MILLENNIUM
MINERALS LIMITED

ASX Code: MOY

2 November 2017

Corporate Details

Ordinary Shares:
780,917,069

Market Capitalisation:
~$130 million

Cash and bullion at 30 September 2017:
~$20.1 million

Debt:
NIL

ASX Code: MOY

Board of Directors

Greg Bittar
Non-Executive Chairman

Michael Chye
Non-Executive Director

Tim Kennedy
Non-Executive Director

Peter Lester
Non-Executive Director

Management

Peter Cash
Chief Executive Officer

Dean Will
Chief Operating Officer

Stacey Apostolou
Chief Financial Officer and Company Secretary

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Outstanding high-grade intercepts strengthen prospectivity of Bartons open pit and underground

Latest hits of 11m at 21.46g/t incl. 3m at 62.17g/t and 17m at 8.97g/t as Underground Feasibility Study nears completion

- **Significant high-grade intersections returned from the Bartons deposit where pit cut-back is well underway**
- **Latest results further underpin the expected strong cashflow which will be generated at Bartons over coming months**
- **Significant results include:**
  - ***11m @ 21.46g/t Au*** *from 43m, incl.* ***3m @ 62.17g/t Au*** *from 43m and* ***3m @ 12.13g/t Au*** *from 51m (BAGC00719)*
  - ***11m @ 9.34g/t Au*** *from 64m, incl.* ***6m @ 15.99g/t Au*** *from 65m (BAGC00717)*
  - ***17m @ 8.97g/t Au*** *from 41m, incl.* ***7m @ 19.84g/t Au*** *from 47m (BAGC00701)*
  - ***12m @ 2.70g/t Au*** *from 52m, incl.* ***1m @ 13.40g/t Au*** *from 56m (BAGC00716)*
  - ***6m @ 3.53g/t Au*** *from 26m, incl.* ***1m @ 16.10g/t Au*** *from 27m (BAGC00700)*
- **Further deeper drilling results, including 17m at 3.41g/t from 211m, including 1m at 19.9g/t (BARD0305), support underground development at Bartons**
- **In-fill drilling program now complete to facilitate completion of the fast-tracked Bartons Underground Feasibility Study**
- **Underground Feasibility Study on track for delivery this quarter with the aim of commencing underground development during March quarter 2018**
- **Tender process for underground mining contractor has now commenced.**

Millennium Minerals Limited (**Millennium** or **the Company** – ASX: MOY) is pleased to advise that recent drilling at Bartons, part of its 100%-owned Nullagine Gold Project in WA, has returned broad, high-grade gold intercepts, further highlighting the outstanding gold endowment of the Nullagine project area.

Bartons has been a key focus for Millennium's growth initiatives in 2017, which are aimed at establishing a minimum five-year mine life at Nullagine based on annual production of 100,000 ounces per annum.

The Company is undertaking a large-scale open pit cut-back at Bartons to access additional high-grade ore. It has completed a maiden underground Mineral Resource estimate and Scoping Study with a view to establishing Bartons as the first underground mining operation at Nullagine.

The latest drilling results include a series of exceptionally high-grade intercepts from a combination of Resource definition and grade control drilling programs being conducted from within the Bartons cutback, as well as broad mineralised intercepts from resource in-fill drilling to upgrade Inferred Resources to Indicated as part of the Bartons Underground Feasibility Study.

Highlights from the latest drilling results include:

Resource definition and grade control drilling (open pit):

- **11m @ 21.46g/t Au** from 43m, including **3m @ 62.17g/t Au** from 43m and **3m @ 12.13g/t Au** from 51m (BAGC00719)
- **11m @ 9.34g/t Au** from 64m, including **6m @ 15.99g/t Au** from 65m (BAGC00717)
- **17m @ 8.97g/t Au** from 41m, including **7m @ 19.84g/t Au** from 47m (BAGC00701)
- **12m @ 2.70g/t Au** from 52m, including **1m @ 13.40g/t Au** from 56m (BAGC00716)
- **6m @ 3.53g/t Au** from 26m, including **1m @ 16.10g/t Au** from 27m (BAGC00700)

These results have the potential to upgrade areas of mineralisation within the Bartons pit as well as expanding the current cutback at depth and broadening the planned mining envelope.

Resource in-fill drilling (to upgrade existing resources for the proposed Bartons underground):

- **17m @ 3.41g/t Au** from 211m, including **1m @ 19.90g/t Au** from 218m (BARD0305)

Full details of the latest assay results are provided in Appendix 1.

Bartons Underground Feasibility Study

Millennium completed a Phase 1 Indicated and Inferred Mineral Resource estimate for Bartons Underground comprising 475,900 tonnes grading 5.3g/t Au for 80,400 ounces of contained gold (see ASX Announcement 7 August 2017).

Following the completion of a positive Scoping Study (see ASX Announcement 8 September 2017), Millennium is now moving ahead with a fast-tracked Feasibility Study aimed at commencing underground development in Q1 2018.

This Feasibility Study is progressing well, with the underground in-fill drilling currently underway aimed at upgrading the Inferred Resource to Indicated status above the 218 RL level, and facilitating completion of a maiden Ore Reserve estimate.

The Bartons Underground Feasibility Study is on-track to be delivered during the current Quarter.

