



BLACK CANYON

ASX Announcement



7 September 2022

ASX:BCA

Thick manganese intersections confirm further potential of the Flanagan Bore LR1 Deposit

- Assay results from infill mineral resource RC drilling at the LR1 Deposit at Flanagan Bore confirm thick zones of manganese enriched shale and include the following significant results:
 - 46m @ 11.9% Mn & 9.2% Fe from 1m (FBRC199), including
 - 13m @ 14.8% Mn & 11.7% Fe from 13m
 - 44m @ 11.1% Mn & 8.5% Fe from surface (FBRC188), including
 - 9m @ 15.9% Mn & 10.5% Fe from 8m
 - 34m @ 13.1% Mn & 8.7% Fe from 2m (FBRC170), including
 - 19m @ 14.9% Mn and 9.5% Fe from 7m
 - 29m @ 14.8% Mn & 9% Fe from surface (FBRC197)
 - 20m @ 15.4% Mn & 9.5% Fe from 15m (FBRC200)
- A 1200m x 800m zone of manganese enriched shale has now been delineated from surface at the LR1 deposit that remains open to the west
- Deeper drilling in this infill phase has yielded thicker intervals of mineralisation than previously encountered, which has the potential to expand the LR1 Mineral Resource Estimate and grow the global mineral resources at Flanagan Bore
- Updating of the current Indicated Mineral Resource estimate of 37Mt @ 10.8% Mn at LR1 has commenced with these latest drilling results
- Assays from the recent drilling at FB3 are expected in late September

Australian manganese explorer, Black Canyon Limited (**Black Canyon** or the **Company**)(ASX:BCA), is pleased to announce the results of recent RC drilling at the LR1 deposit during May and June 2022 (Appendix 1). The results continue to deliver thick zones of manganese enriched shale that have the potential to expand the LR1 Mineral Resource Estimate and grow the global mineral resources at Flanagan Bore beyond the current **104Mt @ 10.5% Mn (Indicated)** containing **11Mt of manganese** (Table 1 & 2).

Black Canyon's Executive Director, Brendan Cummins, said "Since completing our first drill program at Flanagan's Bore in December 2021 and reporting of the Indicated Global Mineral Resource in April 2022, the Company has continued its momentum with the receipt of these infill drill results from LR1. These drill results are expected to upgrade the Mineral Resource at LR1 that will be used as the basis for more advanced feasibility studies over the next 12 months.

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“This follows the Company’s positive Scoping Study that shows substantial value in the Flanagan Bore project. The Company has set in place an aggressive schedule to get Flanagan Bore ‘development ready’ and it all starts with a large scale, outcropping high quality manganese mineral resource.”

“The Company also continues to advance hydro-metallurgical studies with acid leaching testwork applied to manganese concentrates derived from the Flanagan Bore deposits. This initial leaching testwork is an important first step for the Company as it embarks on a larger program of producing manganese sulphate – a critical precursor material for nickel-cobalt-manganese cathodes used in lithium-ion batteries.”

Located 120km north-east of Newman, Flanagan Bore is part of the Company’s Carawine JV and is subject to a farm-in and joint venture agreement with Carawine Resources Ltd (ASX:CWX). Having earned a 51% interest, Black Canyon is now earning up to 75% in the Carawine Project tenements by sole-funding an additional \$2.5m of exploration expenditure.

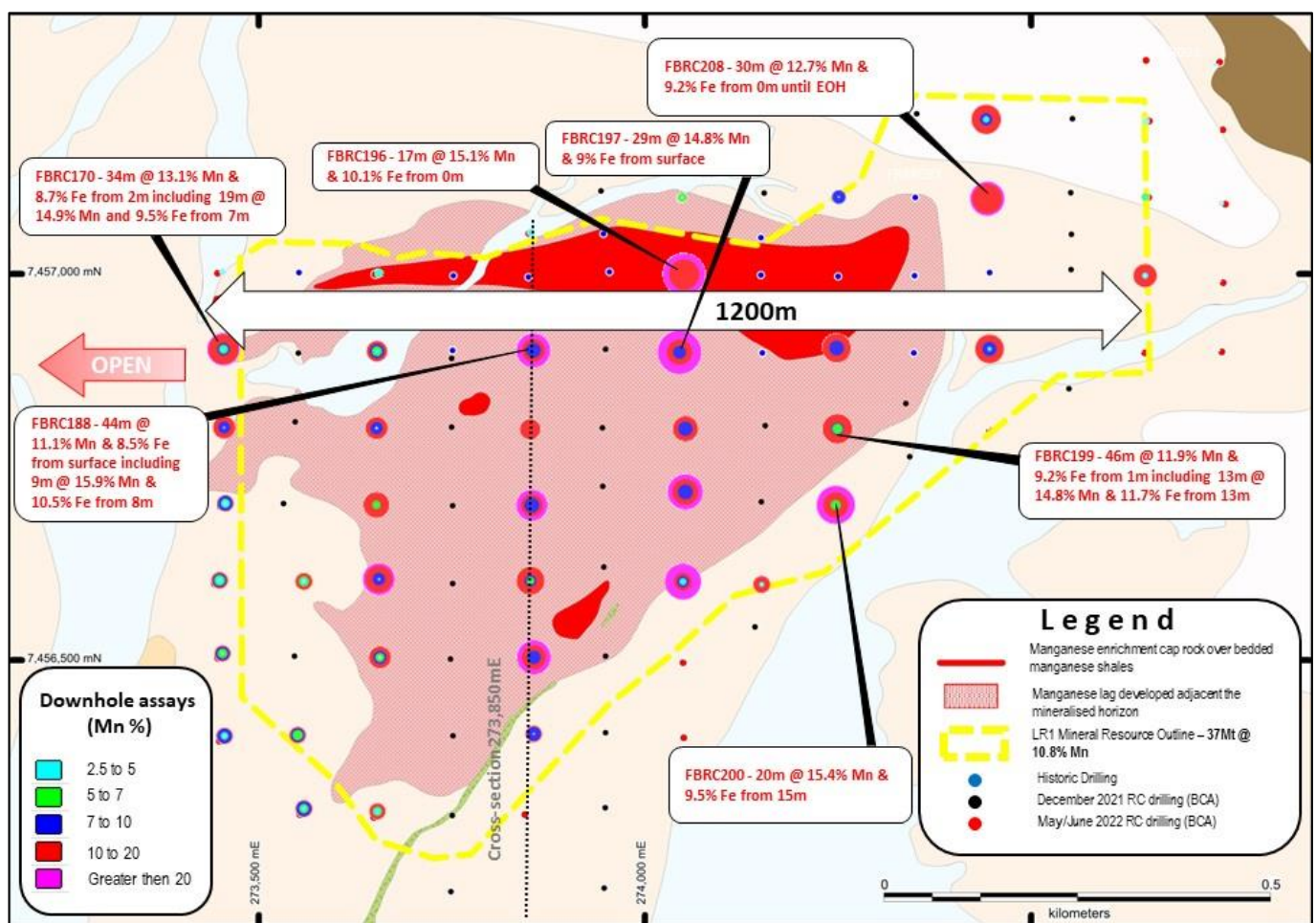


Figure 1. LR1 deposit drill plan showing significant drill results and downhole drill results projected to surface over mapped geology (BCA earning 75%)

