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# **Red Mulga Exploration Update**

**Terrain Minerals Limited (ASX: TMX)** Red Mulga project occurs within Yilgarn Craton and lies within the boundaries of Yallalong station some 170km NNE of Geraldton in the Murchison region of Western Australia. Exploration leases E09/2246 & 2247 have recently been granted and other lease applications are pending.

A field trip was undertaken in December 2017 to undertake work on exploration targets identified in the first reconnaissance program of October 2017. This Second phase of mapping, rock chip and soil sampling confirmed that the model of mineralisation postulated to occur following analysis of the initial field evaluation is valid. Three key areas have been highlighted for further exploration with planning for drilling now underway.

#### **Identified Drill Targets:**

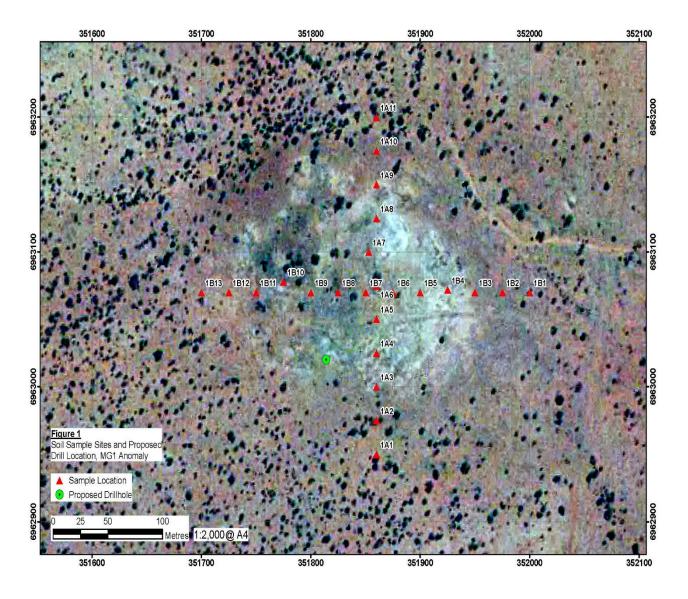
- MG1 & MG2 Ultramafic Anomalies Two pipe-like ultramafic intrusions about 200 metres
  in diameter located in the southwest of the project. The intrusions contain what are
  considered to be anomalous cobalt, nickel and chrome geochemical results. Highly
  weathered remnants of the original ultramafic rocks outcrop near the centre of one of the
  intrusions. These rocks have an intense boxwork texture, possibly after sulphides or a microbreccia.
- 2. **Thumbo Epithermal Vein -** An east-west trending epithermal vein of 0.5 to 2m width which extends for over 2km through the central part of the project. A 300m section of this vein has been shown to contain elevated gold, silver, copper and lead geochemistry.
- 3. **Northeast Epithermal Veins** A northeast trending epithermal vein swarm in the northeast of the project area has been identified. Some of the larger veins contain anomalous antimony (up to 228ppm) with minor silver (over 0.5g/t).



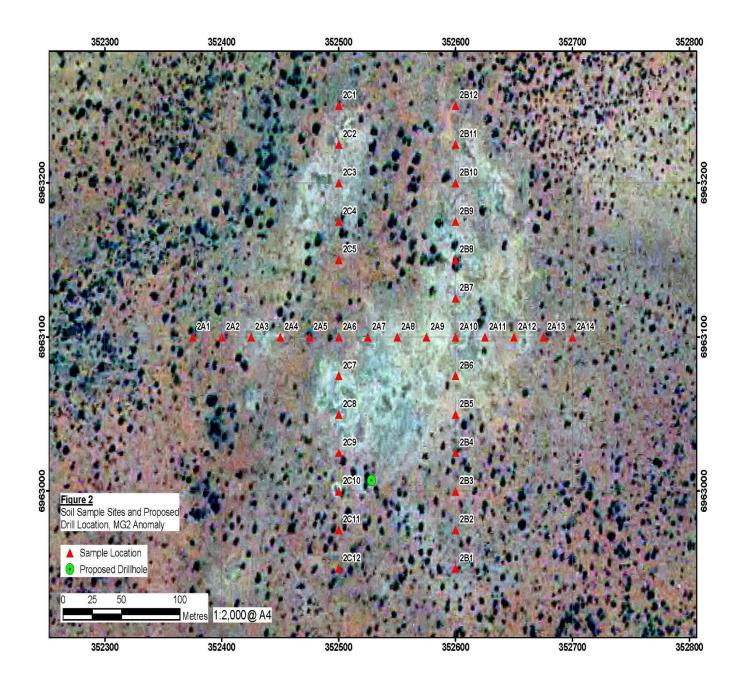
### 1. MG1 & MG2 Ultramafic Anomalies

Soil samples taken over the MG1 and MG2 anomalies in the December programme have confirmed that they are likely to be circular ultramafic pipe-like structures. The samples contain geochemically anomalous cobalt, nickel & chrome (Figures 1 & 2). The highly weathered ultramafic rocks have formed silcrete which outcrops within the anomalous areas, particularly at MG1. These silcretes have a complex boxwork texture which is thought to represent either sulphides or clasts of micro-breccia that have weathered out of the ultramafic rocks. Refer figure 1 & 2.

Further exploration work to test the two identified anomalies is required. Drilling has been predicated on the premise that parts of the pipe-like structures may contain massive nickel sulphides below the weathered cap.