As previously advised, once the initial Bartons underground development is in place, Millennium will then look to drill out additional resource areas using underground diamond drill rigs. This is expected to generate significant cost savings compared with drilling from surface.

A competitive tender process has commenced to select a suitable underground mining contractor for the Bartons Underground. This will form a key input for the Underground Feasibility Study and will enable a rapid transition to development following a Decision to Proceed.

Management Comment

Millennium Chief Executive Peter Cash said the latest drilling results were some of the best seen from the Nullagine Project to date.

"The impressive thick, high-grade intercepts bode very well for our mining schedule, which will see open pit ore sourced from this area for the next four months," he said.

"At the same time, drilling is continuing to strengthen and cement the long-term future of mining at Bartons, with drilling to upgrade the maiden Underground Mineral Resource continuing to generate impressive results. The updated Resource will underpin the Bartons Underground Feasibility Study, which is now in its final stages and due for delivery before the end of the year."

ENDS

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Competent Persons Statements – Exploration Results

Mr Andrew Dunn (MAIG), a geologist employed full-time by Millennium Minerals Limited, compiled the technical aspects of this Report. Mr Dunn is a member of the Australian Institute of Geoscientists and has sufficient experience that is relevant to this style of mineralization and type of deposit under consideration and to the activity that is being reported on 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 Dunn consents to the inclusion in the report of the matters in the form and context in which it appears.

