological	sufficient to imply geological and grade continuity.
structure	No material relationship is apparent between sampling bias and geological orientation.
Sample security	To ensure sample security consignment notes (sample submission information) have been used and direct delivery to Perth laboratories has been carried out.
Audits or reviews	All sampling has been carried using Fortescue standard procedures.
	For analogous deposits, sampling audits have been carried out, which did not highlight any major issues. Similar drill rigs and splitters were used on this deposit as was used on the audited
	deposits. Fortescue sampling and logging procedure are standard across all sites.

Criteria	Commentary
Mineral tenement	FMG Pilbara Pty Ltd is a wholly owned subsidiary of Fortescue Metals Group Ltd and owns 100% of all mineral rights in the tenement which covers the project area E47/1351. This is a live, granted tenement. Mining Lease application 47/1585 was applied for over the area by FMG Pilbara Pty Ltd and is pending grant.
and land tenure status	The tenement is within the Puutu Kunti Kurrama and Pinikura (PKKP) native title determination (WCD2015/003). Fortescue has a current Land Access Agreement with the PKKP native title holders.
	The tenure is currently in good standing and no impediments to obtaining a licence to operate in the area are known to exist.
Exploration done by other parties	No historical exploration for iron has been undertaken within the Cobra project.
Geology	Mineralisation within the Cobra deposit is predominantly hosted by BID. BID mineralisation is contained within the Joffre, Whaleback Shale and Dales Gorge Members of the Brockman Iron Formation. Smaller occurrences of DID are present.
Drill hole Information	Collar details of the RC drill holes used in the estimate are not being reported here.
Data aggregation methods	No exploration results are being reported. For methods used in the estimation please refer to: Section 3 Estimation and Reporting of Mineral Resources.
Relationship between mineralisation widths and intercept lengths	No exploration results are being reported. Please refer to: Orientation of data in relation to geological structure in Section 1 Sampling Techniques and Data for the geometry of mineralisation with respect to drill hole angle.



**Section 3 Estimation and Reporting of Mineral Resources** 

Criteria	Commentary
Database integrity	Field logging and sampling data is captured electronically utilising standard templates ensuring data integrity.
	Data is uploaded and stored in an industry standard database (acQuire) that has inbuilt validation checks. Any manual validation or changes are only completed by trained and authorised personnel.
Site visits	The Competent Person and Competent Persons team conducts regular site visits, approximately every two to three months when drilling operations are in progress to inspect the model area, RC drill hole logging and sampling practices. Discussions are held regularly with site geologists.
	Logging and geological interpretation was completed by geologists experienced in iron ore mineralisation. Geology over the majority of the deposit is relatively well known. There is some risk of misinterpretation in areas of wider spaced drilling with limited assay data, however, this is not considered to be material.
	Geological interpretation is based on geological logging, down hole geophysics and geochemistry of RC drill samples.
Geological interpretation	The stratigraphy of Cobra is reasonably well known, and it is envisaged that any alternative geological interpretation, with or without further drilling, would not have a material impact on the Mineral Resource estimate. Extrapolation of mineralisation has been restricted to approximately half of the nominal drill spacing.
	All samples are flagged with their host geological zone, only samples with the same geological zone as the block to be estimated can be used in grade estimation.
	The main factors impacting the geological and grade continuity include the stratigraphy, structure, erosion, and weathering. The grade and geological continuity is generally good compared with analogous areas.
Dimensions	Mineralisation at Cobra is distributed variably within an area of approximately 6km along strike and 800m across strike. BID mineralisation occurs at the surface and extends to depths of up to 200m,

	with an average thickness of 80m. DID mineralisation overlies the BID and has an average thickness of 10m.
	Ordinary Kriging was used to estimate all mineralised units and inverse distance for all waste domains. Estimation was done using Maptek Vulcan software. Mineralisation was extrapolated approximately half the distance of drill spacing away from the drilling. The deposit was domained by stratigraphy, structure, local strike/orientation and mineralised/un-mineralised zones.  No assumptions regarding the recovery of by-products have been made.
	The iron ore suite of Fe, SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , P, Mn, MgO, CaO, TiO <sub>2</sub> , Na <sub>2</sub> O, S, K <sub>2</sub> O, LOI Total, LOI 371, LOI 650 and LOI 1000 has been estimated.
	Estimation into parent cells of 25mE × 25mN × 1mRL was used. Size and orientation of parent blocks reflected half the nominal drill spacing and orientation of mineralisation. Sub blocking down to 6.25mE × 6.25mN × 0.5mRL was used along domain boundaries to better define the domain interface.
	Up to three estimation passes were used for each element, gradually increasing search ellipse distances with each pass. Search distances along strike and across strike varied between each domain. These were primarily defined by sample spacing within each domain and determined by neighbourhood iterative tests.
	No assumptions behind the modelling of selective mining units have been made.
Estimation and modelling	Correlation between some elements has been noted during statistical analysis. Similar variogram parameters were achieved for mineralised domains that had elements with a noted correlation.
techniques	The definition of mineralised zones within each stratigraphic unit was accomplished using an indicator approach. The probability of any zone being mineralised was estimated using appropriate geochemical indicator thresholds for Fe, SiO <sub>2</sub> and Al <sub>2</sub> O <sub>3</sub> for the individual stratigraphic units. These thresholds were based on data population statistics and visual validation. A domain code was assigned to each sample, defined by the stratigraphic unit and mineralisation.
	Some element grades were top cut during estimation based on coefficient of variation values higher than 1.2.
	Visual validation of the block model coding of the domains was completed prior to estimation.  Once estimated, the grade of all elements was also visually validated. Visual validation of both the
	domains and grade were completed in Vulcan by comparing section and plan slices of the block model against the drill holes. Statistics for the mean grade of the mineralised blocks within each stratigraphic unit were compared to the mean grade of the mineralised samples within each stratigraphic unit. Overall, the mean values between the model and samples are within an
	acceptable range. Trend analysis graphs have been created for each of the mineralised domains. These have been generated in Northing, Easting and RL, for all elements. The trend analysis graphs show the modelled grade vs. the raw data grade at a slice in space. The trend analysis charts show that overall, the model grade is consistent with the raw data and shows no bias. Areas with many samples correlate much better with the model grade than do areas with few samples.
Moisture	Tonnages are estimated on a dry basis.
Cut-off parameters	BID and DID are reported at a cut-off of greater than or equal to 50% Fe. This cut-off has been used for analogous Fortescue estimates and represents a similar cut-off to current product specifications.
Mining factors or assumptions	It is assumed that mining will be carried out with medium to large scale mining equipment, bench heights will vary depending on mining studies. These methods will be similar to analogous Fortescue deposits where conventional: truck & shovel/excavator; drill & blast and grade control methods are used. The impact of dilution will be assessed as part of the mining studies.
Metallurgical factors or assumptions	It is assumed that similar metallurgical techniques to analogous Fortescue operations will be utilised. The expectation is that material will be dry processed by screens and crushers, with potential for some wet processing. Final processing methods will be defined by further mining studies.
Environmental factors or assumptions	Fortescue has an extensive environmental and heritage approvals process. Waste is considered to be inert and formed waste dumps will conform to WA standards. Waste will be formed as dumps or into mining voids. In the case of acid and fibre mitigation, Fortescue has industry standard procedures. Where beneficiation may take place, reject is considered to be inert and there are no foreseen problems with tailings disposal. No significant concentrations of environmentally deleterious elements have been identified.
Bulk density	Density has been calculated from down-hole geophysical measurements throughout the deposit. Average rounded densities by geological unit and mineralisation been compared with densities collected from analogous deposits, then applied globally to the model. Whilst on site down-hole geophysical tools are calibrated fortnightly in a designated test diamond drill hole.
	Down-hole geophysical probes measure the insitu bulk density which accounts for void spaces. These measurements are not corrected for moisture but are validated against known dry bulk densities from diamond core drilled in analogous Fortescue projects. Down-hole geophysical measurements are grouped by geological and mineralisation domains.

