KALMAN DEPOSIT EXTENDED WITH SHALLOW COPPER-GOLD-MOLYBDENUM HITS

ASX RELEASE
15 February 2022

DIRECTORS / MANAGEMENT

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Non–Executive Director

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Mark Whittle
Chief Operating Officer

CAPITAL STRUCTURE

ASX Code: HMX

Share Price (14/02/2022)	$0.073
Shares on Issue	815m
Market Cap	$59m
Options Unlisted	27m
Performance Rights	8m

- Drilling at Kalman has intercepted broad zones of shallow copper/gold/molybdenum/rhenium mineralisation, extending the deposit to the north of the existing JORC resource. Significant intercepts include:
  - **50m* at 0.63% Cu and 0.49g/t Au, (0.79% CuEq†) from 20m** in K-144;
    - o **including 16m* at 1.38% Cu and 0.84g/t Au** (1.59% CuEq†) from 43m
  - **64m* at 0.23% Cu, 0.12% Mo, 0.10g/t Au, 2.97g/t Ag, and 2.64g/t Re (0.75% CuEq†) from 67m in K-143;**
    - o including 16m* at 0.19% Cu, 0.34% Mo, 0.08g/t Au, 8.84g/t Ag, and 8.59g/t Re (1.71% CuEq†) from 114m
  - **22m* at 0.82% Cu, 0.37g/t Au and 0.03% Mo (1.0% CuEq†) from 99m in K-145;**
    - o **Including 8m* at 1.41% Cu, 0.75g/t Au**, 0.08% Mo, 1.5g/t Ag, and 1.7g/t Re (1.88% CuEq†) from 99m.
- **The most recent JORC Mineral Resource estimate** on the Kalman deposit and reported to the ASX on 27 September 2016 **was 20Mt at 1.8% CuEq**.
- Follow up drilling to determine the extent of the mineralised zone and potentially increase the Kalman resource is planned.
- **Drilling continues at the Ajax prospect** where Hammer has intercepted **shallow copper bearing sulphide**. Initial analysis by portable XRF was completed with samples being submitted to the laboratory‡. Intercepts include:
  - **10m§ at 3.5% Cu from 25m in HMLVRC014*;with a maximum individual 1m PXRF analysis of 8.9% Cu** (see ASX Announcement 14 February 2022)

Hammer's Managing Director, Daniel Thomas said:

"Kalman remains Hammer's most advanced prospect and these results highlight the latent potential in immediate proximity to the project. Drilling has improved confidence in the defined JORC resource and has also opened up the deposit to the North at shallow depths, whilst the high-grade potential of the system remains open at depth and along strike to the South. In an environment of rising metal prices and with a surge in demand for new economy metals, Hammer is presented with an immediate opportunity to further explore Kalman focussing on increasing the potential economic return from this system.

Combined with continued exploration success near this deposit, the underlying potential of the Mount Isa Inlier region is finally garnering the investor and industry interest it deserves. Hammer is positioned for success through the advancement of our JORC compliant resources and our numerous exploration prospects during the coming year. Drilling continues at our prospects and within the Mount Isa East Joint Venture providing a solid stream of exploration news in the months ahead."

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* *True thicknesses are interpreted to be approximately 55-75% of the down-hole thicknesses.*
† "Recovered Copper Equivalent" – includes metallurgical recovery factors for each metal. *Detailed explanation of the assumptions and price underpinning the copper equivalent calculations are at the end of this document.*
‡ *These portable XRF results should be considered preliminary, and they will be subject to confirmation by subsequent laboratory analyses. The lab analyses may vary from those obtained by portable XRF.*
§ *True thicknesses cannot be ascertained as this is the first drillhole into the Ajax Prospect.*