Table 1. Global Mineral Resource estimate for the FB3 and LR1 deposits at Flanagan Bore, April 2022*

Summary of Mineral Resources ⁽¹⁾								
Deposit	Mineral Resource Category	Material (Mt)	In Situ Mn (Mt)	BD (gcm3)	Mn (%)	Fe (%)	Si (%)	Al (%)
FB3	Indicated	67	7	2.4	10.4	10.3	17.6	4.5
LR1	Indicated	37	4	2.4	10.8	8.9	18.3	5.0
Grand Total		104	11	2.4	10.5	9.8	17.9	4.7
Notes:								
(1) Mineral resources reported at a cut-off grade of 7% Mn								

* refer to ASX Announcement 13 April 2022 for further details

Table 2. High-grade Zone Mineral Resource estimate from the FB3 and LR1 deposits at Flanagan Bore, April 2022*

Summary of Mineral Resources ⁽¹⁾								
Deposit	Mineral Resource Category	Material (Mt)	In Situ Mn (Mt)	BD (gcm3)	Mn (%)	Fe (%)	Si (%)	Al (%)
FB3	Indicated	19	2	2.4	12.7	11.5	18.5	4.6
LR1	Indicated	15	2	2.4	12.9	9.9	18.4	4.9
Grand Total		33	4	2.4	12.8	10.8	18.5	4.8
Notes:								
(1) Mineral resources reported at a cut-off grade of 11% Mn								

* refer to ASX Announcement 13 April 2022 for further details

Flanagan Bore Drill Program Summary

As a result of the recently completed RC drill program (181 holes for 7,534m), the overall drill spacing at FB3 and LR1 has been reduced from 200m spaced lines and 100m centred holes to 100m spaced lines and 100m centred holes. Significantly, the doubling of the drill density should enable the current Indicated classified Mineral Resources to be upgraded to Measured, which is suitable for detailed feasibility and associated mining and processing studies

To date, the Company has received and compiled the assay results from the LR1 deposit area only, with further results due from FB3 and the discovery drilling completed between the LR1 and FB3 deposits expected in late September. A summary of the significant results is provided below and collar details for the drill program completed at Flanagan Bore are presented in Appendix 1.

LR1 Infill Mineral Resource Assay Results

A 1200m x 800m zone of manganese enriched shale has now been delineated from surface at the LR1 deposit. The assays received from the May/June 2022 RC drill program completed at LR1 have closed off mineralisation to the east where it appears to have been offset to the NE by a north trending fault, however the deposit remains open to the west. Deeper drilling completed by as part of this infill phase has yielded thicker intervals of mineralisation than previously encountered, which has the potential to expand the LR1 Mineral Resource Estimate and grow the global mineral resources at Flanagan Bore

Significant results are shown in plan and section in Figures 1 & 2 respectively and listed below.

- **46m @ 11.9% Mn & 9.2% Fe from 1m including (FBRC199)**
 - **13m @ 14.8% Mn & 11.7% Fe from 13m**
- **44m @ 11.1% Mn & 8.5% Fe from surface including (FBRC188)**
 - **9m @ 15.9% Mn & 10.5% Fe from 8m**

- **34m @ 13.1% Mn & 8.7% Fe from 2m including (FBRC170)**
 - 19m @ 14.9% Mn and 9.5% Fe from 7m
- **29m @ 14.8% Mn & 9% Fe from surface (FBRC197)**
- **20m @ 15.4% Mn & 9.5% Fe from 15m (FBRC200)**
- **17m @ 15.1% Mn & 10.1% Fe from 0m (FBRC196)**
- **30m @ 12.7% Mn & 9.2% Fe from 0m until EOH (FBRC208)**

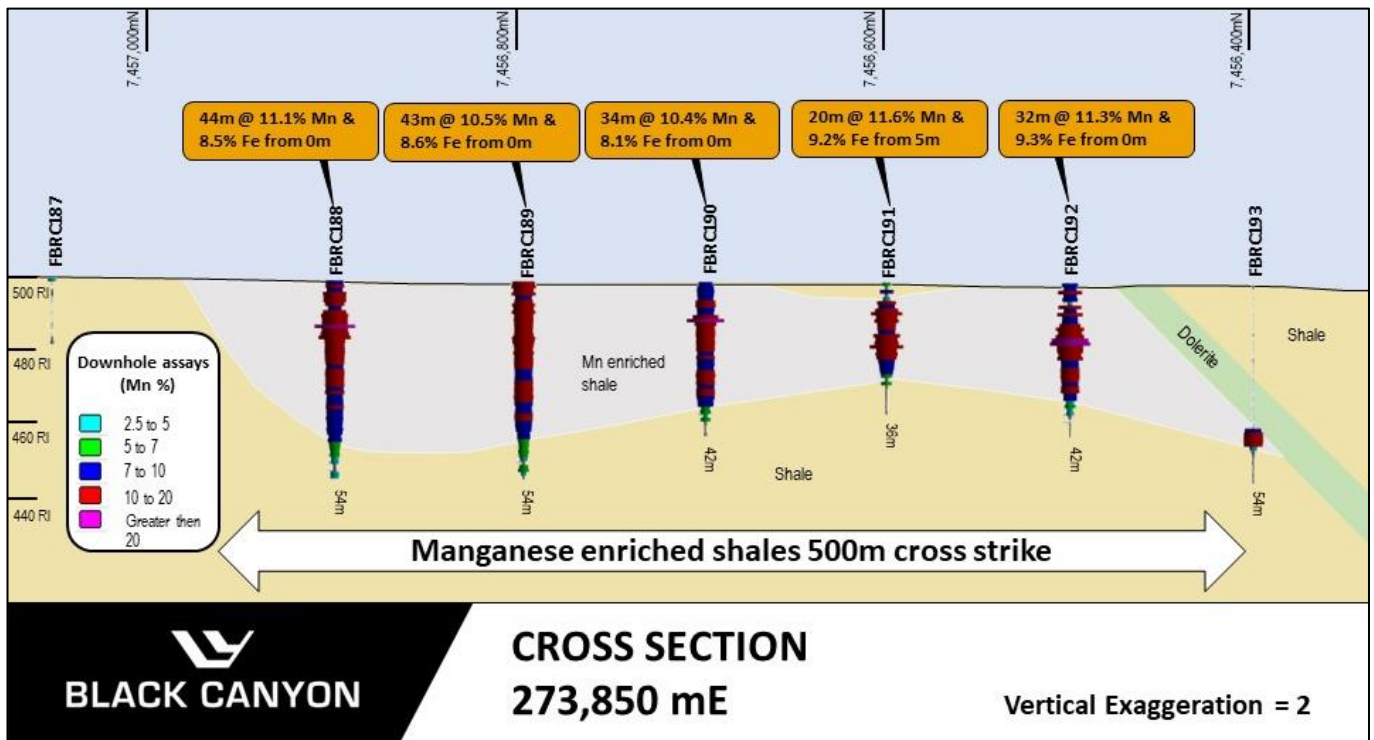


Figure 2. LR1 deposit cross section 273,850mE showing significant results from the LR1 drill program (looking east)