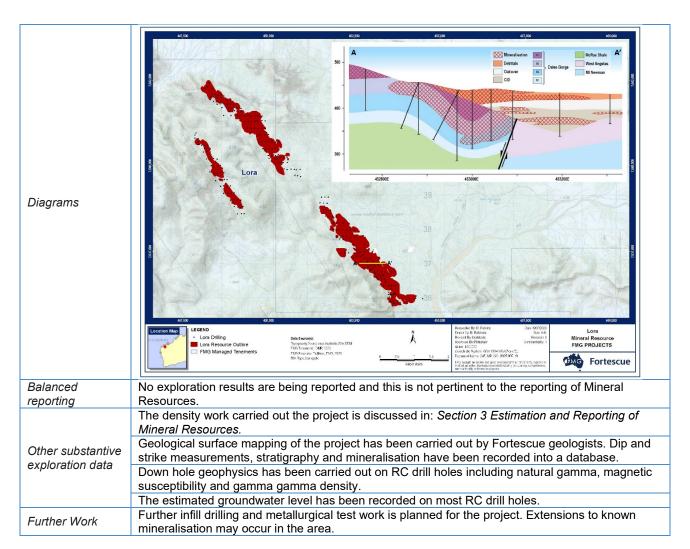
	The densities used are similar to known densities for current and historical mines, of similar geology and mineralisation, across the Pilbara.
Classification	The Mineral Resource has been classified as Indicated and Inferred. This considers drill spacing and data integrity, geological complexity, grade estimation quality, interpreted risk and mineralisation continuity based on the semivariogram ranges of influence.  The Mineral Resource classification reflects the views of the competent persons.
Audits or reviews	Internal reviews have been completed during all stages of the estimate. External audits of the estimation process have been completed for analogous deposits with no significant flaws identified. Similar processes have been used for this estimate.
Discussion of relative accuracy/ confidence	Grade and geological continuity are sufficient for an Indicated and Inferred Mineral Resource.  Greater confidence in applied density values will be achieved through further physical density and down-hole geophysical measurements.  The global estimate is sufficient to assume the grade and geological continuity in the area of the Indicated Mineral Resource and imply the grade and geological continuity in the area of the Inferred Mineral Resource.  No production data is available at this stage.

# Lora JORC table 1

Criteria	Commentary
	A total of 261 reverse circulation drill holes and 19,694 1m composite samples were used in the
Sampling	model. Samples sent for element and analytical work were selected based on potential ore-grade
	material with a reasonable envelope both above and below this interval. Most holes where
	possible undergo down hole geophysical logging.  Analytical CRMs were used to assist in checking laboratory results. Field duplicates were used to
	assist with determining sampling quality at the rig. Geophysical probes were calibrated on a
techniques	regular basis using static methods and specific calibration holes. Drill hole locations were
	determined by survey contractors.
	All samples were taken on 1m intervals from reverse circulation drill holes. A sample weighing
	approximately 1 to 3 kilograms was collected for each metre which was transported to a
Drilling	commercial laboratory and then pulverised for XRF analysis.  Reverse circulation (RC) drill holes of approximately 140mm diameter were completed using a
techniques	standard face sampling hammer. Most drill holes are vertical with three being drilling at an angle.
toormiquoo	The quality of each sample sent to the laboratory was recorded by the logging geologist at the time
	of drilling and categorised as either poor, moderate or good. 93% of samples were recorded as
Drill sample	good, 4% were recorded as moderate and 3% were recorded as poor.
recovery	No major issues with the sample collection system were identified during drilling. Minimal loss of
	fines was achieved through the use of an automated sample collection and splitting system.  There is assumed to be no expected relationship between sample recovery and grade.
	Geological logging was completed by geologists experienced in iron ore mineralisation. The
	standard of logging is suitable to support an estimate of Mineral Resources.
I a main a	Stratigraphy, mineralogy, chip size, chip shape, chip recovery, hardness, colour, moisture and
Logging	sample quality were recorded for all drill holes. Chip trays from RC holes were collected on an
	intermittent basis.
	All RC drill holes were geologically logged.
	Drilling samples are collected in labelled bags, which are stored onsite or sent for analysis. These samples are collected using a cone splitter installed directly beneath the cyclone. Wet samples are
	collected using the same technique as dry samples, with thorough cleaning of sampling system
	between samples. Wet samples are allowed to dry before being processed.
	The sample collected from the cone splitter represents approximately 6 to 7% of the total sample
	interval. Cone splitters are the preferred splitting system used by Fortescue as they generally give
Sub-sampling	the most representative sample in both dry and wet conditions.
techniques and sample	At the laboratory, samples were weighed, dried and pulverised to either 90% passing through 106 microns (Ultra Trace and SGS) or 85% passing through 75 microns (Genalysis).
preparation	Certified reference materials (CRM) are used in the field (approximately 1 in 100 samples) and
	laboratory (1 per laboratory job) as a quality control measure at different sub-sampling stages.
	Rig duplicate samples are taken at an average of 3 rig duplicate samples per approximately 100
	samples sent to the laboratory. An analysis of these duplicate samples indicates that they are of
	good quality and repeatable.
	No formal analysis of the appropriateness of sample size compared to grain size has been completed but the sampling regime is considered to be industry best practice.
	All samples were sent to Ultra Trace, SGS or Genalysis laboratories for analysis. All laboratories
	have National Association of Testing Authorities, Australia (NATA) accreditation. The standard
	elements tested were Fe, SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , P, MnO/Mn, MgO, CaO, TiO <sub>2</sub> , Na <sub>2</sub> O, S and K <sub>2</sub> O by X Ray
Quality of assay	Fluorescence (XRF) and a three-point LOI thermo gravimetric analysis at 371, 650 and 1000
data and	degrees Celsius. This is considered a total analysis.  No geophysical tools were used to determine any element concentrations used in the estimate.
laboratory tests	Analysis of laboratory CRM results indicates high confidence in XRF analysis at each laboratory.
	Analysis of field CRMs have indicated issues with laboratory sample preparation and CRM
	certification in the past. Field CRM results have been closely monitored and such issues have now
	been mitigated.
	Significant intersections have been visually verified by Fortescue's Exploration Managers.
	No twin holes have been completed at this stage of the project.
Verification of sampling and assaying	Sample data is stored using a customised acQuire database, which includes a series of automated electronic validation checks. Fortescue data entry procedures are documented and readily
	available. Only trained personnel perform further manual validation in order to confirm results
	reflect field collected information and geology.
	Samples returning below detection limits were given the result of half the detection limit. Missing
	data was set to -99 and those samples were excluded from statistical analysis and estimation.