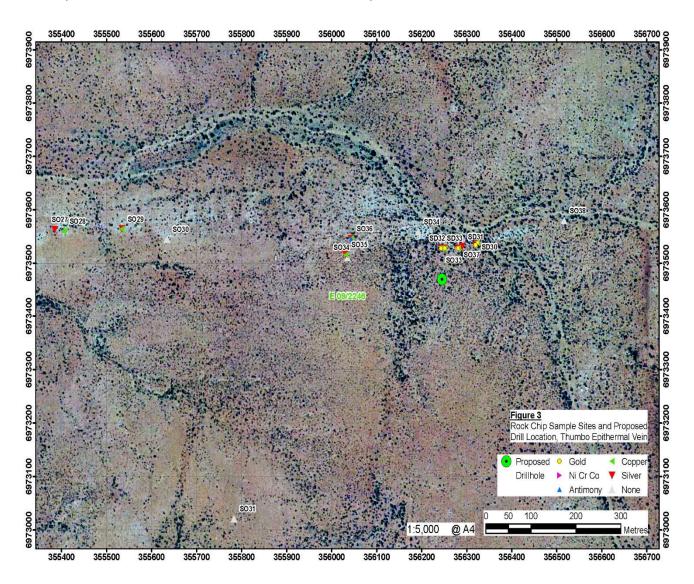




## 2. Thumbo Epithermal Vein

An east-west trending epithermal vein extends for at least  $2 \, \text{km}$  to the east of Thumbo Well (Figure 3). In the first phase of work the 300m long section of the vein was found to be moderately mineralised. This was confirmed in the recent round of follow-up sampling with maximum assay results including copper ( $<812 \, \text{ppm}$ ), lead ( $<636 \, \text{ppm}$ ), gold ( $<105 \, \text{ppb}$ ) and silver ( $<.94 \, \text{g/t}$ ). Lithium was also slightly anomalous in the same samples with values up to  $67 \, \text{ppm}$  recorded. Given the deep weathering of the outcrops in the area, these results are considered to be significant. Refer to figure  $3 \, \text{\& 4}$  below.

Drilling has been recommended to intersect the mineralised portion of the Thumbo vein below the weathering profile. The drill hole will test the unweathered portion of the vein, multiple minerals are expected to be intersected withinin the chalcedonic quartz.





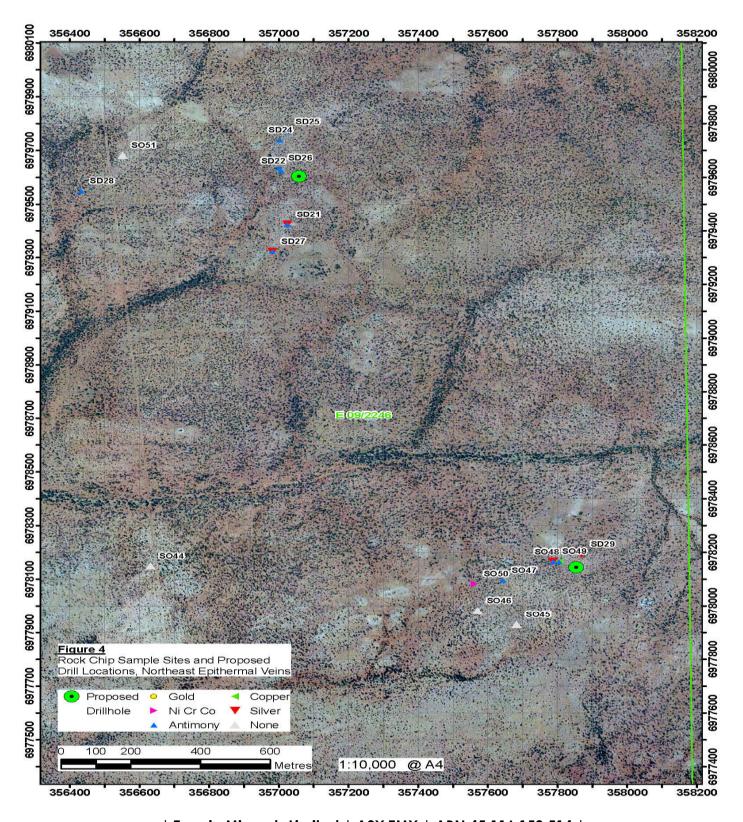
## 3. Northeast Epithermal Veins

A northeast-trending swarm of epithermal veins in the northern part of the project area (Figure 4) are confirmed to carrying anomalous antimony (<228ppm). Lithium was also anomalous in the samples at modest levels (<116ppm). Silver also returned positive results (<0.42g/t) in a few of the samples. The northeast trending epithermal veins are thought to be part of a younger set than the east-west trending vein set. They have suffered less erosion and the mineral assemblage is considered to be more typical of the upper parts of an epithermal system.

Two of the mineralised veins are particularly persistent and mineralised. A single drill hole into each of the veins has been recommended to test mineralisation at depth.