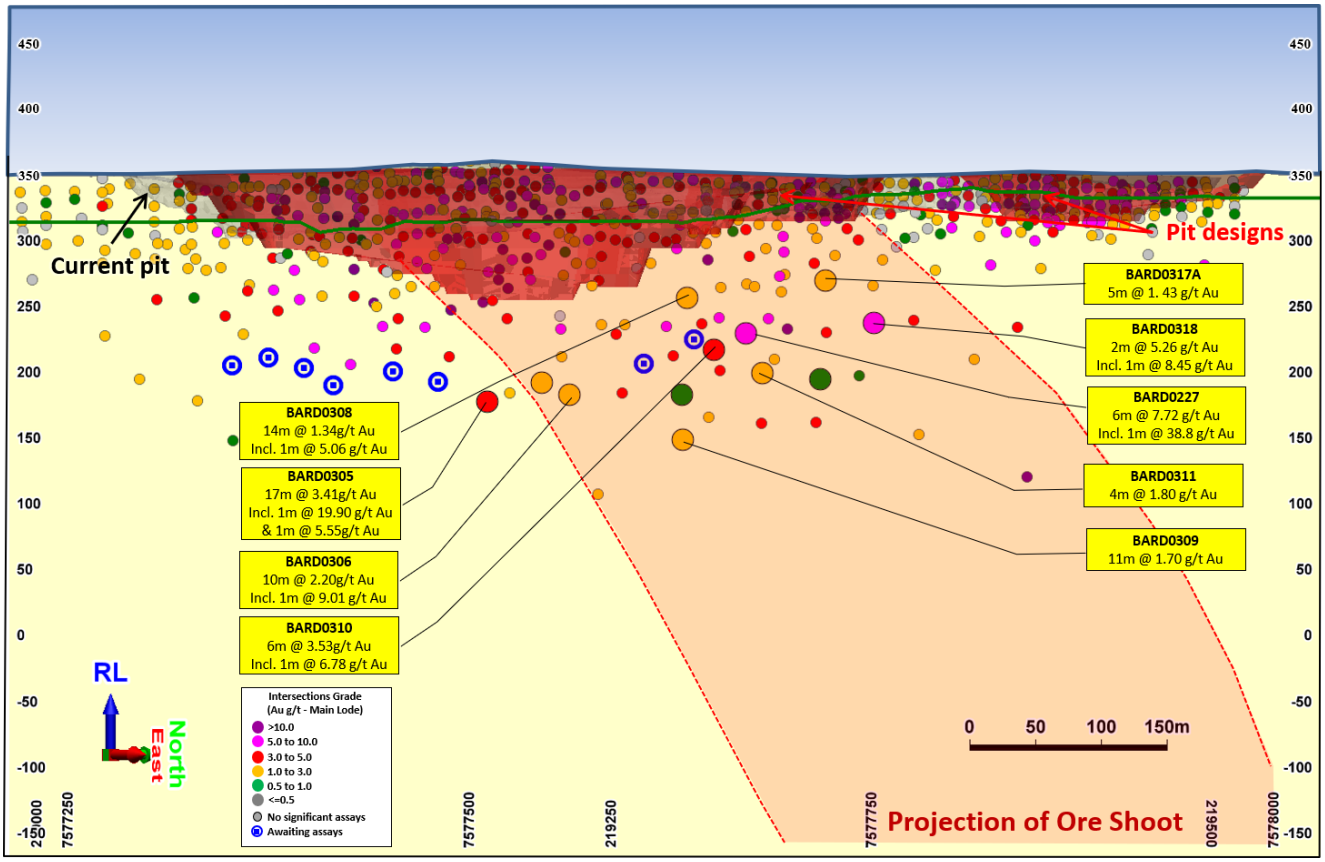

Figure 1: Long section of the Bartons Underground Deposit

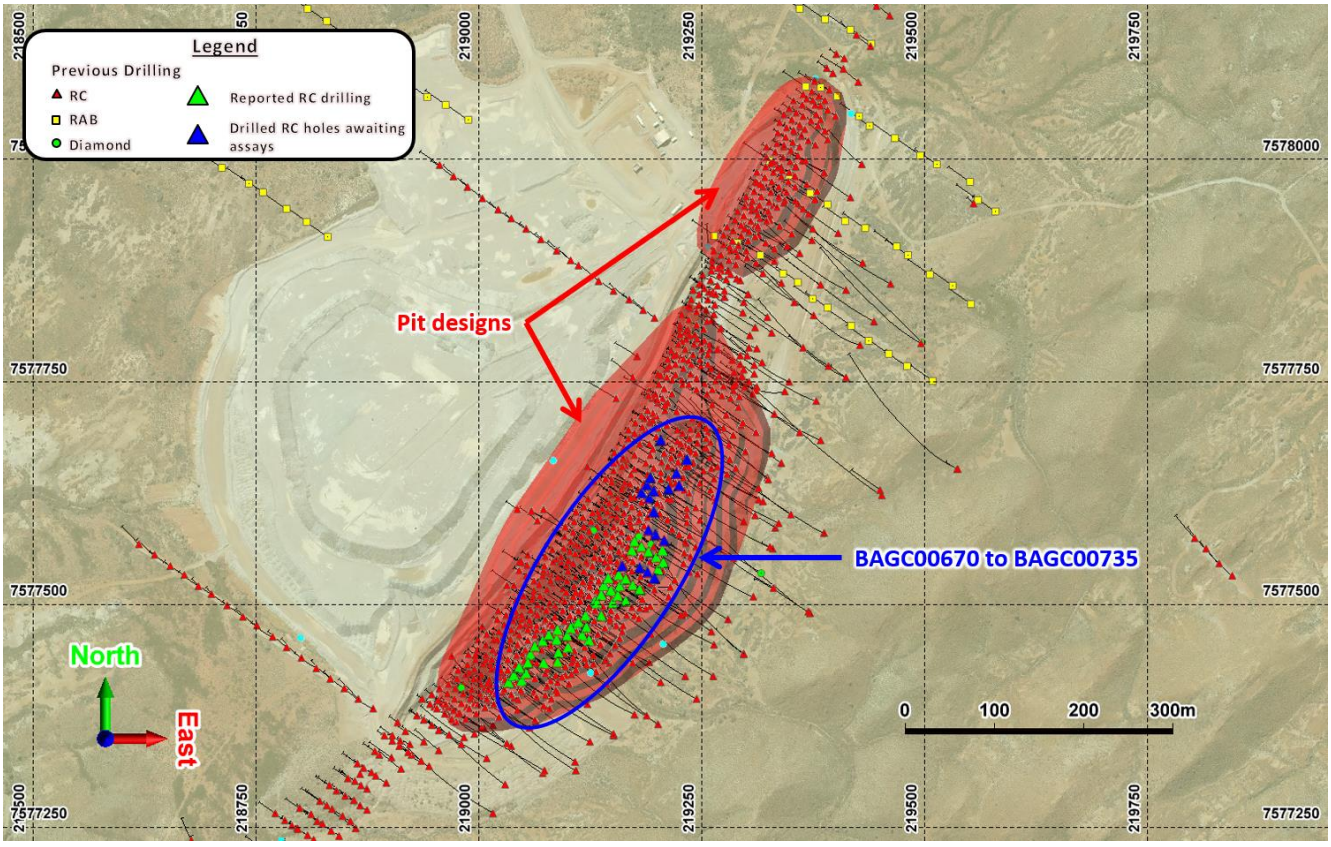

Figure 2: Bartons grade control drilling – plan view

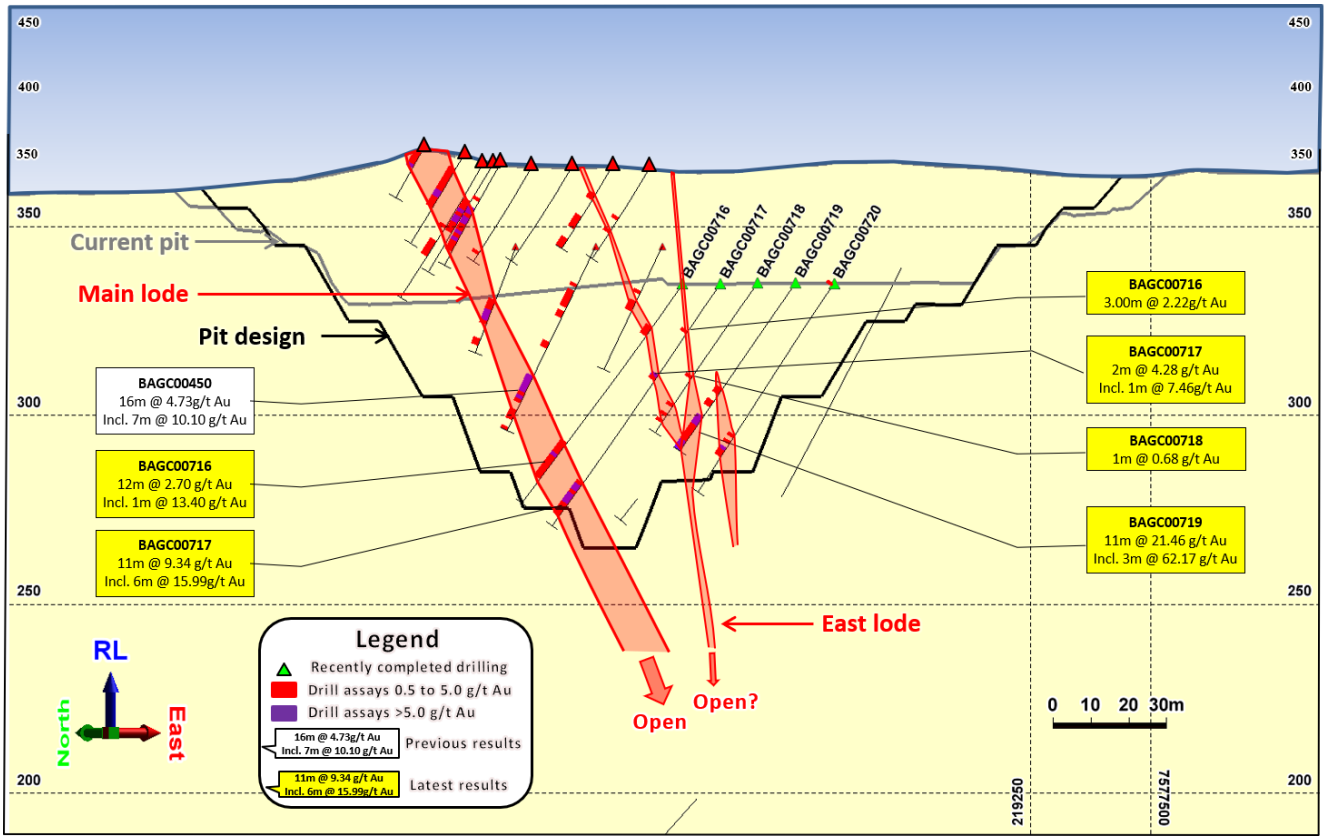

Figure 3: Bartons cross section showing hole BAGC00719

Appendix 1 – Table of significant results for Bartons

Hole_ID	GDA East	GDA North	RL	Azi	Dip	Depth (m)		From (m)	To (m)	Width (m)	Grade (g/t Au)	Gram-metres
BAGC00672	219033	7577413	335	307	-60	54		9	12	3	0.52	1.6
								26	28	2	0.74	1.5
								41	51	10	0.76	7.6
BAGC00673	219039	7577421	335	307	-60	36		1	8	7	0.57	4.0
								25	27	2	1.00	2.0
								34	35	1	0.58	0.6
BAGC00674	219048	7577415	335	307	-60	36		1	3	2	0.56	1.1
								13	21	8	0.75	6.0
BAGC00675	219053	7577423	335	307	-60	42		5	15	10	0.88	8.8
								28	29	1	1.94	1.9
BAGC00676	219045	7577429	335	307	-60	48		22	25	3	0.96	2.9
								35	40	5	0.64	3.2
								46	47	1	0.62	0.6
BAGC00677	219058	7577445	335	307	-60	48		17	21	4	0.64	2.6
								25	27	2	2.85	5.7
								31	44	13	4.22	54.9
							Incl.	34	37	3	14.24	42.7
BAGC00678	219073	7577434	335	307	-60	48		4	9	5	2.15	10.8
							Incl.	5	6	1	5.69	5.7
								23	29	6	0.57	3.4
								39	45	6	1.79	10.7
							Incl.	44	45	1	5.19	5.2
BAGC00679	219062	7577453	335	307	-60	48		24	25	1	0.55	0.6