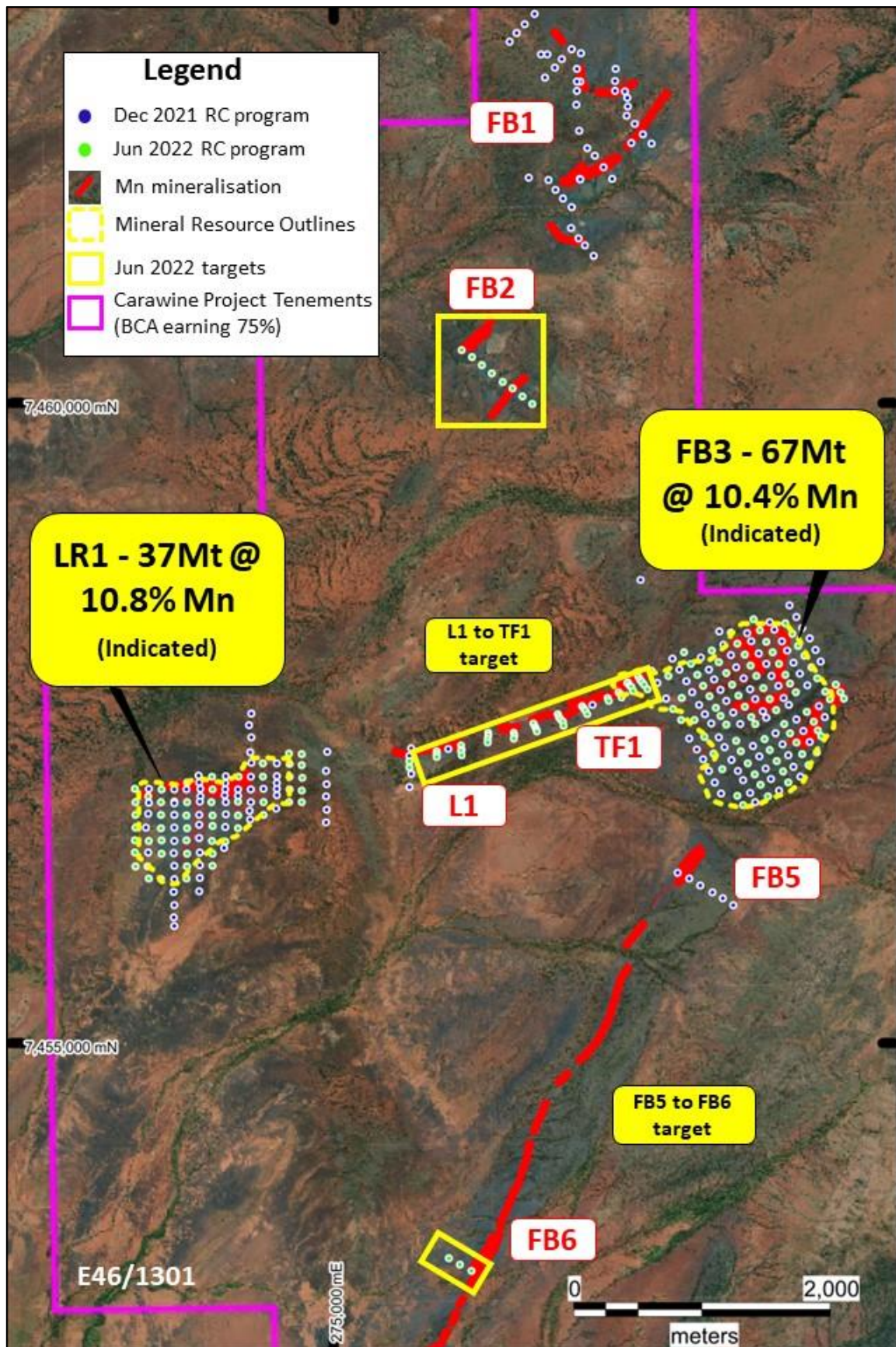


Figure 3. Flanagan Bore Project - FB3 & LR1 Mineral Resource outlines and additional drill targets at FB1, L1, TF1 and FB6 (Black Canyon (51%) earning up to 75%)

This announcement has been approved by the Board of Black Canyon Limited.

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About Black Canyon

Black Canyon has entered into a farm-in and joint venture with ASX listed Carawine Resources Limited (ASX:CWX) to acquire a majority interest in the Carawine Project in Western Australia. The Carawine Project covers approximately 800 km² of tenure located south of the operating Woodie-Woodie manganese mine, providing a large footprint in a proven and producing manganese belt. Black Canyon has also applied for and acquired other exploration licenses adjacent to the Carawine Project that would increase the total land holdings to over 2400 km² upon grant. In addition to manganese, the Carawine Project also hosts multiple copper occurrences including the Western Star prospect which comprises a large zone of surface copper enrichment.

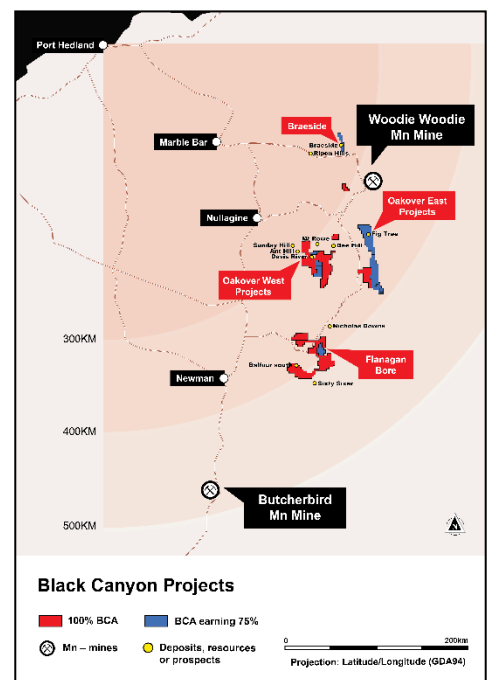
Manganese and copper continue to have attractive fundamentals with growing utilisation in the battery mineral sector and challenging supply conditions.