Refer to Figure 4 on the following page:







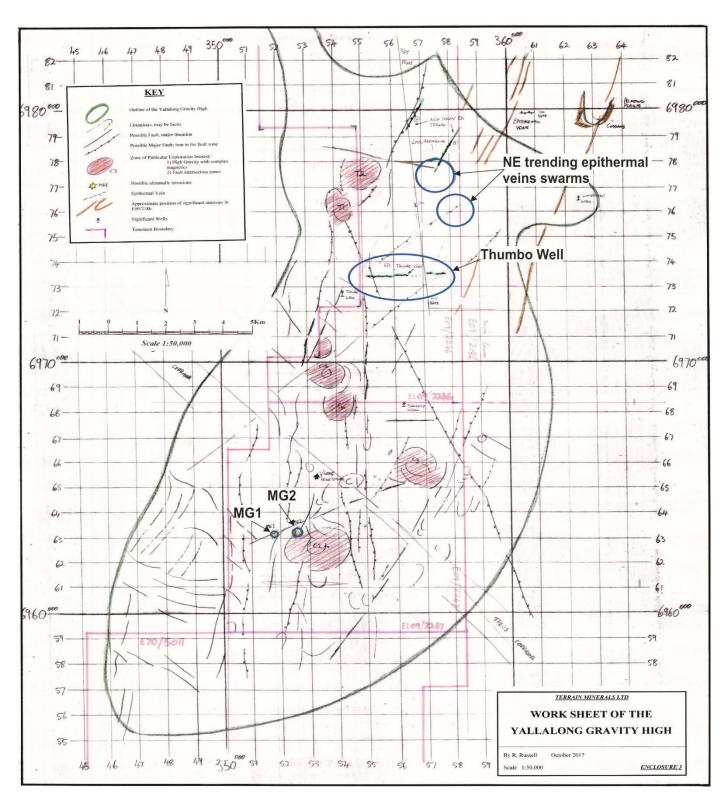


Figure 5. Red Mulga Field Map & Key Areas





**Photograph 1:** The silcretised outcrops of the ultramafic rocks at the centre of the MG1 anomaly have a fibrous boxwork texture which may be derived from a massive sulphide or micro-breccia in the original rock.





**Photograph 2:** Magnesite (foreground) forms an apron around outcrops of highly altered ultramafic units in the background at the MG1 anomaly.





**Photograph 3:** Chalcedonic quartz in the Thumbo epithermal vein. The characteristic 'dogs tooth' intergrowth of crystals is common along the trend.





**Photograph 4:** Mineralised quartz from the Thumbo epithermal vein at rock chip sample site SO33. This sample returned 551ppm Cu (although much of the copper was lost during sampling), over 2000ppm Pb, 0.9g/t Ag and 84ppb Au.



Justin Virgin

**Executive Director** 

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### **ABOUT TERRAIN MINERALS LIMITED:**

Terrain Minerals Limited (ASX:TMX) is a minerals exploration company with a Western Australian based asset portfolio consisting of:

- **Great Western** 100% TMX (Au)- near term development opportunity, resource estimation and economic study have shown positive outcomes. Work is now underway to prepare data and work towards getting all mining approvals;
- **Great Western advancement process** is underway with multiple groups who have registered interest in Great Western. These groups have indicated various agendas that included full or partial sale, joint venture and funding arrangements. The board will consider all proposals and has not ruled out mining Great Western itself and continuing regional exploration to add to its gold inventory.
- **Red Mulga** Red Mulga project is situated ~170km NNE of Geraldton in the Yilgarn Craton, Western Australia's Murchison region located on Yallalong station. Several filed trips of mapping, rock chip and soil sampling confirmed that the model of mineralisation established from the initial field evaluation and sampling in October 2017 is valid and this under explored area has the potential for base metals. Planning for drilling on identified targets is now underway.
- **Project Review:** Terrain Minerals is currently searching and has been assessing potential projects: Gold, Cobalt/copper Lithium and industrial minerals in Australia, Africa, North America and Asia also including other regions. Several jurisdictions of interest have now been identified. All economic commodities are being considered as indicated in previous Quarterly reports.

### **Competent Person Statement:**

Dr Richard Russell PhD, MAusIMM. - Principal, R. Russell and Associates Pty Ltd.

This report has been prepared in accordance with the JORC 2012 code which is binding upon Members of the Australasian Institute of Mining and Metallurgy (AusIMM). It has been prepared by J. Richard Russell, principal of R. Russell and Associates who is a Member of the AusIMM and a qualified geologist with over 30 years' experience in mineral exploration.

Neither the writer, nor any of his associates or employees have any interest either direct, indirect or contingent in the Red Mulga Project. The writer has worked on the Red Mulga project for normal professional daily rates plus reimbursement of incidental expenses. These payments are not contingent on the outcome of this report.



#### Disclaimer:

Information included in this release constitutes forward looking statements. Often, but not always, forward looking statements can generally be identified by the use of forward looking words such as "may", "will", "expect", "intend", "plan", "estimate", "anticipate", "continue" and "guidance" or other similar words, and may include, without limitation, statements regarding plans, strategies and objectives of management, anticipated production or construction commencement dates and expected costs or production outputs.

Forward looking statements inherently involve known and unknown risks, uncertainties and other factors that may cause the company's actual results, performance and achievements to differ materially from any future results, performance or achievements. Relevant factors may include, but are not limited to, changes in commodity prices, foreign exchange fluctuations and general economic conditions, increased costs and demand for production inputs, the speculative nature of exploration and project development, including the risks of obtaining necessary licences and permits and diminishing quantities or grades of reserves, political and social risks, changes to the regulatory framework within which the company operates or may in the future operate environmental conditions including extreme weather conditions, staffing and litigation

Forward looking statements are based on the company and its management's assumptions made in good faith relating to the financial, market, regulatory and other relevant environments that exist and effect the company's business operations in the future. Readers are cautioned not to place undue reliance on forward looking statements.

Forward looking statements are only current and relevant for the date of issue. Subject to any continuing obligations under applicable law or any relevant stock exchange listing rules, in providing this information the company does not undertake any obligation to publicly update or revise any of the forward looking statements or advise of any change in events, conditions or circumstances ono which such statement is based.