Location of data points	Drill hole collar locations have been surveyed using a Differential Global Positioning System by Down Under Surveys, with an accuracy of better than 3cm for Easting and Northing and 5cm in elevation. Down hole surveys have been completed on 22 of the drill holes. Collar survey data is validated against planned coordinates and the topographic surface.  Grid coordinates given for each point are Map Grid of Australia (GDA94) and heights are in the Australian Height Datum. The project area lies inside UTM zone 50.
	The topography was created from 2 metre contours produced from LIDAR data. Vertical and horizontal accuracy of this data is+/-0.15 metres.
Data angoing and	The grade estimate used RC drill holes which occur on a grid spacing of 100m × 100m and 100m × 200m for assays and geology.
Data spacing and distribution	This level of drill spacing is sufficient to establish the degree of geological and grade continuity required for an Inferred Mineral Resource.
	No sample compositing was conducted for this estimation.
Orientation of	Drill holes have been predominantly drilled as vertical holes in drill lines sub-perpendicular to the
data in relation to	local bearing of the ore body. The mineralisation is sub-horizontal and these vertical holes are
geological	sufficient to imply geological and grade continuity.
structure	No material relationship is apparent between sampling bias and geological orientation.
Sample security	To ensure sample security consignment notes (sample submission information) have been used and direct delivery to Perth laboratories has been carried out.
Audits or reviews	All sampling has been carried using Fortescue standard procedures.
	For analogous deposits, sampling audits have been carried out, which did not highlight any major issues. Similar drill rigs and splitters were used on this deposit as was used on the audited deposits. Fortescue sampling and logging procedure are standard across all sites.
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Criteria	Commentary
Mineral tenement and land tenure status	FMG Pilbara Pty Ltd is a wholly owned subsidiary of Fortescue Metals Group Ltd and owns 100% of all mineral rights in the tenements which cover the project area E47/1832 and E47/1988. These are live, granted tenements.
	The tenements are within the Puutu Kunti Kurrama and Pinikura (PKKP) native title determination (WCD2015/003) and the Kuruma Marthudunera (Part B) native title determination (WCD2018/003). Fortescue has a current Land Access Agreement with the PKKP native title holders
	The tenure is currently in good standing and no impediments to obtaining a licence to operate in the area are known to exist.
Exploration done by other parties	There is no known historical data within the project area.
Geology	Mineralisation within the Lora deposit is predominantly considered to be BID. The BID is contained within the Brockman Iron Formation. Smaller occurrences of DID and CID are present.
Drill hole Information	Collar details of the RC drill holes used in the estimate are not being reported here.
Data aggregation methods	No exploration results are being reported. For methods used in the estimation please refer to: Section 3 Estimation and Reporting of Mineral Resources.
Relationship between mineralisation widths and intercept lengths	No exploration results are being reported. Please refer to: <i>Orientation of data in relation to geological structure</i> in <i>Section 1 Sampling Techniques and Data</i> for the geometry of mineralisation with respect to drill hole angle.



**Section 3 Estimation and Reporting of Mineral Resources** 

Criteria	Commentary
Database integrity	Field logging and sampling data is captured electronically utilising standard templates ensuring data integrity.
	Data is uploaded and stored in an industry standard database (acQuire) that has inbuilt validation checks. Any manual validation or changes are only completed by trained and authorised personnel.
Site visits	The Competent Person and Competent Persons team conducts regular site visits, approximately every two to three months when drilling operations are in progress to inspect the model area, RC drill hole logging and sampling practices. Discussions are held regularly with site geologists.
	Logging and geological interpretation was completed by geologists experienced in iron ore mineralisation. Geology over the majority of the deposit is relatively well known. There is some risk of misinterpretation in areas of wider spaced drilling with limited assay data, however, this is not considered to be material.
	Geological interpretation is based on geological logging, down hole geophysics and geochemistry of RC drill samples.
Geological interpretation	The stratigraphy of Lora is reasonably well known, and it is envisaged that any alternative geological interpretation, with or without further drilling, would not have a material impact on the Mineral Resource estimate. Extrapolation of mineralisation has been restricted to approximately half of the nominal drill spacing.
	All samples are flagged with their host geological zone, only samples with the same geological zone as the block to be estimated can be used in grade estimation.
	The main factors impacting the geological and grade continuity include the stratigraphy, structure, erosion, and weathering. The grade and geological continuity is generally good compared with analogous areas.
Dimensions	Mineralisation at Lora is distributed variably within an area of approximately 9km along strike and 2km across strike. BID mineralisation occurs at surface and to depths of up to 200m, these defined