								30	32	2	0.62	1.2
								36	48	12	1.86	22.3
							Incl.	40	41	1	5.67	5.7
BAGC00680	219089	7577447	335	307	-60	54		10	11	1	0.51	0.5
								20	28	8	0.73	5.8
								33	35	2	0.98	2.0
								46	47	1	0.82	0.8
								53	54	1	1.81	1.8
BAGC00681	219072	7577459	335	307	-60	36				NSA		NSA
BAGC00682	219055	7577434	335	307	-60	24				NSA		NSA
BAGC00683	219088	7577435	335	307	-60	42		18	19	1	0.70	0.7
								23	24	1	0.58	0.6
								29	31	2	0.62	1.2
								39	41	2	1.03	2.1
BAGC00684	219079	7577466	335	307	-60	48		14	25	11	1.78	19.6
							Incl.	14	15	1	5.31	5.3
								28	35	7	1.22	8.5
								41	44	3	3.09	9.3
BAGC00686	219100	7577452	335	307	-60	30		22	23	1	0.58	0.6
BAGC00687	219088	7577472	335	307	-60	54		15	18	3	1.32	4.0
								25	28	3	1.31	3.9
								33	37	4	0.88	3.5
								42	47	5	3.56	17.8
							Incl.	43	44	1	12.30	12.3
								51	52	1	1.90	1.9
BAGC00688	219099	7577464	335	307	-60	48		33	34	1	1.13	1.1
BAGC00689	219103	7577474	335	307	-60	60		41	44	3	1.23	3.7
								51	53	2	1.15	2.3
								57	60	3	1.23	3.7
BAGC00690	219124	7577459	335	307	-60	54		19	20	1	0.50	0.5
								27	28	1	0.87	0.9
								39	41	2	1.69	3.4
								50	54	4	0.93	3.7
BAGC00691	219116	7577466	335	307	-60	36		16	26	10	0.65	6.5
BAGC00692	219111	7577481	335	307	-60	36		35	36	1	1.12	1.1