- **Strong copper (US$10,220/t) and molybdenum prices (US$44,750/t)** present an opportunity to accelerate the assessment of potential development scenarios for Kalman as well as Hammer's Overlander and Jubilee deposits.
- **Further work is being commissioned to assess:**
    - potential opportunities related to ore sorting and metallurgical recoveries; and
    - investigate potential mining scenarios using updated commodity prices and costs.
- **The current drilling program includes several prospects with drilling at the Trafalgar trend within the Sumitomo Metal Mining Joint Venture** and at Hammer's 100% prospects at Orion, Neptune and Sunset. Assay results are expected to be received throughout March including results for recently completed rock and soil geochemical surveys
- Following the "Major Copper Discovery" by Carnaby Resources (ASX: CNB) at Nil Desperandum (~35km southwest of Kalman), **Hammer has instigated a geological review of its neighbouring tenements and targets including Revenue (~5km to the east of Nil Desperandum) and Overlander**
- An Induced Polarisation (IP) survey is scheduled for March/April. Targets being considered include: Kalman, Trafalgar, Shadow, Hammertime, Neptune, Revenue, St Mungo, Mt Mascotte and Saint Andrew.

Hammer Metals Ltd (**ASX:HMX**) ("**Hammer**" or the "**Company**") is pleased to release results from shallow reverse circulation drilling conducted on the northern margin of the Kalman Deposit.

Kalman Cu-Au-Mo-Re Deposit

The 100% HMX owned Kalman Deposit located 50km southeast of Mt Isa is one of the few polymetallic deposits in Queensland to contain significant molybdenum and rhenium in addition to copper and gold. With open pit and underground mining potential, the deposit remains open at depth and along strike.

The most recent Mineral Resource estimate conducted on the Kalman deposit and reported to the ASX on 27 September 2016 was 20Mt at 1.8% CuEq[#]. The resource remains open at depth.

Table 1. *Kalman JORC Resource Estimate (refer to ASX announcement dated 27 September 2016)*

Classification	Mining Method	CuEq Cut-Off	Mt	Cu Eq %	Cu %	Mo %	Au g/t	Ag g/t	Re g/t
Indicated	*Open Pit*	*0.75%*	7.1	1.5	0.48	0.12	0.27	1.4	2.9
Inferred	*Open Pit*	*0.75%*	6.2	1.6	0.44	0.15	0.24	1.5	3.9
Inferred	*Underground*	*1.40%*	7.0	2.4	0.89	0.16	0.5	2.9	4.5
	Total		**20.0**	**1.8**	**0.61**	**0.14**	**0.34**	**1.9**	**3.7**

Note
Numbers rounded to two significant figures. Totals may differ due to rounding

*Note that the CuEq calculation reported in 2015 is based on 2014 commodity prices - CuEq = Cu + (0.864268 * Au) + (0.011063 * Ag) + (4.741128 * Mo) + (0.064516 * Re)*
Copper Equivalent Price assumptions are: Cu: US$4,650/t; Au: US$1,250/oz; Ag: US$16/oz; Mo: US$10/lb; and Re: US$3,000/kg.