	mineralised units have an average thickness of 30-50m. DID and CID mineralisation overlie the
	BID. DID mineralisation has an average thickness of 20m and CID mineralisation 10m.
	Ordinary Kriging was used to estimate all mineralised units and inverse distance for all waste domains. Estimation was done using Maptek Vulcan software. Mineralisation was extrapolated approximately half the distance of drill spacing away from the drilling. The deposit was domained by stratigraphy, structure, local strike/orientation and mineralised/un-mineralised zones.
	No assumptions regarding the recovery of by-products have been made.
	The iron ore suite of Fe, SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , P, Mn, MgO, CaO, TiO <sub>2</sub> , Na <sub>2</sub> O, S, K <sub>2</sub> O, LOI Total, LOI 371, LOI 650 and LOI 1000 has been estimated.
	Estimation into parent cells of 50mE × 100mN × 1mRL and 25mE × 50mN × 1mRL was used. Size and orientation of parent blocks reflected half to a quarter of the nominal drill spacing and orientation of mineralisation. Sub blocking down to 6.25mE × 6.25mN × 0.5mRL was used along domain boundaries to better define the domain interface.
	Up to three estimation passes were used for each element, gradually increasing search ellipse distances with each pass. Search distances along strike and across strike varied between each domain. These were primarily defined by sample spacing within each domain and determined by neighbourhood iterative tests.
	No assumptions behind the modelling of selective mining units have been made.
Estimation and	Correlation between some elements has been noted during statistical analysis. Similar variogram
modelling	parameters were achieved for mineralised domains that had elements with a noted correlation.
techniques	The definition of mineralised zones within each stratigraphic unit was accomplished using an indicator approach. The probability of any zone being mineralised was estimated using appropriate geochemical indicator thresholds for Fe, SiO <sub>2</sub> and Al <sub>2</sub> O <sub>3</sub> for the individual stratigraphic units. These thresholds were based on data population statistics and visual validation. A domain code was assigned to each sample, defined by the stratigraphic unit and mineralisation.
	Some element grades were top cut during estimation based on coefficient of variation values higher than 1.2.
	Visual validation of the block model coding of the domains was completed prior to estimation.  Once estimated, the grade of all elements was also visually validated. Visual validation of both the
	domains and grade were completed in Vulcan by comparing section and plan slices of the block model against the drill holes. Statistics for the mean grade of the mineralised blocks within each
	stratigraphic unit were compared to the mean grade of the mineralised samples within each stratigraphic unit. Overall, the mean values between the model and samples are within an acceptable range. Trend analysis graphs have been created for each of the mineralised domains.
	These have been generated in Northing, Easting and RL, for all elements. The trend analysis graphs show the modelled grade vs. the raw data grade at a slice in space. The trend analysis charts show that overall, the model grade is consistent with the raw data and shows no bias. Areas
	with many samples correlate much better with the model grade than do areas with few samples.
Moisture	Tonnages are estimated on a dry basis.
Cut-off	BID is reported at a cut-off of greater than or equal to 54% Fe. This cut-off has been used for
parameters	analogous Fortescue estimates and represents a similar cut-off to current product specifications.
Mining factors or	It is assumed that mining will be carried out with medium to large scale mining equipment, bench heights will vary depending on mining studies. These methods will be similar to analogous
assumptions	Fortescue deposits where conventional: truck & shovel/excavator; drill & blast and grade control
	methods are used. The impact of dilution will be assessed as part of the mining studies.
Metallurgical factors or assumptions	It is assumed that similar metallurgical techniques to analogous Fortescue operations will be utilised. The expectation is that material will be dry processed by screens and crushers, with potential for some wet processing. Final processing methods will be defined by further mining studies.
Environmental factors or assumptions	Fortescue has an extensive environmental and heritage approvals process. Waste is considered to be inert and formed waste dumps will conform to WA standards. Waste will be formed as dumps or into mining voids. In the case of acid and fibre mitigation, Fortescue has industry standard procedures. Where beneficiation may take place, reject is considered to be inert and there are no foreseen problems with tailings disposal. No significant concentrations of environmentally
Bulk density	deleterious elements have been identified.  Density has been calculated from down-hole geophysical measurements throughout the deposit.  Average rounded densities by geological unit and mineralisation have been compared with densities collected from analogous deposits, then applied globally to the model. Whilst on site down-hole geophysical tools are calibrated fortnightly in a designated test diamond drill hole.
	Down-hole geophysical probes measure the insitu bulk density which accounts for void spaces.  These measurements are not corrected for moisture but are validated against known dry bulk densities from diamond core drilled in analogous Fortescue projects. Down-hole geophysical measurements are grouped by geological and mineralisation domains.
	The densities used are similar to known densities for current and historical mines, of similar geology and mineralisation, across the Pilbara.

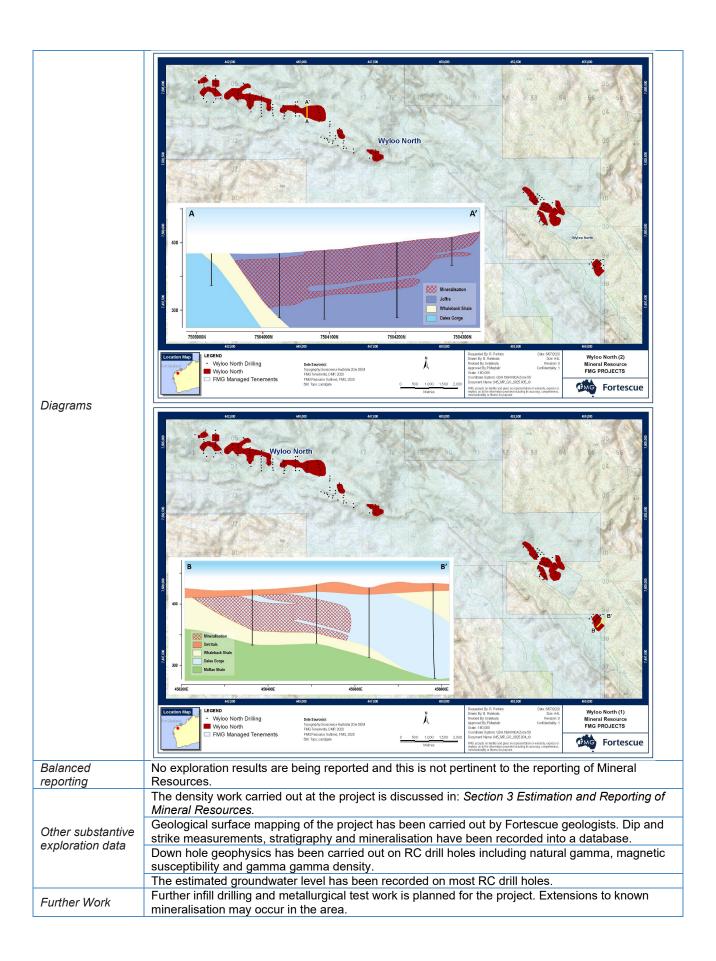
Classification	The Mineral Resource has been classified as Inferred. This considers drill spacing and data integrity, geological complexity, grade estimation quality, interpreted risk and mineralisation continuity based on the semivariogram ranges of influence.  The Mineral Resource classification reflects the views of the competent persons.
Audits or reviews	Internal reviews have been completed during all stages of the estimate. External audits of the estimation process have been completed for analogous deposits with no significant flaws identified. Similar processes have been used for this estimate.
	Grade and geological continuity are sufficient for an Inferred Mineral Resource.
Discussion of relative accuracy/confidence	Greater confidence in applied density values will be achieved through further physical density and down-hole geophysical measurements.
	The global estimate is sufficient to imply the grade and geological continuity in the area of the
	Inferred Mineral Resource.
	No production data is available at this stage.