Hole_ID	GDA East	GDA North	RL	Azi	Dip	Depth (m)		From (m)	To (m)	Width (m)	Grade (g/t Au)	Gram-metres
BAGC00693	219120	7577474	335	307	-60	54				NSA		NSA
BAGC00694	219119	7577487	335	307	-55	54		14	17	3	1.02	3.1
								33	35	2	1.31	2.6
								45	47	2	3.07	6.1
								50	52	2	3.78	7.6
							Incl.	51	52	1	5.86	5.9
BAGC00695	219137	7577487	335	307	-60	54		32	33	1	0.53	0.5
								43	47	4	0.79	3.2
BAGC00696	219130	7577504	335	307	-50	66		16	17	1	0.67	0.7
								21	28	7	2.09	14.6
							Incl.	26	27	1	8.08	8.1
								32	35	3	1.86	5.6
								38	43	5	3.17	15.9
							Incl.	38	39	1	7.14	7.1
								55	62	7	3.63	25.4
							Incl.	58	59	1	14.90	14.9
BAGC00697	219132	7577502	335	307	-60	78		22	33	11	1.30	14.3
								36	38	2	1.31	2.6
								41	50	9	3.36	30.2
							Incl.	44	48	4	6.09	24.4
								54	77	23	1.38	31.7
							Incl.	62	63	1	8.64	8.6
BAGC00698	219150	7577502	335	307	-55	84		6	7	1	0.56	0.6
								32	34	2	1.10	2.2
								39	40	1	1.92	1.9
								50	60	10	1.48	14.8
							Incl.	58	59	1	9.12	9.1
								63	64	1	2.07	2.1
								68	84	16	2.15	34.4
							Incl.	74	75	1	6.40	6.4
							Incl.	78	79	1	6.32	6.3
BAGC00699	219137	7577511	335	307	-55	66		8	9	1	0.54	0.5
								16	27	11	1.80	19.8
								33	37	4	4.50	18.0
							Incl.	34	35	1	11.70	11.7
								58	66	8	3.58	28.6
							Incl.	59	60	1	18.00	18.0
BAGC00700	219140	7577521	335	307	-60	72		12	13	1	0.60	0.6
								19	23	4	1.51	6.0
								26	32	6	3.53	21.2
							Incl.	27	28	1	16.10	16.1
								49	50	1	0.65	0.6
								58	67	9	2.16	19.4
							Incl.	59	60	1	7.98	8.0
BAGC00701	219148	7577516	335	307	-60	78		5	7	2	1.21	2.4
								22	23	1	0.79	0.8
								41	58	17	8.97	152.5
							Incl.	47	54	7	19.84	138.9
								65	76	11	1.95	21.5
							Incl.	69	70	1	5.98	6.0
BAGC00702	219156	7577510	335	307	-60	60		36	37	1	0.97	1.0
								40	43	3	0.84	2.5
								58	60	2	1.91	3.8
BAGC00703	219164	7577504	335	307	-60	60		25	26	1	1.09	1.1
								29	30	1	1.06	1.1
								37	38	1	1.76	1.8
								47	48	1	0.82	0.8
								52	53	1	1.02	1.0
								59	60	1	0.94	0.9
BAGC00704	219158	7577521	335	307	-55	48		30	46	16	1.39	22.2