Table 2. Summary of Rock Chips Sample Assay Results, Red Mulga Project. (PPM unless otherwise stated)

Sample No.	Easting	Northing	Со	Cr	Ni	Cu	Li	Nb	Pb	Sb	U	w	Zn	Au (ppb)	Au(R) (ppb)
SO1	351817	6963035	62.7	3510	907	12	3.7	0.9	16	0.4	6.47	0.6	96	-	-
SO2	351810	6963034	23.5	160	104	18	2.5	1.4	4	0.2	0.91	0.4	17	-	-
SO3	351821	6963077	77.1	3000	866	9	2.7	0.7	3	0.1	2.95	0.4	85	-	-
SO4	351801	6963086	3	40	36	4	2	3.4	25	0.3	2.55	0.5	8	-	-
SO5	351792	6963098	76.9	3130	949	6	4.1	0.7	3	0.2	1.3	0.3	96	-	-
SO6	351760	6963053	113	3340	1330	4	1.3	0.4	2	0.4	4.38	0.7	113	-	-
SO7	351791	6963123	127	4110	1470	6	4.2	0.4	4	0.1	2.24	0.3	70	-	-
SO8	351884	6963107	75.5	2910	740	4	6.3	1.1	3	0.1	6.09	0.2	98	-	-
SO9	352506	6963039	-	-	-	-	-	-	-	-	-	-	-	2	-
SO10	353361	6962540	6	45	35	32	10.7	2.4	16	0.1	3.71	0.4	20	-	-
SO11	352350	6962410	-	-	-	-	-	-	-	-	-	-	-	7	-
SO12	352207	6962004	47	230	107	109	19.4	7.7	3	0.2	0.38	1	78	3	-



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SO13	352223	6961996	4.5	15	12	12	9.8	6.9	15	0.4	3.29	0.7	22	3	-
SO14	352196	6961973	28	125	64	70	23.6	5.5	15	0.3	0.92	0.6	62	67	-
SO15	352645	6962000	2	15	6	6	2.7	0.3	7	<0.1	0.19	<0.1	8	1	-
SO16	352629	6963153	-	-	-	-	-	-	-	-	-	-	-	<1	-
SO17	352621	6963218	4.3	35	24	21	2.6	0.3	12	<0.1	4.36	0.3	18	-	-
SO18	352632	6963086	6.7	25	23	24	1.9	0.3	9	<0.1	3.94	0.3	14	-	-
SO19	352567	6963042	-	-	-	-	-	-	-	-	-	-	-	192	196
SO20	352567	6963048	14.7	75	52	33	20.9	4	11	0.1	2.55	0.7	53	-	-
SO21	353932	6969752	11	10	15	22	5.3	9.3	17	0.2	7.98	0.9	32	3	-
SO22	358408	6972423	-	-	-	-	-	-	-	-	-	-	-	10	1
SO23	358303	6972325	-	-	-	-	-	-	-	-	-	-	-	12	-
SO24	356993	6974213	-	-	-	-	-	-	-	-	-	-	-	1	-
SO25	356737	6974396	0.6	<10	3	6	12	0.2	120	<0.1	0.33	<0.1	<5	2	1
SO26	356776	6974415	0.7	<10	<2	3	15.5	0.1	22	0.2	0.2	<0.1	7	<1	-
SO27	355385	6973563	1	<10	<2	75	16.9	0.1	194	0.2	1.61	<0.1	6	6	-
SO28	355405	6973560	0.7	<10	<2	175	32.4	0.3	126	0.5	4.62	<0.1	16	5	-
SO29	355534	6973564	0.9	10	3	313	24.3	0.4	441	3.3	13.1	0.3	10	8	-
SO30	355634	6973545	0.8	<10	2	26	9.4	0.2	11	1.1	7.99	<0.1	10	<1	-
SO31	355783	6973021	-	-	-	-	-	-	-	-	-	-	-	3	-
SO32	354196	6972895	-	-	-	-	-	-	-	-	-	-	-	<1	-
SO33	356281	6973528	0.5	<10	3	551	28.8	0.4	>2000	1.1	1.49	<0.1	91	84	-
SO34	356035	6973511	3	<10	13	26	4.3	10.9	63	1.5	4.15	0.6	17	2	-
SO35	356031	6973516	6.7	10	29	113	32.6	0.9	110	5.4	11.2	<0.1	34	2	-
SO36	356043	6973546	16	15	47	191	13.3	1.7	146	22.9	14.7	0.7	95	6	-
SO37	356324	6973538	0.3	<10	2	768	44.6	<0.1	20	0.4	0.35	0.9	<5	24	-
SO38	356516	6973580	-	-	-	-	-	-	-	-	-	-	-	2	-
SO39	357192	6973602	-	-	-	-	-	-	-	-	-	-	-	2	-
SO40	357800	6973625	-	-	-	-	-	-	-	-	-	-	-	<1	-
SO41	346494	6952052	-	-	-	-	-	-	-	-	-	-	-	<1	-
SO42	346348	6949320	-	-	-	-	-	-	-	-	-	-	-	<1	-
SO43	351521	6949292	-	-	-	-	-	-	-	-	-	-	-	<1	1
SO44	356631	6978150	-	-	-	-	-	-	-	-	-	-	-	1	-
SO45	357683	6977931	-	-	-	-	-	-	-	-	-	-	-	<1	-
SO46	357571	6977983	-	-	-	-	-	-	-	-	-	-	-	3	-
SO47	357643	6978096	0.7	<10	4	34	46.9	1.2	31	48.4	7.49	0.6	<5	<1	-
SO48	357804	6978165	1.6	<10	4	115	31.2	0.9	32	129	5.56	1.8	13	<1	-
SO49	357787	6978167	0.5	<10	2	34	28.9	0.5	15	102	1.06	0.3	<5	<1	-
SO50	357562	6978083	25.6	1170	333	56	7.4	1.2	50	3.5	0.53	0.1	68	-	-