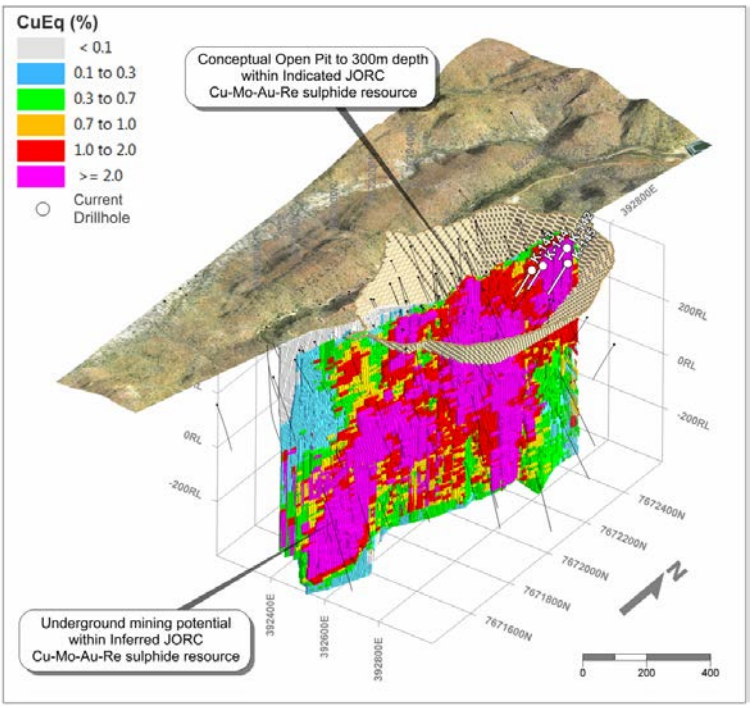

Figure 1. *Kalman oblique view looking northwest copper equivalent % blocks (Refer ASX announcement 27 September 2016)*

Kalman Drilling

Four RC holes for a total of 776m were drilled to test a poorly tested area at the northern end of the deposit. The successful delineation of near-surface mineralisation in this area has potential to materially upgrade the Kalman Resource. Hammer is currently reviewing options to conduct further drilling, targeting this lode along strike and at depth.

Significant intercepts include:

- 9m* at 0.65% Cu, 0.23% Mo, 0.27g/t Au, 12.09g/t Ag, and 4.82g/t Re (1.74% CuEq[†]) from 41m in K-142;
- 64m* at 0.23% Cu, 0.12% Mo, 0.10g/t Au, 2.97g/t Ag, and 2.64g/t Re (0.75% CuEq[†]) from 67m in K-143;
    - Including 16m* at 0.19% Cu, 0.34% Mo, 0.08g/t Au, 8.84g/t Ag, and 8.59g/t Re (1.71% CuEq[†]) from 114m in including 4m* at 0.66% Mo and 20.78g/t Re from 125m.
- 50m* at 0.63% Cu, 0.01% Mo, 0.49g/t Au, 0.53g/t Ag, and 0.08g/t Re (0.79g/t CuEq[†]) from 20m in K-144;
    - including 16m* at 1.38% Cu, 0.01% Mo, 0.84g/t Au, 0.62g/t Ag, and 0.04g/t Re (1.59% CuEq[†]) from 43m and 1m at 7.3g/t Au from 47m;
- 22m* at 0.82% Cu, 0.03% Mo, 0.37g/t Au, 0.8g/t Ag, and 0.63%Re (1.0% CuEq[†]) from 99m in K-145;
    - Including 8m* at 1.41% Cu, 0.08% Mo, 0.75g/t Au, 1.5g/t Ag, and 1.7g/t Re (1.88% CuEq[†]) from 99m; and
- 6m* at 0.4g/t Au, 1.3g/t Ag, 1.13% Cu, 0.13% Mo and 2.71g/t Re (1.73% CuEq[†]) from 161m in K-145.

Mineralisation intercepted at 99m in hole K-145 represents an extension of a mineralised lode approximately 100m to the North of the existing JORC resource blocks. Future drilling will aim to extend this zone of mineralisation which remains open at depth and to the North (Figure 2).

Similarly, a broad zone of mineralisation intercepted in hole K-144 potentially indicates the amalgamation of two interpreted mineral lenses (Figure 3). The previous resource model also constrained the eastern zone of mineralisation at depth below hole K-144. This also represents a zone for further resource definition at a shallow depth which would be amenable to future open pit mining.