Hole_ID	GDA East	GDA North	RL	Azi	Dip	Depth (m)		From (m)	To (m)	Width (m)	Grade (g/t Au)	Gram-metres
BAGC00705	219145	7577530	335	307	-50	24		7	8	1	1.00	1.0
BAGC00706	219157	7577534	335	307	-60	48		14	17	3	0.72	2.2
								21	30	9	1.06	9.5
								34	36	2	0.61	1.2
								41	43	2	3.01	6.0
BAGC00707	219173	7577522	335	307	-60	96		9	10	1	0.60	0.6
								21	25	4	0.89	3.6
								36	37	1	2.25	2.3
								40	44	4	4.30	17.2
							Incl.	41	42	1	12.00	12.0
								60	68	8	2.10	16.8
							Incl.	62	63	1	8.16	8.2
								71	76	5	0.54	2.7
								80	83	3	1.93	5.8
								87	94	7	1.87	13.1
BAGC00708	219181	7577517	335	307	-60	60		59	60	1	1.24	1.2
BAGC00709	219165	7577529	335	307	-60	90		19	21	2	3.22	6.4
								33	35	2	1.00	2.0
								42	50	8	1.72	13.8
							Incl.	48	49	1	7.06	7.1
								58	59	1	0.67	0.7
								74	75	1	1.17	1.2
BAGC00710	219160	7577543	335	307	-55	78				AA		AA
BAGC00711	219181	7577542	335	307	-55	54				AA		AA
BAGC00712	219189	7577536	335	307	-55	96				AA		AA
BAGC00713	219197	7577530	335	307	-55	96				AA		AA
BAGC00714	219171	7577561	335	307	-55	36		3	7	4	1.78	7.1
BAGC00715	219201	7577539	335	307	-55	102				AA		AA
BAGC00716	219174	7577570	335	307	-60	72		14	17	3	2.22	6.7
								52	64	12	2.70	32.4
							Incl.	56	57	1	13.40	13.4
BAGC00717	219182	7577565	335	307	-55	78		15	16	1	1.06	1.1
								29	31	2	4.28	8.6
							Incl.	29	30	1	7.46	7.5
								64	75	11	9.34	102.7
							Incl.	65	71	6	15.99	95.9
BAGC00718	219190	7577559	335	307	-55	48		30	31	1	0.68	0.7
								39	45	6	0.93	5.6
BAGC00719	219199	7577554	335	307	-55	54		34	40	6	1.33	8.0
								43	54	11	21.46	236.1
							Incl.	43	46	3	62.17	186.5
							Incl.	51	54	3	12.13	36.4
BAGC00720	219207	7577548	335	307	-55	66		0	1	1	1.51	1.5
								48	55	7	1.88	13.2
							Incl.	52	53	1	5.13	5.1
BAGC00721	219206	7577560	335	307	-60	54		12	13	1	0.58	0.6
								38	47	9	0.58	5.2
BAGC00722	219208	7577571	335	307	-60	90				AA		AA
BAGC00723	219198	7577578	335	307	-60	84				AA		AA
BAGC00724	219190	7577584	335	307	-60	78				AA		AA
BAGC00725	219196	7577604	335	307	-55	66				AA		AA
BAGC00726	219182	7577626	335	307	-55	42				AA		AA
BAGC00727	219191	7577620	335	307	-55	54				AA		AA
BAGC00728	219188	7577634	335	307	-55	42				AA		AA
BAGC00729	219196	7577628	335	307	-55	54				AA		AA
BAGC00730	219213	7577629	335	307	-55	12				AA		AA
BAGC00731	219192	7577642	335	307	-55	42				AA		AA
BAGC00732	219224	7577633	335	307	-60	36				AA		AA
BAGC00733	219222	7577647	335	307	-55	24				AA		AA

Hole_ID	GDA East	GDA North	RL	Azi	Dip	Depth (m)		From (m)	To (m)	Width (m)	Grade (g/t Au)	Gram-metres
BAGC00734	219233	7577663	335	307	-55	24				AA		AA
BAGC00735	219204	7577684	335	307	-70	42				AA		AA

AA= Awaiting Assays. NSA = No Significant assays. Intersections are calculated with 0.5g/t Au lower cut-off and a maximum of 2 consecutive metres of internal dilution. Higher grade intersections are calculated with 5g/t Au lower cut-off and a maximum of 2 consecutive metres of internal dilution.

Appendix 1 – Table of significant results for Bartons Underground

Hole_ID	GDA East	GDA North	RL	Azi	Dip	Depth (m)		From (m)	To (m)	Width (m)	Grade (g/t Au)	Gram-metres
BARD0298	219108	7577324	363	305	-53	224.5				AA		AA
BARD0299	219124	7577346	363	307	-50	221				AA		AA
BARD0300A	219151	7577355	364	308	-52	230.2				AA		AA
BARD0301	219188	7577376	364	305	-43	244.6				AA		AA
BARD0302	219174	7577377	364	303	-54	233				AA		AA
BARD0303A	219326	7577564	363	300	-50	216.3				AA		AA
BARD0304	219336	7577592	362	300	-55	221		197	205	8	0.99	7.9
BARD0305	219263	7577455	365	302	-50	239		194	201	7	1.97	13.8
							Incl.	194	195	1	6.12	6.1
							Incl.	200	201	1	5.95	5.9
								204	207	3	1.02	3.1
								211	228	17	3.41	58.0
							Incl.	214	215	1	5.55	5.6
							Incl.	218	219	1	19.90	19.9
BARD0306	219279	7577483	365	305	-48	227		162	163	1	0.97	1.0
								169	170	1	0.54	0.5
								173	180	7	1.60	11.2
							Incl.	173	174	1	6.50	6.5
								187	188	1	0.54	0.5
								202	212	10	2.20	22.0
							Incl.	206	207	1	9.01	9.0
BARD0307	219307	7577509	364	307	-52	240		166	167	1	1.46	1.5
								183	184	1	3.48	3.5
								200	201	1	0.56	0.6
								212	220	8	2.02	16.2
BARD0308	219309	7577600	362	305	-39	174		151	165	14	1.34	18.8
							Incl.	154	155	1	5.06	5.1
BARD0309	219332	7577587	362	305	-58	254.4		140	145	5	0.48	2.4
								140	145	5	0.48	2.4
								174	175	1	0.59	0.6
								174	175	1	0.59	0.6
								219	230	11	1.70	18.7
								219	230	11	1.70	18.7
BARD0310	219313	7577618	362	305	-54	192		111	112	1	0.55	0.6
								115	116	1	0.54	0.5
								161	167	6	3.53	21.2
							Incl.	162	163	1	6.78	6.8
BARD0311	219325	7577640	362	310	-59	204		174	178	4	1.80	7.2
BARD0312	219231	7577420	365	306	-50	245.4				AA		AA
BARD0313A	219318	7577617	362	301	-50	190.6				AA		AA
BARD0314	219324	7577642	362	310	-50	185		129	130	1	0.55	0.6
								153	159	6	7.72	46.3
							Incl.	155	156	1	38.80	38.8
								164	165	1	0.76	0.8
BARD0315	219383	7577684	363	302	-53	215		193	194	1	0.73	0.7
BARD0316	219331	7577714	360	300	-50	172.8				AA		AA
BARD0317A	219309	7577742	360	300	-50	119		53	59	6	5.52	33.1
							Incl.	56	59	3	10.13	30.4
								71	73	2	0.57	1.1
								91	94	3	0.91	2.7
								98	103	5	1.43	7.1
BARD0318	219348	7577750	360	300	-60	149		112	113	1	0.50	0.5
								118	119	1	1.42	1.4
								133	135	2	5.26	10.5
							Incl.	134	135	1	8.45	8.4