Compliance Statements

Reporting of Exploration Results and Previously Reported Information

The information in this report that relates to Exploration Results is based on, and fairly represents, information and supporting documentation reviewed by Mr Brendan Cummins, Executive Director of Black Canyon Limited. Mr Cummins is a member of the Australian Institute of Geoscientists, and he has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity which has been undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Cummins consents to the inclusion in this release of the matters based on the information in the form and context in which they appear. Mr Cummins is a shareholder of Black Canyon Limited.

The information in this report that relates to Mineral Resources is based on, and fairly represents, information and supporting documentation prepared by Mr Greg Jones, (Consultant to Black Canyon and Geological Services Manager for IHC Mining). Mr Jones is a Fellow of the Australian Institute of Mining and Metallurgy and has sufficient experience of relevance to the style of mineralisation and type of deposit under consideration, and to the activities undertaken to qualify as a Competent Persons as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Jones consents to the inclusion in this report of the matters based on the information in the form and context in which they appear.



For further information, please refer to ASX announcements dated 17 May 2021, 10 June 2021, 7 July 2021, 5 October 2021, 4 January 2022, 8 February 2022, 21 February 2022, 2 March 2022, 23 March 2022, 13 April 2022 and 9 June 2022 which are available from the ASX Announcement web page on the Company's website. The Company confirms that there is no new information or data that materially affects the information presented in this release that relate to Exploration Results and Mineral Resources in the original market announcements

Appendix 1. Flanagan Bore drill collar information and assay results from the LR1 Deposit May/June 2022 RC drill program

Hole ID	Deposit	East (GDA94)	North (GDA94)	RI	Survey Method	EOH (m)	Dip	Azimuth	From (m)	To (m)	Interval (m)	Mn (%)	Fe (%)	Drill intersection
FBRC169	LR1	273446.5	7457002.1	498.1	DGPS	24	-90	360						NSR
FBRC170	LR1	273447.9	7456901.3	497.8	DGPS	54	-90	360	2	36	34	13.1	8.7	34m @ 13.1% Mn & 8.7% Fe from 2m
FBRC171	LR1	273448.7	7456799.1	497.5	DGPS	60	-90	360	18	60	42	9.9	8.2	42m @ 9.9% Mn & 8.2% Fe from 18m until EOH
FBRC172	LR1	273450.3	7456700.1	497.2	DGPS	66	-90	360	27	66	39	9.7	8.0	39m @ 9.7% Mn & 8% Fe from 27m until EOH
FBRC173	LR1	273442.8	7456599.6	496.9	DGPS	54	-90	360	31	54	23	9.7	8.2	23m @ 9.7% Mn & 8.2% Fe from 31m until EOH
FBRC174	LR1	273446.6	7456504.1	496.5	DGPS	60	-90	360	33	60	27	9.6	7.9	27m @ 9.6% Mn & 7.9% Fe from 33m until EOH
FBRC175	LR1	273449.2	7456396.4	496.3	DGPS	60	-90	360	40	60	20	9.5	7.6	20m @ 9.5% Mn & 7.6% Fe from 40m until EOH
FBRC176	LR1	273548.7	7456946.5	498.1	DGPS	48	-90	360	0	8	8	8.7	6.8	8m @ 8.7% Mn & 6.8% Fe from 0m
FBRC177	LR1	273552.9	7456598.2	497.1	DGPS	60	-90	360	22	60	38	9.8	7.9	38m @ 9.8% Mn & 7.9% Fe from 22m until EOH
FBRC178	LR1	273544.7	7456397.5	496.6	DGPS	60	-90	360	29	54	25	9.7	7.5	25m @ 9.7% Mn & 7.5% Fe from 29m
FBRC179	LR1	273552.8	7456301.5	496.3	DGPS	60	-90	360	40	60	20	9.7	7.9	20m @ 9.7% Mn & 7.9% Fe from 40m until EOH
FBRC180	LR1	273650.8	7457000.6	499.0	DGPS	24	-90	360						NSR
FBRC181	LR1	273648.3	7456898.6	498.5	DGPS	60	-90	360	6	50	44	10.1	8.2	44m @ 10.1% Mn & 8.2% Fe from 6m
FBRC182	LR1	273647.8	7456798.3	497.9	DGPS	70	-90	360	7	53	46	10.2	8.5	46m @ 10.2% Mn & 8.5% Fe from 7m
FBRC183	LR1	273647.5	7456698.1	497.6	DGPS	60	-90	360	9	52	43	9.6	8	43m @ 9.6% Mn & 8% Fe from 9m
FBRC184	LR1	273650.9	7456601.3	497.4	DGPS	48	-90	360	12	45	33	10.7	8.3	33m @ 10.7% Mn & 8.3% Fe from 12m
FBRC185	LR1	273652.1	7456498.9	497.1	DGPS	42	-90	360	10	35	25	9.9	7.8	25m @ 9.9% Mn & 7.8% Fe from 10m
FBRC186	LR1	273648.8	7456298.0	496.6	DGPS	68	-90	360	40	64	24	9.7	7.9	24m @ 9.7% Mn & 7.9% Fe from 40m
FBRC187	LR1	273849.3	7457053.8	500.0	DGPS	18	-90	360						NSR
FBRC188	LR1	273852.6	7456899.8	499.3	DGPS	54	-90	360	0	44	44	11.1	8.5	44m @ 11.1% Mn & 8.5% Fe from 0m
FBRC189	LR1	273848.4	7456796.9	499.2	DGPS	54	-90	360	0	43	43	10.5	8.6	43m @ 10.5% Mn & 8.6% Fe from 0m
FBRC190	LR1	273850.5	7456697.7	499.0	DGPS	42	-90	360	0	34	34	10.4	8.1	34m @ 10.4% Mn & 8.1% Fe from 0m
FBRC191	LR1	273848.8	7456599.0	498.8	DGPS	36	-90	360	5	25	20	11.6	9.2	20m @ 11.6% Mn & 9.2% Fe from 5m
FBRC192	LR1	273853.3	7456499.0	498.5	DGPS	42	-90	360	0	32	32	11.3	9.3	32m @ 11.3% Mn & 9.3% Fe from 0m
FBRC193	LR1	273853.1	7456399.1	498.1	DGPS	54	-90	360	39	44	5	10.3	10.6	5m @ 10.3% Mn & 10.6% Fe from 39m
FBRC194	LR1	273844.6	7456301.3	497.5	DGPS	70	-90	360						NSR
FBRC195	LR1	274046.9	7457099.4	501.9	DGPS	24	-90	360						NSR
FBRC196	LR1	274049.5	7456998.8	504.1	DGPS	24	-90	360	0	17	17	15.1	10.1	17m @ 15.1% Mn & 10.1% Fe from 0m
FBRC197	LR1	274043.4	7456897.3	502.0	DGPS	42	-90	360	0	29	29	14.8	9	29m @ 14.8% Mn & 9% Fe from 0m
FBRC198	LR1	274248.7	7456902.8	502.2	DGPS	54	-90	360	0	42	42	11.0	10.1	42m @ 11% Mn & 10.1% Fe from 0m
FBRC199	LR1	274249.7	7456797.4	501.0	DGPS	60	-90	360	1	47	46	11.9	9.2	46m @ 11.9% Mn & 9.2% Fe from 1m
FBRC200	LR1	274247.5	7456698.0	500.5	DGPS	42	-90	360	15	35	20	15.4	9.5	20m @ 15.4% Mn & 9.5% Fe from 15m
FBRC201	LR1	274150.8	7456594.1	499.7	DGPS	54	-90	360	34	47	13	9.9	7.9	13m @ 9.9% Mn & 7.9% Fe from 34m
FBRC202	LR1	274047.9	7456597.9	499.5	DGPS	36	-90	360	22	26	4	16.7	9.9	4m @ 16.7% Mn & 9.9% Fe from 22m
FBRC203	LR1	274049.5	7456498.3	499.0	DGPS	42	-90	360						NSR