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SO51	356551	6979682	2.1	65	17	19	41.9	2.5	70	13.8	1.08	2	9	<1	2
SD1	353233	6961095	1.5	10	5	79	9.4	0.2	3	0.2	0.69	0.1	<5	1	2
SD2	353223	6961088	1.5	20	4	33	4	0.2	8	0.6	1.19	0.2	<5	2	ı
SD3	353506	6961135	0.6	<10	4	7	8.3	0.3	4	0.1	0.28	<0.1	<5	<1	-
SD4	353074	6961153	0.5	<10	2	4	15.8	<0.1	2	0.1	0.09	<0.1	<5	<1	-
SD5	352641	6961100	0.6	10	4	10	24.9	0.1	5	0.1	0.1	<0.1	<5	3	1
SD6	353215	6961090	0.8	15	3	13	10.8	0.1	6	0.2	0.29	<0.1	<5	<1	-
SD12	352572	6963048	1.2	<10	3	35	3.5	3.1	52	<0.1	0.76	0.4	7	2	-
SD13	352567	6963048	4	<10	13	12	9.6	2.8	51	0.1	2	0.3	33	1	-
SD14	352561	6963044	33.3	140	68	64	11.8	4.9	14	0.4	1.17	0.4	82	6	-
SD15	351876	6962860	1.2	<10	5	11	15.8	0.3	4	0.3	0.25	<0.1	15	<1	-
SD19	355970	6979395	3.6	15	9	7	44.2	0.2	23	2.4	0.5	<0.1	12	<1	-
SD20	355968	6979424	0.9	10	4	15	35.2	0.7	34	6.3	1	0.4	15	<1	-
SD21	357025	6979424	0.4	<10	3	10	33.6	<0.1	10	91	0.22	<0.1	<5	<1	-
SD22	357007	6979624	0.6	<10	2	9	44.8	<0.1	63	149	0.38	<0.1	<5	<1	-
SD23	356982	6980286	0.8	35	4	25	43.8	0.4	16	173	1.57	<0.1	12	<1	-
SD24	357002	6979739	0.4	<10	3	6	41.1	<0.1	38	69	0.51	0.1	7	3	1
SD25	357022	6979770	0.8	10	4	15	116	1.1	9	34.6	1.29	0.4	10	<1	-
SD26	357001	6979636	0.5	25	3	7	19	0.1	6	216	0.28	<0.1	<5	5	1
SD27	356981	6979323	1.8	10	3	32	47.7	<0.1	453	228	65.1	<0.1	10	1	-
SD28	356432	6979550	0.8	10	3	32	42.3	<0.1	8	44.1	1.32	<0.1	<5	<1	-
SD29	357869	6978194	1.2	25	7	119	49.5	0.1	61	32	12.8	2.1	<5	4	-
SD30	356320	6973534	0.4	<10	3	22	27.9	<0.1	340	9.8	0.28	0.2	17	105	67
SD31	356290	6973531	2.2	10	4	102	10.4	0.2	94	3.8	3.7	0.3	11	4	3
SD32	356251	6973528	1.9	35	23	397	37	0.4	455	2.3	12.6	0.2	37	27	20
SD33	356243	6973528	0.5	15	4	812	32.6	0.2	636	1	1.45	<0.1	100	20	42
SD34	356192	6973559	1.3	15	5	30	67.3	0.5	32	8.1	0.78	0.2	8	<1	-



Table 2A. Summary of Rock Chips Sample Assay Results, Red Mulga Project. (PPM unless otherwise stated)

Sample No.	Easting	Northing	Area	Geology	Rock Type
SO1	351817	6963035	Rockhole, Anomaly MG1	Ultramafic pipe	Iron Silcrete
SO2	351810	6963034		Calcrete apron	Magnesite, calcrete
SO3	351821	6963077		Ultramafic pipe	Iron Silcrete
SO4	351801	6963086		Dyke	Amphibolite/quartz
SO5	351792	6963098		Xenolith raft	Amphibolite
SO6	351760	6963053		Ultramafic pipe	Iron Silcrete
SO7	351791	6963123		Ultramafic pipe	High Ni, Fe, Iron Silcrete
SO8	351884	6963107		Calcrete apron	High Mg and Cr in Calcrete
SO9	352506	6963039	Rockhole, Anomaly MG2	Calcrete	Magnesite, calcrete
SO10	353361	6962540	Hooley/Rockhole fenceline	Calcrete	Magnesite, calcrete
SO11	352350	6962410	S of MG1 and 2	Quartz schist	Fuchsite in schist
SO12	352207	6962004	Mafic Dyke S of MG1 and 2	Dyke	Porphyritic dolerite
SO13	352223	6961996		Enriched margin of dyke	Quartz, pitted
SO14	352196	6961973		Enriched margin of dyke	Dolerite, felsic breccia
SO15	352645	6962000		Enriched margin of dyke	Quartz, pitted
SO16	352629	6963153	Rockhole, Anomaly MG2	U/m pipe or dyke	Iron Silcrete
SO17	352621	6963218		U/m pipe or dyke	Iron Silcrete, red
SO18	352632	6963086		U/m pipe or dyke	Iron Silcrete, boxwork
SO19	352567	6963042		Xenolith or inclusion in intrusion	Quartz-mica and feldspar schist
SO20	352567	6963048		Calcrete apron	Magnesite, calcrete
SO21	353932		NW Thumbo	Mafic sill, calcrete	Amphibolite
SO22	358408	6972423	New Forest, N of Burges (off lease)	Mafic/ultramafic sill	Silcrete porphyry?
SO23	358303	6972325		Mafic sill	Silcrete xenoliths in sill
SO24	356993	6974213	Bdy Fence, N of Battery Corner	Granite gneiss	Kaolinised cap
SO25	356737	6974396	N Thumbo	Epithermal quartz vein	Quartz, sulphide pitting
SO26	356776	6974415		Epithermal quartz vein	Quartz, sulphide pitting
SO27	355385	6973563	Thumbo	Thumbo Epithermal quartz vein (west)	Quartz, sulphide pitting
SO28	355405	6973560			
SO29	355534	6973564			
SO30	355634	6973545			
SO31	355783	6973021		Narrow epithermal vein	Banded epithermal quartz
SO32	354196	6972895		Altered beds in granite gneiss schist	Calcrete, barite (off lease)
SO33	356281	6973528	Thumbo East	Thumbo Epithermal quartz vein (east)	Quartz, pitted, visible Cu and Pb