AA= Awaiting Assays. NSA = No Significant assays. Intersections are calculated with 0.5g/t Au lower cut-off and a maximum of 2 consecutive metres of internal dilution. Higher grade intersections are calculated with 5g/t Au lower cut-off and a maximum of 2 consecutive metres of internal dilution.

JORC 2012 Edition - Table 1

Section 1 Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representatively and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• *No surface samples were used in any estimation of Mineral Resources or Ore Reserves.* • *Sampling at Bartons was carried out using Reverse Circulation (RC) drilling and core rig for the diamond tails.* • *Standard samples were inserted to the sampling stream at a ratio of 1:50.* • *RC drilling was carried out with a 5.5 inch face-sampling bit, 1m samples collected through a cyclone and cone splitter to form a 2 – 3kg sub-sample. All sub-samples were fully pulverised at the laboratory to >85% passing – 75um, to produce a 50g charge for Fire Assay with AAS finish.* • *Diamond tails (NQ2) were completed for BARD0298, BARD0300A, BARD0301, BARD0303A, BARD0307, BARD0309, BARD0312, BARD0313A, BARD0316.*
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• *Reverse circulation (RC) drilling was carried out with a 5.5-inch face-sampling bit.* • *Diamond tails (NQ2) are nominally >100m to intersect both the East and Main lodes.*
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.*	• *A record of the RC sample recovery and moisture content was recorded by the rig geologists. Overall sample weight and quality were good to very good (2 to 3.5 kg).* • *ALS records sample weights on receipt of samples. This was used to help track sample recovery.* • *There is no correlation between sample recovery and gold grade.* • *Core recoveries from diamond drilling are generally >98%.*
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.*	• *All of the drilling has been captured in chip trays for resource drilling.* • *Geological logging is both qualitative and quantitative in nature. Logging is carried out for lithology, colour, grain size, regolith, alteration, weathering, veining and mineralisation. Sulphide and vein content were logged as a percentage of the interval.* • *RC chip trays are retained at site.* • *All of the intersections were logged.* • *All diamond core has been photographed for reference.*

Criteria	JORC Code Explanation	Commentary
		• *NQ2 half-core from the diamond tails will be retained onsite.*
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• *The recent 1 metre RC samples were split using a rig mounted cone splitter. The vast majority of the samples were dry with moist and wet samples were recorded.* • *The sample sizes are industry-standard and considered to be appropriate to correctly represent mineralisation at the deposits based on: the style of mineralisation, the thickness and consistency of the intersections, the sampling methodology and assay ranges for gold.* • *Field duplicates were taken from the second aperture of the cone splitter at a rate of 1 in 50 with additional field duplicates taken in the expected mineralised zones.* • *Sampling of diamond tails was carried out to geological boundaries with a minimum sample interval of 0.3m. Samples were cut with a core saw with half-core submitted for analysis.*
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	• *The industry best practice standard assay method of 50g charge Fire Assay with AAS finish was used to determine total Au content.* • *Commercially prepared, predominantly matrix-matched low, medium & high value certified reference QAQC standards were inserted at a rate of 1:50 into the sample stream.* • *The QAQC results from this protocol were considered to be acceptable.* • *No geophysical tools were used to determine any element concentrations used for these results.* • *Sample preparation checks for fineness were carried out by the laboratory as part of their internal procedures to ensure the grind size of 85% passing 75 micron was being attained. Laboratory QAQC involves the use of internal lab standards using certified reference material, blanks, splits and replicates as part of the in house procedures.* • *NQ2 sized diamond core was sampled by using a core saw to cut the samples. A Half of the core was submitted to the laboratory for the Au assaying with half core to be used for metallurgical test work. The sample was crushed, pulverised and subsampled at the laboratory to produce a 50 g charge for fire assay, as per industry standard methods.* • *Results highlight that sample assay values are accurate.*
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*	• *Intersections were checked by alternative company personnel to check they were reported correctly.* • *No twin holes were drilled in the programme. Previous significant intersections were verified with close spaced drilling.* • *Sampling is directly uploaded to the LogChief software and it is synchronised to*