FBRC204	LR1	274050.2	7456401.0	498.4	DGPS	72	-90	360						NSR
FBRC205	LR1	274051.0	7456715.0	500.0	GPS	36	-90	360	3	14	11	14.9	10.8	11m @ 14.9% Mn & 10.8% Fe from 3m
FBRC206	LR1	274051.1	7456797.5	500.3	DGPS	36	-90	360	0	7	7	10.3	6.3	7m @ 10.3% Mn & 6.3% Fe from 0m
FBRC207	LR1	274444.0	7457201.4	504.3	DGPS	48	-90	360	7	21	14	11.2	10.0	14m @ 11.2% Mn & 10% Fe from 7m
FBRC208	LR1	274445.4	7457097.9	503.5	DGPS	30	-90	360	0	30	30	12.7	9.2	30m @ 12.7% Mn & 9.2% Fe from 0m until EOH
FBRC209	LR1	274448.3	7456901.7	502.0	DGPS	60	-90	360	7	41	34	11.7	10.1	34m @ 11.7% Mn & 10.1% Fe from 7m
FBRC210	LR1	274446.2	7456798.0	501.6	DGPS	54	-90	360						NSR
FBRC211	LR1	274648.8	7457277.4	505.6	DGPS	36	-90	360						NSR
FBRC212	LR1	274652.8	7457199.1	505.4	DGPS	36	-90	360						NSR
FBRC213	LR1	274651.8	7457100.0	504.8	DGPS	30	-90	360						NSR
FBRC214	LR1	274651.6	7456997.4	503.7	DGPS	36	-90	360						NSR
FBRC215	LR1	274646.9	7456898.9	503.1	DGPS	36	-90	360						NSR
FBRC216	LR1	274744.1	7457275.2	506.2	DGPS	36	-90	360						NSR
FBRC217	LR1	274748.0	7457187.9	506.0	DGPS	30	-90	360						NSR
FBRC218	LR1	274751.1	7457091.4	505.2	DGPS	30	-90	360						NSR
FBRC219	LR1	274748.3	7456989.8	504.1	DGPS	25	-90	360						NSR
FBRC220	LR1	274746.6	7456900.4	503.9	DGPS	24	-90	360						NSR
FBRC221	LR1	274251.4	7457100.0	503.9	DGPS	30	-90	360						NSR
FBRC222	FB3	278573.3	7458216.8	526.7	DGPS	18	-90	360						Assay results pending
FBRC223	FB3	278619.3	7458120.4	525.0	DGPS	24	-90	360						Assay results pending
FBRC224	FB3	278670.3	7458042.5	522.8	DGPS	18	-90	360						Assay results pending
FBRC225	FB3	278722.0	7457952.4	521.7	DGPS	18	-90	360						Assay results pending
FBRC226	FB3	278771.1	7457866.7	520.5	DGPS	18	-90	360						Assay results pending
FBRC227	FB3	278521.9	7458295.5	531.4	DGPS	18	-90	360						Assay results pending
FBRC228	FB3	278274.0	7458326.6	526.5	DGPS	18	-90	360						Assay results pending
FBRC229	FB3	278323.1	7458240.1	532.0	DGPS	18	-90	360						Assay results pending
FBRC230	FB3	278373.2	7458153.1	533.0	DGPS	42	-90	360						Assay results pending
FBRC231	FB3	278420.6	7458068.0	533.3	DGPS	60	-90	360						Assay results pending
FBRC232	FB3	278472.1	7457980.6	531.1	DGPS	54	-90	360						Assay results pending
FBRC233	FB3	278522.3	7457895.2	524.7	DGPS	36	-90	360						Assay results pending
FBRC234	FB3	278555.8	7457827.9	521.9	DGPS	36	-90	360						Assay results pending
FBRC235	FB3	278602.3	7457757.2	520.2	DGPS	54	-90	360						Assay results pending
FBRC236	FB3	278097.3	7458225.9	521.3	DGPS	18	-90	360						Assay results pending
FBRC237	FB3	278144.9	7458139.7	526.7	DGPS	36	-90	360						Assay results pending
FBRC238	FB3	278202.3	7458051.8	526.2	DGPS	54	-90	360						Assay results pending
FBRC239	FB3	278248.1	7457965.5	525.4	DGPS	60	-90	360						Assay results pending
FBRC240	FB3	278293.2	7457883.7	522.8	DGPS	60	-90	360						Assay results pending
FBRC241	FB3	278349.3	7457791.2	523.4	DGPS	54	-90	360						Assay results pending
FBRC242	FB3	278397.5	7457705.3	522.1	DGPS	60	-90	360						Assay results pending
FBRC243	FB3	278449.7	7457619.5	518.4	DGPS	61	-90	360						Assay results pending
FBRC244	FB3	277948.0	7458082.8	517.1	DGPS	18	-90	360						Assay results pending
FBRC245	FB3	278001.2	7457995.1	518.6	DGPS	18	-90	360						Assay results pending
FBRC246	FB3	278058.1	7457906.9	519.4	DGPS	52	-90	360						Assay results pending
FBRC247	FB3	278103.3	7457815.6	519.0	DGPS	58	-90	360						Assay results pending
FBRC248	FB3	278155.7	7457731.7	519.5	DGPS	56	-90	360						Assay results pending
FBRC249	FB3	278205.3	7457646.5	519.1	DGPS	48	-90	360						Assay results pending
FBRC250	FB3	278253.0	7457564.2	517.5	DGPS	63	-90	360						Assay results pending
FBRC251	FB3	278287.3	7457509.3	516.8	DGPS	60	-90	360						Assay results pending
FBRC252	FB3	277731.1	7458068.2	514.5	DGPS	18	-90	360						Assay results pending
FBRC253	FB3	277781.8	7457980.8	514.7	DGPS	18	-90	360						Assay results pending
FBRC254	FB3	277833.4	7457893.9	515.5	DGPS	48	-90	360						Assay results pending