SO34	356035	6973511		Enriched felsics on S side of vein	Altered granite gneiss
SO35	356031	6973516		Thumbo Epithermal quartz vein (east)	Quartz, sulphide pitting
SO36	356043	6973546			Goethite breccia in E-W fault zone
SO37	356324	6973538			Cu staining in xtaline quartz
SO38	356516	6973580			East end of main vein
SO39	357192	6973602	New Forest, W of Thumbo	Thumbo Epithermal quartz vein (far east in New Forest)	Epithermal quartz
SO40	357800				
SO41	346494	6952052	SW of leases (off lease)	Banded iron, hematite	Hematite
SO42	346348	6949320		Quartz vein	Quartz, sulphide pitting
SO43	351521	6949292		Iron gneiss, hematite	Hematite
SO44	356631	6978150	Bdy Fence, Noogawa	Quartz vein	Quartz, sulphide pitting
SO45	357683	6977931	New Forest adjacent to Noogawa	Epithermal quartz veins	Banded epithermal quartz
SO46	357571	6977983			Banded epithermal quartz
SO47	357643	6978096			Epithermal quartz, pitted
SO48	357804	6978165			Quartz, green drusty
SO49	357787	6978167			Banded epithermal quartz
SO50	357562	6978083		Amphibolite pod	Fuchsite, S side of o/c
SO51	356551	6979682	New Forest, near Bdy Fence	Epithermal quartz vein	Mineralised granitoids adj to vein
SD1	353233	6961095	Southern part of E09/2247	East-west epithermal vein south of MG1 and MG2	Epithermal quartz (crypto-crystalline chalcedony, chevron quartz crystals)
SD2	353223	6961088			
SD3	353506	6961135			
SD4	353074	6961153			
SD5	352641	6961100			
SD6	353215	6961090			
SD12	352572	6963048	South eastern part of MG2	Mafic/felsic schist sequence enclosed by calcretes	Quartz-mica schist S310° d70°N
SD13	352567	6963048			Felsic schist, may be meta-diorite
SD14	352561	6963044			Mafic schist
SD15	351876	6962860	500m S of MG1	Quartz vein	Quartz, pitted after sulphides
SD19	355970	6979395	Northern E09/2246	North-south trending epithermal quartz vein	Epithermal quartz
SD20	355968	6979424			Epithermal quartz, W edge of vein
SD21	357025	6979424	Northeastern E09/2246	Northeast trending epithermal vein swarm. Various veins.	Gy-Bk epithermal quartz
SD22	357007	6979624			Gy-Bk epithermal quartz
SD23	356982	6980286			White epithermal quartz
SD24	357002	6979739			Black epithermal quartz
SD25	357022	6979770			Discoloured epithermal quartz



SD26	357001	6979636			Dk Gy epithermal quartz
SD27	356981	6979323			Discoloured epithermal quartz
SD28	356432	6979550			Discoloured quartz, W of fence
SD29	357869	6978194		Far north vein	Black epithermal quartz; inclusion?
SD30	356320	6973534	East of Thumbo Well, Central E09/2246	White epithermal quartz vein S080° d70°S	Rd epithermal quartz
SD31	356290	6973531			Discoloured epithermal quartz
SD32	356251	6973528			
SD33	356243	6973528			Epithermal quartz, trace Cu
SD34	356192	6973559			Epithermal quartz, pits after sulphides

**Table 3** Summary Results, December Soil Samples from Anomalies MG1 and MG2, Red Mulga Project (ppm unless otherwise shown)