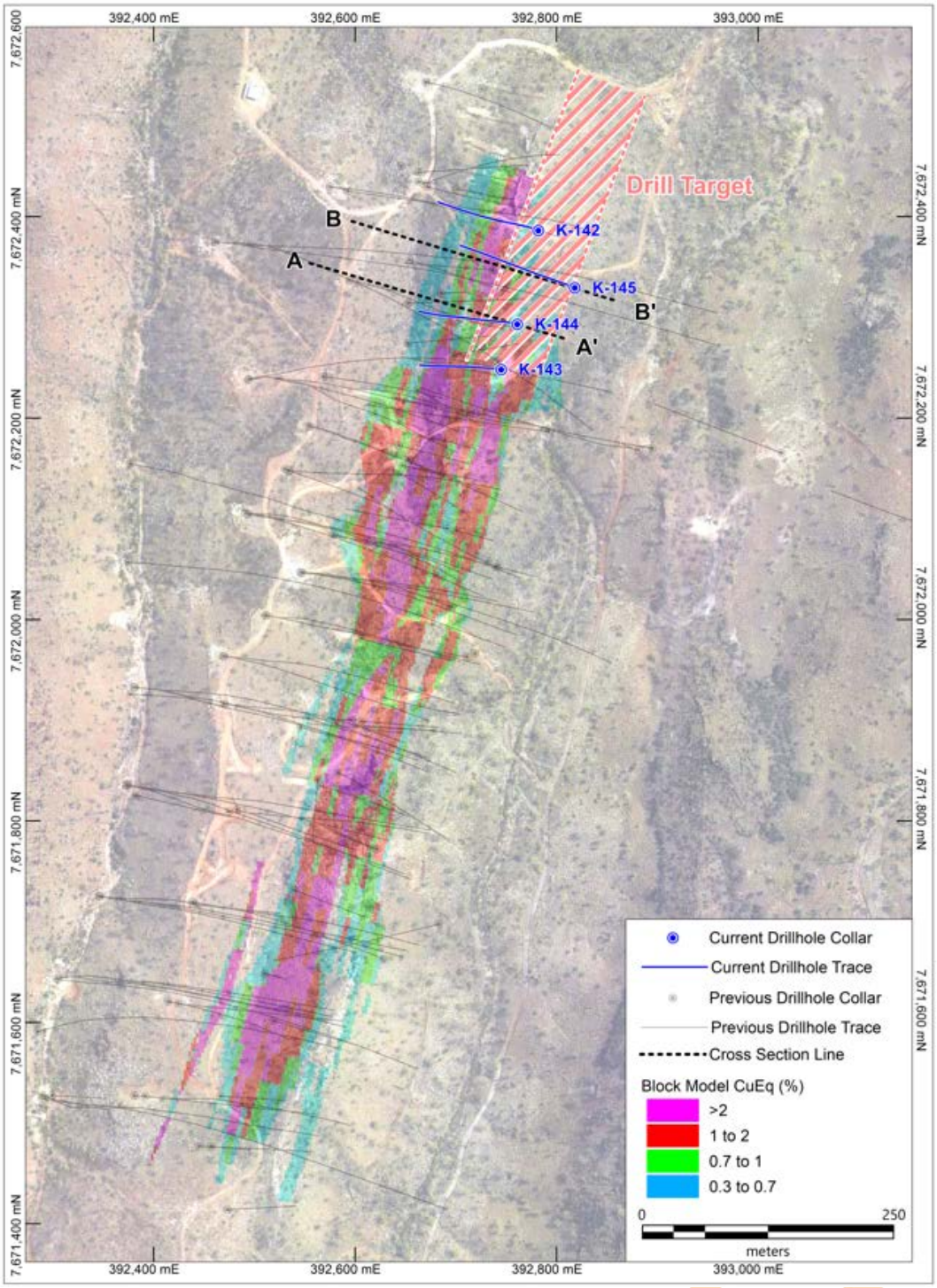

Figure 2. *Plan view of the Kalman Deposit showing the current resource model, location of K-142 through K-145 and the eastern target zone.*