FBRC255	FB3	277876.5	7457808.8	516.2	DGPS	75	-90	360					Assay results pending
FBRC256	FB3	277928.0	7457726.9	516.0	DGPS	72	-90	360					Assay results pending
FBRC257	FB3	277607.9	7457883.1	513.2	DGPS	36	-90	360					Assay results pending
FBRC258	FB3	277710.9	7457714.2	513.3	DGPS	96	-90	360					Assay results pending
FBRC259	FB3	278914.0	7457817.6	521.7	DGPS	18	-90	360					Assay results pending
FBRC260	FB3	278951.8	7457758.1	522.2	DGPS	18	-90	360					Assay results pending
FBRC261	FB3	278978.1	7457707.4	521.3	DGPS	18	-90	360					Assay results pending
FBRC262	FB3	278831.6	7457761.3	520.6	DGPS	27	-90	360					Assay results pending
FBRC263	FB3	278866.5	7457702.8	520.8	DGPS	24	-90	360					Assay results pending
FBRC264	FB3	278689.8	7457606.5	520.2	DGPS	36	-90	360					Assay results pending
FBRC265	FB3	278740.6	7457529.7	521.9	DGPS	26	-90	360					Assay results pending
FBRC266	FB3	278772.9	7457461.6	520.9	DGPS	21	-90	360					Assay results pending
FBRC267	FB3	278799.7	7457417.0	519.9	DGPS	18	-90	360					Assay results pending
FBRC268	FB3	278513.6	7457510.5	518.5	DGPS	42	-90	360					Assay results pending
FBRC269	FB3	278558.0	7457439.2	520.0	DGPS	36	-90	360					Assay results pending
FBRC270	FB3	278606.1	7457362.9	522.2	DGPS	33	-90	360					Assay results pending
FBRC271	FB3	278653.1	7457275.8	520.8	DGPS	24	-90	360					Assay results pending
FBRC272	FB3	278702.3	7457190.8	517.6	DGPS	18	-90	360					Assay results pending
FBRC273	FB3	278358.5	7457390.4	517.2	DGPS	45	-90	360					Assay results pending
FBRC274	FB3	278400.5	7457308.2	518.3	DGPS	42	-90	360					Assay results pending
FBRC275	FB3	278454.1	7457220.1	519.3	DGPS	36	-90	360					Assay results pending
FBRC276	FB3	278502.8	7457140.6	518.2	DGPS	26	-90	360					Assay results pending
FBRC277	FB3	278545.2	7457053.5	516.6	DGPS	18	-90	360					Assay results pending
FBRC278	FB3	278134.1	7457376.8	515.9	DGPS	36	-90	360					Assay results pending
FBRC279	FB3	278172.9	7457295.8	516.1	DGPS	30	-90	360					Assay results pending
FBRC280	FB3	278228.1	7457202.0	516.2	DGPS	48	-90	360					Assay results pending
FBRC281	FB3	278281.5	7457118.2	516.4	DGPS	42	-90	360					Assay results pending
FBRC282	FB3	278326.8	7457036.3	516.1	DGPS	36	-90	360					Assay results pending
FBRC283	FB3	278382.7	7456944.3	515.3	DGPS	27	-90	360					Assay results pending
FBRC284	FB3	277887.4	7457408.2	513.9	DGPS	84	-90	360					Assay results pending
FBRC285	FB3	277960.0	7457278.6	514.5	DGPS	30	-90	360					Assay results pending
FBRC286	FB3	278029.9	7457156.4	514.7	DGPS	64	-90	360					Assay results pending
FBRC287	FB3	278147.1	7456949.5	514.5	DGPS	44	-90	360					Assay results pending
FBRC288	FB3	278192.2	7456876.0	514.1	DGPS	40	-90	360					Assay results pending
FBRC289	FB3	277645.0	7457626.0	513.0	GPS	72	-90	360					Assay results pending
FBRC290	FB3	277708.0	7457540.0	513.0	GPS	72	-90	360					Assay results pending
FBRC291	FB3	277809.0	7457542.0	513.0	GPS	72	-90	360					Assay results pending
FBRC292	FB3	277976.0	7457634.0	515.0	GPS	72	-90	360					Assay results pending
FBRC293	FB3	278013.0	7457571.0	515.0	GPS	72	-90	360					Assay results pending
FBRC294	FB3	278059.0	7457506.0	515.0	GPS	72	-90	360					Assay results pending
FBRC295	FB2	275995.0	7460431.0	510.0	GPS	36	-90	360					Assay results pending
FBRC296	FB2	276073.0	7460375.0	508.0	GPS	30	-90	360					Assay results pending
FBRC297	FB2	276151.0	7460314.0	507.0	GPS	24	-90	360					Assay results pending
FBRC298	FB2	276229.0	7460251.0	511.0	GPS	30	-90	360					Assay results pending
FBRC299	FB2	276313.0	7460180.0	509.0	GPS	63	-90	360					Assay results pending
FBRC300	FB2	276392.0	7460129.0	511.0	GPS	42	-90	360					Assay results pending
FBRC301	FB2	276470.0	7460068.0	511.0	GPS	42	-90	360					Assay results pending
FBRC302	FB2	276546.0	7460007.0	512.0	GPS	42	-90	360					Assay results pending
FBRC303	TF1	277374.0	7457881.0	513.0	GPS	42	-60	330					Assay results pending
FBRC304	TF1	277387.0	7457857.0	513.0	GPS	42	-60	330					Assay results pending
FBRC305	TF1	277401.0	7457838.0	513.0	GPS	48	-60	330					Assay results pending
FBRC306	TF1	277417.0	7457817.0	512.0	GPS	48	-60	330					Assay results pending
FBRC307	TF1	277444.0	7457779.0	512.0	GPS	66	-60	330					Assay results pending
FBRC308	TF1	277286.0	7457829.0	516.0	GPS	42	-60	330					Assay results pending
FBRC309	TF1	277306.0	7457811.0	515.0	GPS	30	-60	330					Assay results pending
FBRC310	TF1	277316.0	7457798.0	514.0	GPS	36	-60	330					Assay results pending