# Wyloo North JORC table 1

Criteria	Commentary
Sampling techniques	A total of 182 reverse circulation drill holes and 12,174 1m composite samples were used in the model. Samples sent for element and analytical work were selected based on potential ore-grade material with a reasonable envelope both above and below this interval. Most holes where possible undergo down hole geophysical logging.
	Analytical CRMs were used to assist in checking laboratory results. Field duplicates were used to assist with determining sampling quality at the rig. Geophysical probes were calibrated on a regular basis using static methods and specific calibration holes. Drill hole locations were determined by survey contractors.
	All samples were taken on 1m intervals from reverse circulation drill holes. A sample weighing approximately 1 to 3 kilograms was collected for each metre which was transported to a commercial laboratory and then pulverised for XRF analysis.
Drilling techniques	Reverse circulation (RC) drill holes of approximately 140mm diameter were completed using a standard face sampling hammer. All drill holes are vertical.
Drill sample	The quality of each sample sent to the laboratory was recorded by the logging geologist at the time of drilling and categorised as either poor, moderate or good. 94% of samples were recorded as good, 3% were recorded as moderate and 3% were recorded as poor.
recovery	No major issues with the sample collection system were identified during drilling. Minimal loss of fines was achieved through the use of an automated sample collection and splitting system.
	There is assumed to be no expected relationship between sample recovery and grade.  Geological logging was completed by geologists experienced in iron ore mineralisation. The standard of logging is suitable to support an estimate of Mineral Resources.
Logging	Stratigraphy, mineralogy, chip size, chip shape, chip recovery, hardness, colour, moisture and sample quality were recorded for all drill holes. Chip trays from RC holes were collected on an intermittent basis.
	All RC drill holes were geologically logged.
	Drilling samples are collected in labelled bags, which are stored onsite or sent for analysis. These samples are collected using a cone splitter installed directly beneath the cyclone. Wet samples are collected using the same technique as dry samples, with thorough cleaning of sampling system between samples. Wet samples are allowed to dry before being processed.
Sub-sampling	The sample collected from the cone splitter represents approximately 6 to 7% of the total sample interval. Cone splitters are the preferred splitting system used by Fortescue as they generally give the most representative sample in both dry and wet conditions.
techniques and sample	At the laboratory, samples were weighed, dried and pulverised to either 90% passing through 106 microns (Ultra Trace and SGS) or 85% passing through 75 microns (Genalysis).
preparation	Certified reference materials (CRM) are used in the field (approximately 1 in 100 samples) and laboratory (1 per laboratory job) as a quality control measure at different sub-sampling stages.
	Rig duplicate samples are taken at an average of 3 rig duplicate samples per approximately 100 samples sent to the laboratory. An analysis of these duplicate samples indicates that they are of good quality and repeatable.
	No formal analysis of the appropriateness of sample size compared to grain size has been completed but the sampling regime is considered to be industry best practice.
Quality of assay	All samples were sent to Ultra Trace, SGS or Genalysis laboratories for analysis. All laboratories have National Association of Testing Authorities, Australia (NATA) accreditation. The standard elements tested were Fe, SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , P, MnO/Mn, MgO, CaO, TiO <sub>2</sub> , Na <sub>2</sub> O, S and K <sub>2</sub> O by X Ray Fluorescence (XRF) and a three-point LOI thermo gravimetric analysis at 371, 650 and 1000 degrees Celsius. This is considered a total analysis.
data and laboratory tests	No geophysical tools were used to determine any element concentrations used in the estimate.
laboratory tests	Analysis of laboratory CRM results indicates high confidence in XRF analysis at each laboratory. Analysis of field CRMs have indicated issues with laboratory sample preparation and CRM certification in the past. Field CRM results have been closely monitored and such issues have now been mitigated.
	Significant intersections have been visually verified by Fortescue's Exploration Managers.
Verification of sampling and assaying	No twin holes have been completed at this stage of the project.  Sample data is stored using a customised acQuire database, which includes a series of automated electronic validation checks. Fortescue data entry procedures are documented and readily available. Only trained personnel perform further manual validation in order to confirm results reflect field collected information and geology.
	Samples returning below detection limits were given the result of half the detection limit. Missing data was set to -99 and those samples were excluded from statistical analysis and estimation.

Location of data points	Drill hole collar locations have been surveyed using a Differential Global Positioning System by Down Under Surveys, with an accuracy of better than 3cm for Easting and Northing and 5cm in elevation. Down hole surveys have been completed on 30 of the drill holes. Collar survey data is validated against planned coordinates and the topographic surface.  Grid coordinates given for each point are Map Grid of Australia (GDA94) and heights are in the Australian Height Datum. The project area lies inside UTM zone 50.
	The topography was created from 2 metre contours produced from LIDAR data. Vertical and horizontal accuracy of this data is+/-0.15 metres.
Data spacing and distribution	The grade estimate used RC drill holes which occur on a grid spacing of 100m × 100m, 200m × 100m and 400m × 100m for assays and geology.
	This level of drill spacing is sufficient to establish the degree of geological and grade continuity required for an Inferred Mineral Resource.
	No sample compositing was conducted for this estimation.
Orientation of	Drill holes have been drilled as vertical holes in drill lines sub-perpendicular to the local bearing of
data in relation to	the ore body. The mineralisation is sub-horizontal and these vertical holes are sufficient to imply
geological	geological and grade continuity.
structure	No material relationship is apparent between sampling bias and geological orientation.
Sample security	To ensure sample security consignment notes (sample submission information) have been used and direct delivery to Perth laboratories has been carried out.
Audits or reviews	All sampling has been carried using Fortescue standard procedures.
	For analogous deposits, sampling audits have been carried out, which did not highlight any major issues. Similar drill rigs and splitters were used on this deposit as was used on the audited deposits. Fortescue sampling and logging procedure are standard across all sites.
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Criteria	Commentary
Mineral tenement and land tenure status	FMG Pilbara Pty Ltd is a wholly owned subsidiary of Fortescue Metals Group Ltd and owns 100% of all mineral rights in the tenements which cover the project area E47/1154, P47/1278 and M47/1567. These are live, granted tenements. Mining Lease application 47/1590 was applied for over the area by FMG Pilbara Pty Ltd and is pending grant. Some of the tenure are subject to a royalty deed with a third party and a royalty is payable.  The tenement is within the Puutu Kunti Kurrama and Pinikura (PKKP) native title determination (WCD2015/003). Fortescue has a current Land Access Agreement with the PKKP native title holders.  The tenure is currently in good standing and no impediments to obtaining a licence to operate in
	the area are known to exist.
Exploration done by other parties	Rio Tinto has performed exploration for iron ore within the project area. No historical data has been used by Fortescue.
Geology	Mineralisation within the Wyloo North deposit is a hosted by BID. BID mineralisation is found within the Joffre, Whaleback Shale and Dales Gorge Members of the Brockman Iron Formation.
Drill hole Information	Collar details of the RC drill holes used in the estimate are not being reported here.
Data aggregation methods	No exploration results are being reported. For methods used in the estimation please refer to: Section 3 Estimation and Reporting of Mineral Resources.
Relationship between mineralisation widths and intercept lengths	No exploration results are being reported. Please refer to: Orientation of data in relation to geological structure in Section 1 Sampling Techniques and Data for the geometry of mineralisation with respect to drill hole angle.