Criteria	JORC Code Explanation	Commentary
	• *Discuss any adjustment to assay data.*	*the database.* • *Assay results were not adjusted.*
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• *Post completion of the drilling the RC collars were surveyed with a Real Time Kinematic (RTK) DGPS device to a ±10mm positional precision. All collars are then validated against planned positions as a cross check. Surveyed collar co-ordinates are uploaded into the Company SQL database.* • *Grid datum is GDA94 51K (East Pilbara).* • *Downhole surveys were completed on all holes at 30m maximum downhole intervals with a preference of an initial survey at ~12m downhole. Initially, surveys were taken using a single shot camera or via electronic multi-shot (EMS) survey tool (Reflex, Camprodual or Camteq), lithologies have negligible magnetic susceptibility (greywacke). Selective gyroscopic re-surveying was carried out to check the quality EMS surveys for the 2017 drilling. These gyro surveys were used to plot the drill holes. All UG RC and DD is surveyed using north-seeking gyroscope.* • *Aerial Photogrammetry± LIDAR was produced by Fugro Surveys (±0.2m vertical & ±0.1m horizontal). Survey control points were marked out by licensed surveyor for the Fugro Survey. An error was noted in early RC drilling collar RL co-ordinates (ellipsoid not geoid model); these holes were adjusted to the Fugro DTM surface RL and recorded as DTM RL in the SQL database; the original survey RL was retained. Otherwise there was good agreement of surveyed collars and Fugro DTM.*
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• *RC drilling was conducted at nominal 40m x 40m to 10m x 10m spacing.* • *Thus far the drill spacing has been sufficient to establish geological and grade continuity.* • *None of the reported sample intervals were composited. In previous resource estimates some >1m RC assay composites were used. A small number of core composites were retained with a length of less than 1m (minimum 0.3m).*
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.*	• *Geological mapping and structural measurements have been taken from the Bartons deposit and largely confirms the interpreted orientation of mineralisation as defined by the drilling. Based upon the above information the drilling was largely perpendicular to the mineralisation.* • *No significant orientation bias has been identified in the data at this point.*
Sample security	• *The measures taken to ensure sample security.*	• *Samples were given an ID, cross checked by field personnel that they corresponded to the assigned interval. Samples were collected on completion of each hole and delivered to the onsite assay laboratory for dispatch to Perth. Monitoring of sample dispatch is undertaken for samples sent from site and to*

Criteria	JORC Code Explanation	Commentary
		confirm that samples have arrived in their entirety and intact at their destination. • *Sample security is managed with dispatch dates noted for each samples by the technician, this is checked and confirmed at the Perth laboratory on receipt of samples and discrepancies are corrected via telephone link up with the on-site and Perth laboratories.*
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data reviews.*	• *Internal lab audits conducted by Millennium have shown no material issues.*

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.*	• *Bartons deposit lie within fully granted Mining Leases within the Pilbara Gold Field (46), as detailed below. All the tenements are in good standing with no known impediments.* • *Bartons* - M46/3, M46/441⁺ & M46/164 (100% MML);* **These tenements are located within the Njamal title claim (WC99/8).*
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• *Exploration by other parties has been reviewed and taken into account when exploring. Previous RAB & RC drilling. Millennium has re-drilled in areas that other parties had drilled to gain a greater confidence in those results.*
Geology	• *Deposit type, geological setting and style of mineralisation.*	• *The Nullagine Project deposits are structurally controlled, sediment-hosted, lode gold style deposits. They are all situated in the Mosquito Creek Basin that consists predominantly of Archean aged, turbidite sequences of sandstones, siltstones, shales and conglomerates.*

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.*
		• *Provided in a table that relates exploration results to the drill hole information including: hole co-ordinates, RL, dip, azimuth, end of hole depth, downhole length and interception depths.*
		• *All of the current drilling with results returned has been reported.*

Criteria	JORC Code Explanation	Commentary
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• *All of the exploration prospects have their significant intersections reported with a lower cut-off of 0.5g/t Au and maximum of two consecutive metres of internal dilution. Higher grade intersections use a lower cut-off of 5g/t Au and maximum of two consecutive metres internal dilution.* • *All RC samples reported were one metre in length. Weighted average grade aggregation methods were used to derive the diamond core intersections.* • *No metal equivalents were 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 (e.g. 'down hole length, true width not known').*	• *Only selected historic exploration data related to the included targets and prospects are presented.* • *Most of the drilling is perpendicular to the mineralisation; however, in early exploration the dip direction is sometimes uncertain and thus holes some holes can be drilled sub-parallel to the mineralisation producing longer and higher-grade intersection than the true intercept. Quoted widths are down-hole widths. True-widths are likely to be approximately 60-90% of down-hole widths.* • *The drill hole orientations relative to the ore zones have ensured accurate interpretations and 3D modelling.*
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.*	• *Significant exploration results are tabulated in the release with drill hole plans to show them in context.* • *Representative maps have been included in the report along with documentation.*
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• *All of the current drill results have been reported for the project.*
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• *The outcrops of quartz veins have been previously mapped at Bartons. The mineralisation at Bartons is primarily associated with a combination of quartz veining, moderate foliation, strong sericite alteration and strong limonite staining or pyrite-arsenopyrite content.*
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• *These results will be incorporated into an updated MRE and subsequently an updated underground stope optimisation will be carried. Further drilling may be planned to test mineralisation that is open at depth to scope out additional underground potential.*