Sampl e No.	Easting	Northing	Со	Cr	Ni	Cu	Li	Nb	Pb	Sb	U	w	Zn	Au (ppb )	Au(R , ppb)
1A01	351860	6962950	7.6	65	27	48	11.8	4.3	40	0.4	2.2 6	0.2	33	<1	-
1A02	351860	6962975	9.3	90	39	29	10.8	2.3	19	0.3	2.1	<0. 1	32	<1	-
1A03	351860	6963000	14.4	135	93	44	12.7	5	17	0.3	1.9 5	0.4	56	<1	-
1A04	351860	6963025	20.7	220	163	28	14.6	5.5	14	0.3	1.5 1	0.5	61	1	-
1A05	351860	6963050	11.6	185	78	25	13.5	5	16	0.2	1.3 3	0.5	45	<1	-
1A06	351860	6963075	15.4	320	141	18	16.7	4.5	19	0.2	1.4 1	0.4	48	<1	-
1A07	351853	6963100	19.7	400	195	17	15	4.3	18	0.2	1.3 8	0.6	49	<1	-
1A08	351860	6963125	18.6	360	191	18	13.4	3.5	15	0.2	2.0 5	0.4	44	1	-
1A09	351860	6963150	26.7	415	293	30	21.6	4.1	20	0.2	2.1 3	0.3	58	<1	-
1A10	351860	6963175	20.5	245	169	29	18.9	8.1	24	0.3	2.7 5	0.5	50	<1	-
1A11	351860	6963200	13.6	145	84	26	20.7	8.3	26	0.3	2.7	0.5	48	<1	-
1B01	352000	6963070	9.3	95	44	22	13.3	3.2	26	0.2	2.4 7	0.1	34	<1	-
1B02	351975	6963070	8.4	120	46	21	12.2	9.4	24	0.4	2.5 5	0.8	32	<1	-
1B03	351950	6963070	14	200	112	28	21.8	7.9	22	0.3	2.3 6	0.7	50	<1	<1
1B04	351925	6963072	17.5	190	151	30	15.8	4.9	13	0.2	1.7 7	0.5	65	1	-
1B05	351900	6963070	12.6	140	77	34	15.8	5.2	16	0.2	1.9 1	0.5	55	1	-
1B06	351875	6963070	12.5	215	103	17	13.9	4.3	17	0.2	1.4 1	0.4	43	<1	-



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1B07	351850	6963070	14.6	365	161	17	16.1	5.4	19	0.2	1	0.5	54	<1	-
1B08	351825	6963070	17	415	192	19	14.7	6.6	19	0.3	1.5 8	0.5	59	<1	-
1809	351800	6963070	16.3	315	151	23	14.2	5.8	17	0.2	1.5 5	0.5	57	<1	-
1B10	351775	6963078	23.5	505	266	25	17.7	5.7	19	0.3	1.4 7	0.5	62	4	2
1B11	351750	6963070	25.2	415	262	27	19.2	7.3	23	0.3	1.8 7	0.7	69	14	5
1B12	351725	6963070	25.2	310	156	38	24.9	9.4	23	0.3	2.3	0.8	63	<1	-
1B13	351700	6963070	14.2	140	79	39	20.1	8.3	24	0.3	2.2	0.9	52	<1	-
2A01	352375	6963100	9.8	110	40	27	14.3	8.6	28	0.3	2.8	0.7	43	<1	_
2A02	352400	6963100	16.7	135	63	42	27.4	11.7	26	0.4	3.2	1.1	70	<1	_
2A03	352425	6963100	21.8	170	79	39	24.3	6.4	20	0.2	2.8	0.5	62	<1	
2A04	352425	6963100	16.5	250	95	39	18.7	6.1	22	0.2	1.9 8	0.5	51	<1	-
		6963100									2.4				
2A05	352475	6963100	24.5	170	75	45	21.6	9.8	24	0.3	2.2	1	69	<1	-
2A06	352500	6963100	19.3	340	93	23	14.1	4.8	22	0.2	5 2.0	0.4	48	<1	-
2A07	352525	0903100	32.4	600	181	20	14.8	4.6	17	0.2	1	0.7	67	<1	-
2A08	352550	6963100	45.9	104 0	248	16	14.4	3.7	13	0.2	1.2 8	0.8	79	2	<1
2A09	352575	6963100	31.7	505	133	28	18.2	5.4	17	0.2	1.5 5	1.2	73	<1	-
2A10	352600	6963100	41.7	780	162	25	16.7	4.6	15	0.2	1.8 5	1.1	78	<1	-
2A11	352625	6963100	13	155	45	30	14.7	6.2	16	0.2	1.7 4	0.9	49	<1	-
2A12	352650	6963100	12.8	115	42	46	17	6.7	17	0.2	1.7 9	0.8	49	<1	-
2A13	352675	6963100	9.3	80	28	27	14	7.9	21	0.3	2.2 6	0.8	31	<1	-
2A14	352700	6963100	9.9	80	26	24	13.3	7.8	23	0.2	2.5 4	0.6	28	<1	-
2B01	352600	6962950	14.3	115	52	37	26.8	11.7	25	0.3	3.0 6	1.2	52	<1	_
2B02	352600	6962975	13.6	260	64	36	23.3	9.4	24	0.3	2.6	1.1	51	<1	_
2B03	352600	6963000	12.9	135	51	36	21.1	10.3	22	0.3	2.2	1.4	51	<1	_
2B03	352600	6963025	13.3	180	52	29	14.6	7.4	20	0.2	1.9 4	0.9	50	<1	_
	352600										2.2				
2B05	352600	6963050	22.6	225	85	46	28.1	10.8	23	0.3	1.7	1.4	77	<1	-
2B06	352600	6963075	22	150	63	39	15.8	6.8	17	0.2	1.7	1	71	<1	-
2B07	352600	6963125	15.1	230	61	28	13.5	4.8	17	0.2	5 1.8	1.1	47	<1	-
2B08		6963150	8.9	115	39	22	13.3	5.4	18	0.2	9	0.8	41	<1	-
2B09	352600	6963175	12.2	135	49	32	12.8	4.8	19	0.2	7	0.8	59	<1	-