Field logging and sampling data is captured electronically utilising standard templates ensuring data integrity.  Data is uploaded and stored in an industry standard database (acQuire) that has inbuilt validation checks. Any manual validation or changes are only completed by trained and authorised personnel.  The Competent Person and Competent Persons team conducts regular site visits, approximately every two to three months when drilling operations are in progress to inspect the model area, RC drill hole logging and sampling practices. Discussions are held regularly with site geologists.
Data is uploaded and stored in an industry standard database (acQuire) that has inbuilt validation checks. Any manual validation or changes are only completed by trained and authorised personnel.  The Competent Person and Competent Persons team conducts regular site visits, approximately every two to three months when drilling operations are in progress to inspect the model area, RC
every two to three months when drilling operations are in progress to inspect the model area, RC
Logging and geological interpretation was completed by geologists experienced in iron ore mineralisation. Geology over the majority of the deposit is relatively well known. There is some risk of misinterpretation in areas of wider spaced drilling with limited assay data, however, this is not considered to be material.  Geological interpretation is based on geological logging, down hole geophysics and geochemistry
of RC drill samples.  The stratigraphy of Wyloo North is reasonably well known, and it is envisaged that any alternative geological interpretation, with or without further drilling, would not have a material impact on the Mineral Resource estimate. Extrapolation of mineralisation has been restricted to approximately half of the nominal drill spacing.
All samples are flagged with their host geological zone, only samples with the same geological zone as the block to be estimated can be used in grade estimation.
The main factors impacting the geological and grade continuity include the stratigraphy, structure, erosion, and weathering. The grade and geological continuity is generally good compared with analogous areas.
Mineralisation is distributed variably within an area of approximately 15km along strike and up to 500m across strike. Mineralisation occurs at surface and extends to depths of up to 180m below surface. The defined mineralisation has an average thickness of 25-40m.
Ordinary Kriging was used to estimate all mineralised units and inverse distance cubed for all waste domains. Estimation was done using Maptek Vulcan software. Mineralisation was extrapolated approximately half the distance of drill spacing away from the drilling. The deposit was domained by stratigraphy, structure, local strike/orientation and mineralised/un-mineralised zones.
No assumptions regarding the recovery of by-products have been made.
The iron ore suite of Fe, SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , P, Mn, MgO, CaO, TiO <sub>2</sub> , Na <sub>2</sub> O, S, K <sub>2</sub> O, LOI Total, LOI 371, LOI 650 and LOI 1000 has been estimated.
Estimation into parent cells of 100mE × 50mN × 1mRL and 50mE × 50mN × 1mRL was used. Size and orientation of parent blocks reflected half the nominal drill spacing and orientation of mineralisation. Sub blocking down to 6.25mE × 6.25mN × 0.5mRL was used along domain boundaries to better define the domain interface.
Up to three estimation passes were used for each element, gradually increasing search ellipse distances with each pass. Search distances along strike and across strike varied between each domain. These were primarily defined by sample spacing within each domain and determined by neighbourhood iterative tests.
No assumptions behind the modelling of selective mining units have been made.  Correlation between some elements has been noted during statistical analysis. Similar variogram parameters were achieved for mineralised domains that had elements with a noted correlation.
The definition of mineralised zones within each stratigraphic unit was accomplished using an indicator approach. The probability of any zone being mineralised was estimated using appropriate geochemical indicator thresholds for Fe, SiO <sub>2</sub> and Al <sub>2</sub> O <sub>3</sub> for the individual stratigraphic units. These thresholds were based on data population statistics and visual validation. A domain code was assigned to each sample, defined by the stratigraphic unit and mineralisation.
Some element grades were top cut during estimation based on coefficient of variation values higher than 1.2.
Visual validation of the block model coding of the domains was completed prior to estimation. Once estimated, the grade of all elements was also visually validated. Visual validation of both the domains and grade were completed in Vulcan by comparing section and plan slices of the block model against the drill holes. Statistics for the mean grade of the mineralised blocks within each stratigraphic unit were compared to the mean grade of the mineralised samples within each stratigraphic unit. Overall, the mean values between the model and samples are within an acceptable range. Trend analysis graphs have been created for each of the mineralised domains. These have been generated in Northing, Easting and RL, for all elements. The trend analysis

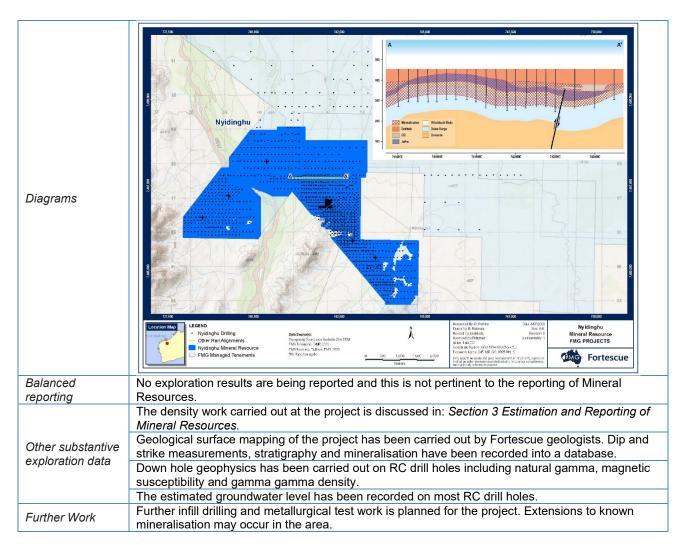
	charts show that overall, the model grade is consistent with the raw data and shows no bias. Areas with many samples correlate much better with the model grade than do areas with few samples.
Moisture	Tonnages are estimated on a dry basis.
Cut-off parameters	BID is reported at a cut-off of greater than or equal to 50% Fe This cut-off has been used for analogous Fortescue estimates and represents a similar cut-off to current product specifications.
Mining factors or assumptions	It is assumed that mining will be carried out with medium to large scale mining equipment, bench heights will vary depending on mining studies. These methods will be similar to analogous Fortescue deposits where conventional: truck & shovel/excavator; drill & blast and grade control methods are used. The impact of dilution will be assessed as part of the mining studies.
Metallurgical factors or assumptions	It is assumed that similar metallurgical techniques to analogous Fortescue operations will be utilised. The expectation is that material will be dry processed by screens and crushers, with potential for some wet processing. Final processing methods will be defined by further mining studies.
Environmental factors or assumptions	Fortescue has an extensive environmental and heritage approvals process. Waste is considered to be inert and formed waste dumps will conform to WA standards. Waste will be formed as dumps or into mining voids. In the case of acid and fibre mitigation, Fortescue has industry standard procedures. Where beneficiation may take place, reject is considered to be inert and there are no foreseen problems with tailings disposal. No significant concentrations of environmentally deleterious elements have been identified.
Bulk density	Density has been calculated from down-hole geophysical measurements throughout the deposit.  Average rounded densities by geological unit and mineralisation have been compared with densities collected from analogous deposits, then applied globally to the model. Whilst on site down-hole geophysical tools are calibrated fortnightly in a designated test diamond drill hole.
	Down-hole geophysical probes measure the insitu bulk density which accounts for void spaces. These measurements are not corrected for moisture but are validated against known dry bulk densities from diamond core drilled in analogous Fortescue projects. Down-hole geophysical measurements are grouped by geological and mineralisation domains.  The densities used are similar to known densities for current and historical mines, of similar
	geology and mineralisation, across the Pilbara.
Classification	The Mineral Resource has been classified as Inferred. This considers drill spacing and data integrity, geological complexity, grade estimation quality, interpreted risk and mineralisation continuity based on the semivariogram ranges of influence.
	The Mineral Resource classification reflects the views of the competent persons.
Audits or reviews	Internal reviews have been completed during all stages of the estimate. External audits of the estimation process have been completed for analogous deposits with no significant flaws identified. Similar processes have been used for this estimate.
Discussion of relative accuracy/ confidence	Grade and geological continuity are sufficient for an Inferred Mineral Resource.  Greater confidence in applied density values will be achieved through further physical density and down-hole geophysical measurements.  The global estimate is sufficient to imply the grade and geological continuity in the area of the Inferred Mineral Resource.
	No production data is available at this stage.