FBRC311	TF1	277332.0	7457767.0	512.0	GPS	54	-60	330					Assay results pending
FBRC312	TF1	277220.0	7457758.0	515.0	GPS	30	-60	330					Assay results pending
FBRC313	TF1	277236.0	7457740.0	514.0	GPS	36	-60	330					Assay results pending
FBRC314	TF1	277243.0	7457719.0	513.0	GPS	42	-60	330					Assay results pending
FBRC315	TF1	277131.0	7457711.0	513.0	GPS	30	-60	330					Assay results pending
FBRC316	TF1	277144.0	7457691.0	512.0	GPS	36	-60	330					Assay results pending
FBRC317	TF1	277157.0	7457667.0	512.0	GPS	48	-60	330					Assay results pending
FBRC318	TF1	276933.0	7457652.0	513.0	GPS	24	-60	330					Assay results pending
FBRC319	TF1	276946.0	7457630.0	512.0	GPS	30	-60	330					Assay results pending
FBRC320	TF1	276959.0	7457612.0	512.0	GPS	42	-60	330					Assay results pending
FBRC321	TF1	276975.0	7457587.0	511.0	GPS	60	-60	330					Assay results pending
FBRC322	TF1	276744.0	7457585.0	510.0	GPS	24	-60	330					Assay results pending
FBRC323	TF1	276755.0	7457566.0	510.0	GPS	32	-60	330					Assay results pending
FBRC324	TF1	276765.0	7457545.0	510.0	GPS	30	-60	330					Assay results pending
FBRC325	TF1	276784.0	7457527.0	510.0	GPS	30	-60	330					Assay results pending
FBRC326	TF1	276788.0	7457495.0	510.0	GPS	42	-60	330					Assay results pending
FBRC327	TF1	276553.0	7457513.0	509.0	GPS	24	-60	330					Assay results pending
FBRC328	TF1	276567.0	7457488.0	509.0	GPS	36	-60	330					Assay results pending
FBRC329	TF1	276578.0	7457470.0	509.0	GPS	42	-60	330					Assay results pending
FBRC330	TF1	276583.0	7457452.0	509.0	GPS	42	-60	330					Assay results pending
FBRC331	T1	276402.0	7457442.0	508.0	GPS	42	-60	360					Assay results pending
FBRC332	T1	276403.0	7457421.0	508.0	GPS	60	-60	360					Assay results pending
FBRC333	T1	276400.0	7457395.0	508.0	GPS	60	-60	360					Assay results pending
FBRC334	T1	276203.0	7457443.0	507.0	GPS	24	-60	360					Assay results pending
FBRC335	T1	276201.0	7457421.0	507.0	GPS	18	-60	360					Assay results pending
FBRC336	T1	276198.0	7457393.0	507.0	GPS	24	-60	360					Assay results pending
FBRC337	T1	276196.0	7457366.0	507.0	GPS	42	-60	360					Assay results pending
FBRC338	T1	275989.0	7457343.0	507.0	GPS	18	-60	360					Assay results pending
FBRC339	T1	275994.0	7457313.0	507.0	GPS	36	-60	360					Assay results pending
FBRC340	T1	275991.0	7457296.0	507.0	GPS	42	-60	360					Assay results pending
FBRC341	T1	275993.0	7457265.0	507.0	GPS	54	-60	360					Assay results pending
FBRC342	T1	275801.0	7457299.0	507.0	GPS	18	-60	360					Assay results pending
FBRC343	T1	275798.0	7457276.0	507.0	GPS	36	-60	360					Assay results pending
FBRC344	T1	275800.0	7457250.0	507.0	GPS	36	-60	360					Assay results pending
FBRC345	T1	275589.0	7457221.0	505.0	GPS	48	-60	360					Assay results pending
FBRC346	T1	275588.0	7457170.0	505.0	GPS	60	-60	360					Assay results pending
FBRC347	FB6	276071.0	7453238.0	499.0	GPS	36	-90	360					Assay results pending
FBRC348	FB6	275981.0	7453286.0	499.0	GPS	42	-90	360					Assay results pending
FBRC349	FB6	275896.0	7453338.0	499.0	GPS	20	-90	360					Assay results pending

NSR – refers to No Significant Result

Appendix 2. JORC 2012 Table 1

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	- Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. - Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. - Aspects of the determination of mineralisation that are Material to the Public Report. - In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	- The samples were collected using industry standard Reverse Circulation (RC) drill methods . - Drilling was completed by Westside Drilling who completed the entire RC drill program – 181 holes for 7534m - There was limited water encountered during the drill program - The drilling and sample techniques are considered representative for the style of mineralisation utilising 1m sample intervals gathered directly from the RC drill rig using an adjustable cone splitter from a levelled drill rig. - The target sample weight was between 2-3kg which is appropriate for the style of mineralisation
Drilling techniques	Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	- The drill type is Reverse Circulation (RC) drilling vertical holes - The drill diameter us 5 ¼ inch RC using a face sampling hammer
Drill sample recovery	- Method of recording and assessing core and chip sample recoveries and results assessed. - Measures taken to maximise sample recovery and ensure representative nature of the samples. - Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	- Sample recovery was estimated by the geologist on the rig and secondly by assessing the weight of the representative samples delivered to laboratory - The drill recoveries were deemed acceptable with supervision of the sampling at the cone splitter - No sample bias due to sample loss is evident from the observed sample recoveries - The samples were drilled mostly dry again minimising sample bias
Logging	- Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. - Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. - The total length and percentage of the relevant intersections logged.	- Drillhole logging was completed at the drill rig recording lithology, texture, grain size and colour. 1m chip trays were also collected in site, photographed and used to further detailed logging post the drill program - The logging was considered appropriate for exploration reporting and eventually Mineral Resource Estimation - Every 1m interval as logged and sieved for inspection – 7534m
Sub-sampling techniques and sample preparation	- If core, whether cut or sawn and whether quarter, half or all core taken. - If non-core, whether riffled, tube sampled, rotary split, etc and whether	- The 1m RC samples were gathered by using a levelled cone splitter at the side of the rig - The samples were dominantly dry