2B10	352600	6963200	17.9	235	112	35	15.8	4.8	18	0.2	2.1	0.8	65	2	-
2B11	352600	6963225	12.6	110	48	38	17.4	7.7	20	0.2	2.9 1	1	63	<1	-
2B12	352600	6963250	12.3	105	54	41	25.3	10.6	25	0.3	3.1	1.4	66	<1	-
2C01	352500	6963250	8.8	90	35	26	14.8	8.1	25	0.2	2.4	0.7	37	<1	-
2C02	352500	6963225	17.6	130	61	32	15.7	7.3	20	0.2	3.1 7	0.7	53	<1	-
2C03	352500	6963200	21.7	235	103	34	17.7	5.1	20	0.2	1.9 9	0.6	62	<1	-
2C04	352500	6963175	18.6	205	78	40	16.7	7.1	23	0.2	2.0 3	0.5	59	<1	-
2C05	352500	6963150	20.1	175	82	52	24.2	10.1	25	0.3	2.1	1	73	<1	-
2C06	352500	6965125	21.4	220	80	43	22.5	11	25	0.3	2.7 8	1.3	66	<1	-
2C07	352500	6963075	26.7	580	140	25	17.4	5.7	19	0.2	2.0 2	0.9	72	<1	-
2C08	352500	6963050	36.9	835	213	18	20	5	13	0.2	1.8 1	1	91	2	-
2C09	352500	6963025	23.3	485	127	26	27.7	7.2	21	0.3	1.9 9	0.9	59	1	-
2C10	352500	6963000	22.1	380	126	25	23.8	6.5	18	0.3	1.8 1	0.8	64	2	-
2C11	352500	6962975	16.6	190	66	45	24.1	8.5	21	0.3	1.6 7	1.1	56	1	2
2C12	352500	6962950	LNR	LNR	LN R	LNR	LNR	LNR	LN R	LNR	LNR	LNR	LNR	LNR	LNR

	Section 1: Sampling Tech	niques and Data
Criteria	JORC Code Explanation	Commentary
Sampling Technique	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 downhole 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.	Samples were collected at surface by hand from outcrop believed to be residual. Samples are considered to be representative of the outcrops. A 1-2kg sample was collected by a geologist and were submitted to the laboratory for crushing and pulverisation before analysis.



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Drilling	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).	N/A - No drilling – samples are from rock chips
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.	N/A - No drilling – samples are from rock chips
Logging	Whether core and chip samples have been geologically and geotechnical 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/Trench, channel, etc) photography.  The total length and percentage of the relevant intersections logged.	Rock chips were geologically (qualitatively) logged.
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 subsampling 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.	N/A - No drilling, samples are from rock chips
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 (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	Samples were analysed at SGS Laboratories Perth Airport, Western Australia.  Samples of 1-2kg were crushed and pulverised and assayed for base metals. Samples were selective and based on geological observations.  The analytical technique used was 49-element scan (ICP-MS, ICP40Q and IMS40Q) and gold fire assay (ICP-MS, FAM 404).  These techniques were considered a total digestion and analysis. Internal laboratory standards and duplicates reported within expected tolerances.  No major discrepancies with the results were identified from this work.
Verification of Sampling and Assaying	The verification of significant intersections by either independent or alternative company personnel. The use of twinned holes The verification of significant intersections by either independent or alternative company personnel. Discuss any adjustment to assay data	Results were verified by the field geologist and a representative of the company. Primary data was entered into excel spreadsheets. No adjustment has been made to the assay data.



Location of Data points	Accuracy and quality of surveys used to locate drill holes (collar and down- hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.  Specification of the grid system used Quality and adequacy of topographic control	Rock Chip positions were located using a hand-held GPS to an accuracy of ±5m. Field data were recorded in note books and then entered into a database.  The grid system used was MGA94, Zone 50.  Topography control is ±20m.
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.	All sample locations are shown in Table 2. The data cannot be used for mineral resource or reserve estimation. No data compositing has been applied.
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.	Samples were taken selectively and randomly wherever outcrop exposures of interest were noted.
Sample Security	The measures taken to ensure sample security.	All samples were collected by the Company's consultant and delivered directly by the consultant to the assay laboratory.
Audits or Reviews	The results of any audits or reviews of sampling techniques and data.	No independent audits or review has been undertaken at this stage. Sampling was consistent with industry standards.

Section 2 Reporting of Exploration Results		
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 Red Mulga Project comprises three tenement applications - EL 09/2246, E09/2247 now granted and E70/5011 & E09/2291 These are currently not granted. Native title advertising has commenced and waiting reply.
Exploration Done by Other Parties	Acknowledgment and appraisal of exploration by other parties.	No historic exploration for base metals has been identified to date.
Geology	Deposit type, geological setting and style of mineralisation.	The Red Mulga Project is located in the northwestern margin of the Archaean Yilgarn Craton, comprising granite-gneiss and subordinate mafic rocks. The north-south trending Darling Fault lies to the west of the project area.
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	N/A - No drilling, samples are from rock chips



	<ul> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length</li> <li>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.</li> </ul>	
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.	No aggregation or 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 (eg 'down hole length, true width not known').	N/A - No drilling, samples are from rock chips
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.	Relevant diagrams are included in the main body of text.
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 results have been reported.
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.	No other meaningful or material exploration data to be reported at this stage.
Further Work	The nature and scale of planned further work (eg tests for lateral 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.	Field activities will include additional mapping and low impact sample taking rock chips & soil samples is recommended.