# Nyidinghu JORC table 1

Section 1 Samplin	ng Techniques and Data
Criteria	Commentary
Sampling techniques	A total of 1,587 reverse circulation drill holes and 93,798 2m composite samples were used in the model. Samples sent for element and analytical work were selected based on potential ore-grade material with a reasonable envelope both above and below this interval. Most holes where possible undergo down hole geophysical logging.  Analytical CRMs were used to assist in checking laboratory results. Field duplicates were used to assist with determining sampling quality at the rig. Geophysical probes were calibrated on a regular basis using static methods and specific calibration holes. Drill hole locations were determined by survey contractors.  All samples were taken on 1m intervals from reverse circulation drill holes. A sample weighing approximately 1 to 3 kilograms was collected for each metre which was transported to a
Drilling	commercial laboratory and then pulverised for XRF analysis.  Reverse circulation (RC) drill holes of approximately 140mm diameter were completed using a
techniques	standard face sampling hammer. Most drill holes are vertical, 15 are drilled at an angle.
Drill sample recovery	The quality of each sample sent to the laboratory was recorded by the logging geologist at the time of drilling and categorised as either poor, moderate, or good. 91% of samples were recorded as good, 4% were recorded as moderate and 3% were recorded as poor. 2% of samples did not have quality recorded, these samples were logged as waste and were not sent to the laboratory for analysis.  No major issues with the sample collection system were identified during drilling. Minimal loss of fines was achieved through the use of an automated sample collection and splitting system.
	There is assumed to be no expected relationship between sample recovery and grade.
Logging	Geological logging was completed by geologists experienced in iron ore mineralisation. The standard of logging is suitable to support an estimate of Mineral Resources.  Stratigraphy, mineralogy, chip size, chip shape, chip recovery, hardness, colour, moisture, and sample quality were recorded for all drill holes. Chip trays from RC holes were collected on an intermittent basis.
Sub-sampling techniques and sample preparation	All RC drill holes were geologically logged.  Drilling samples are collected in labelled bags, which are stored onsite or sent for analysis. These samples are collected using a cone splitter installed directly beneath the cyclone. Wet samples are collected using the same technique as dry samples, with thorough cleaning of sampling system between samples. Wet samples are allowed to dry before being processed.  The sample collected from the cone splitter represents approximately 6 to 7% of the total sample interval. Cone splitters are the preferred splitting system used by Fortescue as they generally give the most representative sample in both dry and wet conditions.  At the laboratory, samples were weighed, dried, and pulverised to either 90% passing through 106 microns (SGS) or 85% passing through 75 microns (Genalysis).  Certified reference materials (CRM) are used in the field (approximately 1 in 100 samples) and laboratory (1 per laboratory job) as a quality control measure at different sub-sampling stages.  Rig duplicate samples are taken at an average of 3 rig duplicate samples per approximately 100 samples sent to the laboratory. An analysis of these duplicate samples indicates that they are of good quality and repeatable.  No formal analysis of the appropriateness of sample size compared to grain size has been completed but the sampling regime is considered to be industry best practice.
Quality of assay data and laboratory tests	All samples were sent to SGS or Genalysis laboratories for analysis. All laboratories have National Association of Testing Authorities, Australia (NATA) accreditation. The standard elements tested were Fe, SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , P, MnO/Mn, MgO, CaO, TiO <sub>2</sub> , Na <sub>2</sub> O, S and K <sub>2</sub> O by X Ray Fluorescence (XRF) and a three-point LOI thermo gravimetric analysis at 371, 650 and 1000 degrees Celsius. This is considered a total analysis.  No geophysical tools were used to determine any element concentrations used in the estimate.  Analysis of laboratory CRM results indicates high confidence in XRF analysis at each laboratory. Analysis of field CRMs have indicated issues with laboratory sample preparation and standard certification in the past. Field CRM results have been closely monitored and such issues have now been mitigated.
Verification of sampling and assaying	Significant intersections have been visually verified by Fortescue's Exploration Managers.  Twin RC holes have been completed in the project area. Results of the analysis shows mostly good correlation between the original RC drill hole and the twin drill hole.  Sample data is stored using a customised acQuire database, which includes a series of automated electronic validation checks. Fortescue data entry procedures are documented and readily available. Only trained personnel perform further manual validation in order to confirm results reflect field collected information and geology.

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	Section 2 Reporting of Exploration Results	
Criteria	Commentary	
Mineral tenement and land tenure status	FMG Pilbara Pty Ltd is a wholly owned subsidiary of Fortescue Metals Group Ltd and owns 100% of all mineral rights in the tenements which cover the project area M47/1461, E47/1320 and E4/1387. These are live, granted tenements.	
	The tenements are within the Nyiyaparli and Nyiyaparli #3 native title determination (WCD2018/008). Fortescue has a current Land Access Agreement with the Nyiyaparli native title holders.	
	The tenure is currently in good standing and no impediments to obtaining a licence to operate in the area are known to exist.	
Exploration done by other parties	BHP have performed exploration for iron ore within the Nyidinghu project area. No historical data has been used by Fortescue.	
Geology	The Nyidinghu deposit is located in the Hamersley Basin and the majority is considered to be classified as BID. The BID is contained within the Brockman Iron Formation. Smaller occurrences of later stage DID and CID are present.	
Drill hole Information	Collar details of the RC drill holes used in the estimate are not being reported here.	
Data aggregation methods	No exploration results are being reported. For methods used in the estimation please refer to: Section 3 Estimation and Reporting of Mineral Resources.	
Relationship between mineralisation widths and intercept lengths	No exploration results are being reported. Please refer to: <i>Orientation of data in relation to geological structure</i> in <i>Section 1 Sampling Techniques and Data</i> for the geometry of mineralisation with respect to drill hole angle.	