Criteria	JORC Code explanation	Commentary
	<i>sampled wet or dry.</i> <i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i> <i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i> <i>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i> <i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	- Black Canyon inserted Certified Reference Material (CRM) at a rate of 1/50, blanks at a rate of 1/50 and field duplicates from the cone splitter at a rate of 1/50 for a total insertion rate of QA/QC materials at 6% - The sub sampling technique and quality control procedures is considered appropriate to ensure the sample is representative - The sample size is considered appropriate for the grainsize and style of mineralisation
Quality of assay data and laboratory tests	<i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i> <i>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i> <i>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</i>	- The samples were submitted to NATA accredited ALSChemex in Wangara - The 2 – 3kg samples was sub-split to 750gram and pulverised with 85% passing 75µm - The sample was then analysed using method ME-XRF26s for manganese ores using fusion disc XRF for Fe, SiO₂, Mn, Al₂O₃, TiO₂, P₂O₅, S, MgO, K₂O, Na₂O, CaO, BaO, Cr₂O₃ and ZrO₂ - Review of the quality control results received to date that include CRM, blanks, duplicates show an acceptable level of accuracy and lack of bias) and precision has been achieved. - In addition ALSCHEMEX has undertaken its own internal QAQC checks using CRM, Blanks and pulp duplicates and no issues have been reported or identified - The CP is satisfied that the analysis was completed to an acceptable standard in the context in which the results have been reported
Verification of sampling and assaying	<i>The verification of significant intersections by either independent or alternative company personnel.</i> <i>The use of twinned holes.</i> <i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i> <i>Discuss any adjustment to assay data.</i>	- The significant intersections have not been verified by independent personnel but have been peer reviewed internally for accuracy - The results do not show evidence of bias compared to the previous drill results and block model estimates and no assay data has been adjusted
Location of data points	<i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i> <i>Specification of the grid system used.</i> <i>Quality and adequacy of topographic control.</i>	- Once a drill hole was completed the drill collar was located using a GARMIN handheld GPS with an accuracy of +/- 5m - At LR1 a the drill collars were also picked with a DGPS - The grid system is UTM zone 51, GDA94 datum - The topography is quite flat reflecting the underlying stratigraphy. The holes are shallow and downhole deviation is not considered material in the context of these results
Data spacing and distribution	<i>Data spacing for reporting of Exploration Results.</i> <i>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i> <i>Whether sample compositing has been applied.</i>	- The drill spacing of the RC drill program was approximately 000m line spacing with holes drill 100m apart - The drill hole spacing is considered appropriate for this stage of advanced exploration with a high level of geological and mineralisation confidence and no further infill drilling is currently planned - No samples compositing has been applied



Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• The deposit is flat and gently plunging. Drill logs and assay data have identified cross cutting dolerite dykes that may have intruded into zones of structural weakness which does appear at this early stage to terminate the prospective horizon to the south • The drill hole orientation otherwise is suitable for this style of mineralisation and considered appropriate and unlikely to introduce sample bias
Sample security	• The measures taken to ensure sample security.	• The samples were collected in bulk bags, sealed with cable ties and stored on site until the drill program was completed • The samples were then trucked to Perth in two consignments and delivered directly to ALSCHEMEX in Wangara. The bulk bags were inspected and audited by ALSCHEMEX who did not report any suspicious or tampered samples
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• Other than internal review by Company staff no audits have been completed. • The CP was on site for parts of the RC drill program and considers the sampling and sub sampling techniques to be equal to industry standard and appropriate for the style of mineralisation and the results being reported.

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	- Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. - The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	- The drilling was undertaken on granted tenement E46/1301 - Black Canyon has a farm-in and joint venture agreement with Carawine Resources Ltd (ASX:CWX), Black Canyon has earned an initial 51% interest and is now earning up to 75% in the Carawine Projects that includes E46/1301 - The tenement has a native title Heritage Protection Agreement with the Karla Nyiyaparli People that required a Heritage Survey to be undertaken prior to ground disturbing activities. To this end an Ethnographic and Archeologic survey was completed prior to commencement of site activities - There are no other known impediments to exploring E46/1301
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	- Previous work on the tenure Includes exploration by Sentinel Mining Company carried out in 1968 in the general area of Balfour Downs. The exploration work included rock chip sampling from the southern edge of E46/784 which returned three samples with manganese values of 21.6 %, 25.7% and 11.4% Mn within manganese surface enrichment of Balfour Shales. - Consolidated Global investment Pty Limited ('CGI') owned tenement E46/784 between 2010 and 2015 and carried out exploration work. - Early reconnaissance work completed by CGI delineated many occurrences of manganese enriched outcroppings of the Balfour Formation. These north south striking outcrops were continuous over a distance of 1 km with widths of 50 m to 90 m in the LR1 Prospect area. Further exploration work completed by CGI included identification of prospective area using google images and remote sensing, a heritage survey and clearance for drilling using local Martu consultants. CGI completed a reverse circulation drilling programme of 22 holes in July 2012 on E46/784.
Geology	Deposit type, geological setting and style of mineralisation.	- The Flanagan Bore tenement is located within the Oakover Basin, the edges of which are defined by the Neoproterozoic Fortescue Group. Most of the tenement is covered by quaternary alluvium, sheetwash and outcrop only exists within the southern part and consists of rocks of the Manganese Group, mainly the Encheddong Dolomite and Balfour Formation. The tenement contains widespread manganese scree associated with manganese enriched Balfour Formation shales - The LR1 prospect can be separated into three primary units, the upper unmineralised Balfour shale, the mineralised Balfour shale and the lower basal shale unit. The upper unmineralised shale is brown grey in



Criteria	JORC Code explanation	Commentary
Drill hole Information	- A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: - easting and northing of the drill hole collar - elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar - dip and azimuth of the hole - down hole length and interception depth - hole length. - If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	colour and occurs from surface up to 10 m in depth intermittently across the project area. - The manganiferous shale unit contains a supergene enriched manganiferous horizon which exhibits thickness range between 15 m to 37 m depth gently dipping to the south, progressively thickening to the east-south-east. The manganese layers are confined to distinct banding within the Balfour and there are also minor occurrences of interbedded red/brown shales intermixed within saprolitic clay bands. - Refer to Appendix 1 for a complete listing of the RC drill results reported LR1 by Black Canyon - All assay results have now been reported for the LR1 deposit
Data aggregation methods	- In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. - Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. - The assumptions used for any reporting of metal equivalent values should be clearly stated.	- Only length (1m) weighted intervals are included in the text of this release. - Manganese intervals have been reported at 7% Mn cut off allowing 1 m of dilution (<7% Mn) - Iron intervals have been reported as they coincide with the Mn intervals and no cut offs are applied - No metal equivalent values are used.
Relationship between mineralisation widths and intercept lengths	- These relationships are particularly important in the reporting of Exploration Results. - If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. - If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	- The deposit is mostly flat lying exhibiting a gentle dip of mineralisation to the south, south-west therefore 90 degree angled (vertical) drill holes considered appropriate. - The mineralisation of the LR1 prospect is primarily strata bound striking approximately 80 to 90 degrees, gently dipping to the south - The drill results reported are interpreted to represent close to true widths of the mineralisation
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	These have been included in the body of the release where relevant and material to the reader's understanding of the results in regard to the context in which they have been reported.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low	Information considered material to the reader's understanding of the Exploration Results has been reported.



Criteria	JORC Code explanation	Commentary
Other substantive exploration data	<i>and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</i> • <i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i>	in the body of the text and significant results have selectively been reported to provide the reader with the potential tenor and widths of the mineralisation • APPENDIX 1- contains the results of the holes completed at LR1. Holes denoted with NSR describing holes without significant manganese results above the > 7% Mn cut-off.. • All information considered material to the reader's understanding and context of the RC Exploration Results have been reported.
Further work	• <i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i> • <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i>	• Further work is planned that includes: detailed metallurgical testwork on diamond drill core, environmental and hydrogeological investigations • The Company is intending to update the Mineral Resource LR1 now that all of the drill information has been received