**Section 3 Estimation and Reporting of Mineral Resources** 

Criteria	Commentary
Database integrity	Field logging and sampling data is captured electronically utilising standard templates ensuring data integrity.
	Data is uploaded and stored in an industry standard database (acQuire) that has inbuilt validation checks. Any manual validation or changes are only completed by trained and authorised personnel.
Site visits	The Competent Person and Competent Persons team conducts regular site visits, approximately every two to three months when drilling operations are in progress to inspect the model area, RC drill hole logging and sampling practices. Discussions are held regularly with site geologists.
	Logging and geological interpretation was completed by geologists experienced in iron ore mineralisation. Geology over the majority of the deposit is relatively well known. There is some risk of misinterpretation in areas of wider spaced drilling with limited assay data, however, this is not considered to be material.
	Geological interpretation is based on geological logging, down hole geophysics and geochemistry of RC drill samples.
Geological interpretation	The stratigraphy of Nyidinghu is reasonably well known, and it is envisaged that any alternative geological interpretation, with or without further drilling, would not have a material impact on the Mineral Resource estimate. Extrapolation of mineralisation has been restricted to approximately half of the nominal drill spacing.
	All samples are flagged with their host geological zone, only samples with the same geological zone as the block to be estimated can be used in grade estimation.
	The main factors impacting the geological and grade continuity include the stratigraphy, structure, erosion, and weathering. The grade and geological continuity is generally good compared with analogous areas.
Dimensions	Mineralisation covers an area approximately 7km in length and 4.5km across. DID and CID mineralisation overlies the majority of the BID, the DID mineralisation has an average thickness of

	15m and the CID mineralisation 35m. BID mineralisation extends to depths of up to 300m, with an
	average thickness of 85m.  Ordinary Kriging was used to estimate all mineralised domains and inverse distance for all waste
	domains. Estimation was done using Maptek Vulcan software. Mineralisation was extrapolated approximately half the distance of drill spacing away from the drilling. The deposit was domained
	by stratigraphy, structure, local strike/orientation and mineralised/un-mineralised zones.  No assumptions regarding the recovery of by-products have been made.
	The iron ore suite of Fe, SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , P, Mn, MgO, CaO, TiO <sub>2</sub> , Na <sub>2</sub> O, S, K <sub>2</sub> O, LOI Total, LOI 371,
	LOI 650 and LOI 1000 has been estimated.
	Estimation into parent cells of 25mE × 25mN × 1mRL, 25mE × 50mN × 1mRL, and 50mE × 50mN × 1mRL was used. Size and orientation of parent blocks reflected half the nominal drill spacing and orientation of mineralisation. Sub blocking down to 6.25mE × 6.25mN × 0.5mRL was used along domain boundaries to better define the domain interface.
	Up to three estimation passes were used for each element, gradually increasing search ellipse distances with each pass. Search distances along strike and across strike varied between each domain. These were primarily defined by sample spacing within each domain and determined by
	neighbourhood iterative tests.  No assumptions behind the modelling of selective mining units have been made.
	Correlation between some elements has been noted during statistical analysis. Similar variogram
Estimation and	parameters were achieved for mineralised domains that had elements with a noted correlation.
modelling techniques	The definition of mineralised zones within each stratigraphic unit was accomplished using an indicator approach. The probability of any zone being mineralised was estimated using appropriate geochemical indicator thresholds for Fe, SiO <sub>2</sub> and Mn for the individual stratigraphic units. These
	thresholds were based on data population statistics and visual validation. A domain code was
	assigned to each sample, defined by the stratigraphic unit and mineralisation.
	Some element grades were top cut during estimation based on coefficient of variation values higher than 1.2.
	Visual validation of the block model coding of the domains was completed prior to estimation.
	Once estimated, the grade of all elements was also visually validated. Visual validation of both the
	domains and grade were completed in Vulcan by comparing section and plan slices of the block
	model against the drill holes. Statistics for the mean grade of the mineralised blocks within each
	stratigraphic unit were compared to the mean grade of the mineralised samples within each stratigraphic unit. Overall, the mean values between the model and samples are within an
	acceptable range. Trend analysis graphs have been created for each of the mineralised domains.
	These have been generated in Northing, Easting and RL, for all elements. The trend analysis
	graphs show the modelled grade vs. the raw data grade at a slice in space. The trend analysis
	charts show that overall, the model grade is consistent with the raw data and shows no bias. Areas
Moisture	with many samples correlate much better with the model grade than do areas with few samples.  Tonnages are estimated on a dry basis.
	DID and BID is reported at a cut-off of greater than or equal to 52% Fe and CID I reported at a cut-
Cut-off parameters	off of greater than or equal to 54% Fe. These cut-offs have been used for analogous Fortescue estimates and represents a similar cut-off to current product specifications.
	It is assumed that mining will be carried out with medium to large scale mining equipment, bench
Mining factors or	heights will vary depending on mining studies. These methods will be similar to analogous
assumptions	Fortescue deposits where conventional: truck & shovel/excavator; drill & blast and grade control methods are used. The impact of dilution will be assessed as part of the mining studies.
	It is assumed that similar metallurgical techniques to analogous Fortescue operations will be
Metallurgical	utilised. The expectation is that material will be dry processed by screens and crushers, with
factors or	potential for some wet processing. Final processing methods will be defined by further mining
assumptions	studies.
	Fortescue has an extensive environmental and heritage approvals process. Waste is considered to
Environmental	be inert and formed waste dumps will conform to WA standards. Waste will be formed as dumps or
factors or assumptions	into mining voids. In the case of acid and fibre mitigation, Fortescue has industry standard procedures. Where beneficiation may take place, reject is considered to be inert and there are no
	foreseen problems with tailings disposal. No significant concentrations of environmentally
	deleterious elements have been identified.
Bulk density	Density has been calculated from down-hole geophysical measurements throughout the deposit.
	Average rounded densities by geological unit and mineralisation have been compared with
	densities collected from diamond core drilled within the project, and analogous deposits, then applied globally to the model. Whilst on site down-hole geophysical tools are calibrated fortnightly
	in a designated test diamond drill hole.
	Down-hole geophysical probes measure the insitu bulk density which accounts for void spaces.
	These measurements are not corrected for moisture but are validated against known dry bulk
	densities from diamond core drilled in analogous Fortescue projects. Down-hole geophysical
	measurements are grouped by geological and mineralisation domains.

	The densities used are similar to known densities for current and historical mines, of similar geology and mineralisation, across the Pilbara.
Classification	The Mineral Resource has been classified as Measured, Indicated and Inferred. This considers drill spacing and data integrity, geological complexity, grade estimation quality, interpreted risk and mineralisation continuity based on the semivariogram ranges of influence.  The Mineral Resource classification reflects the views of the competent persons.
Audits or reviews	Internal reviews have been completed during all stages of the estimate. An external audit of the estimation process has been completed for Nyidinghu with no significant flaws identified.
Discussion of relative accuracy/confidence	Grade and geological continuity are sufficient for Measured, Indicated and Inferred Mineral Resources.
	Greater confidence in applied density values will be achieved through further physical density and down-hole geophysical measurements.
	The global estimate is sufficient to assume the grade and geological continuity in the area of the Measured and Indicated Mineral Resource and imply the grade and geological continuity in the area of the Inferred Mineral Resource.
	No production data is available at this stage.