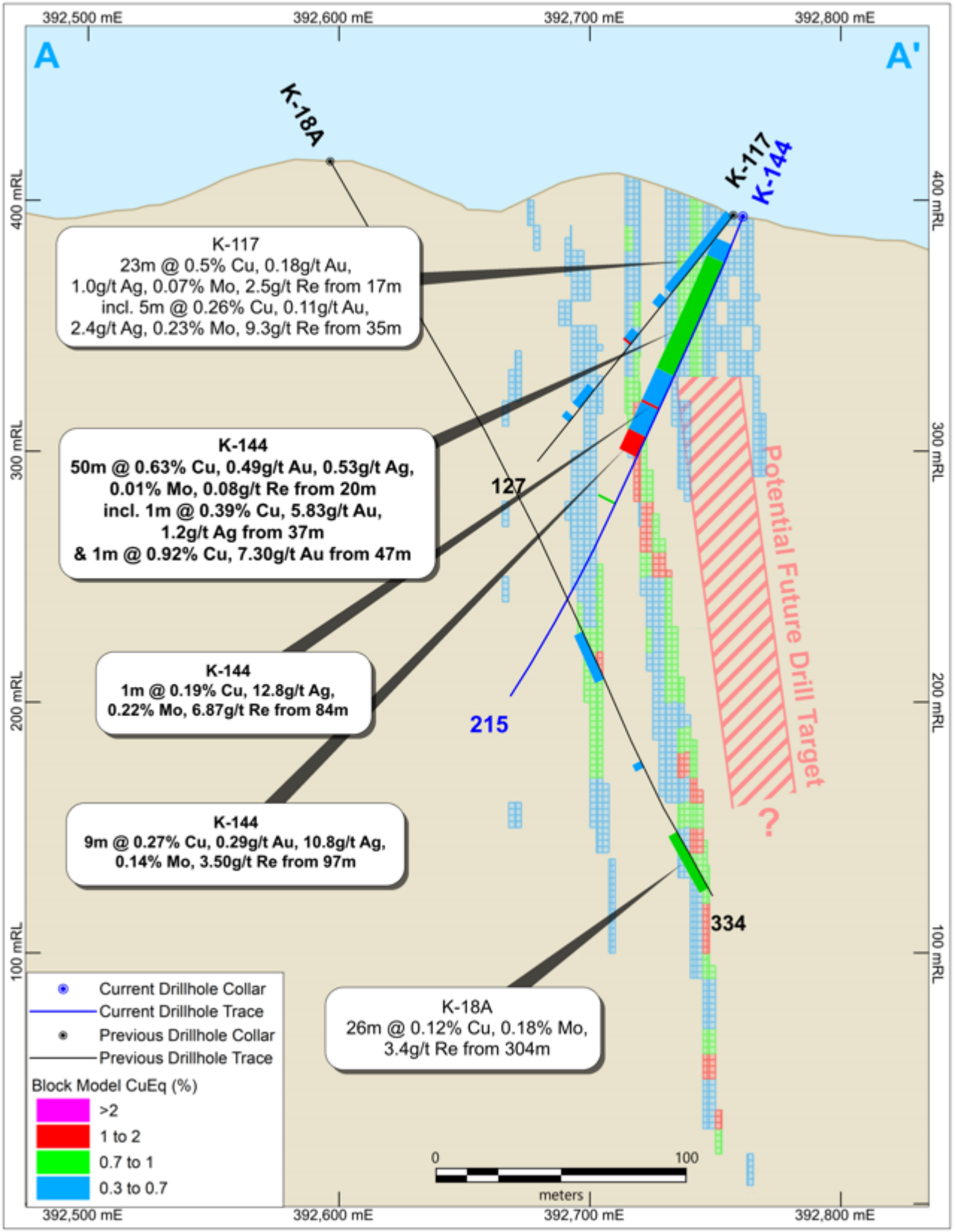

Figure 3. *Section through K-144 showing the potential for a down-dip target volume outside of the current JORC Resource Model (refer also ASX announcement 27 September 2016)*

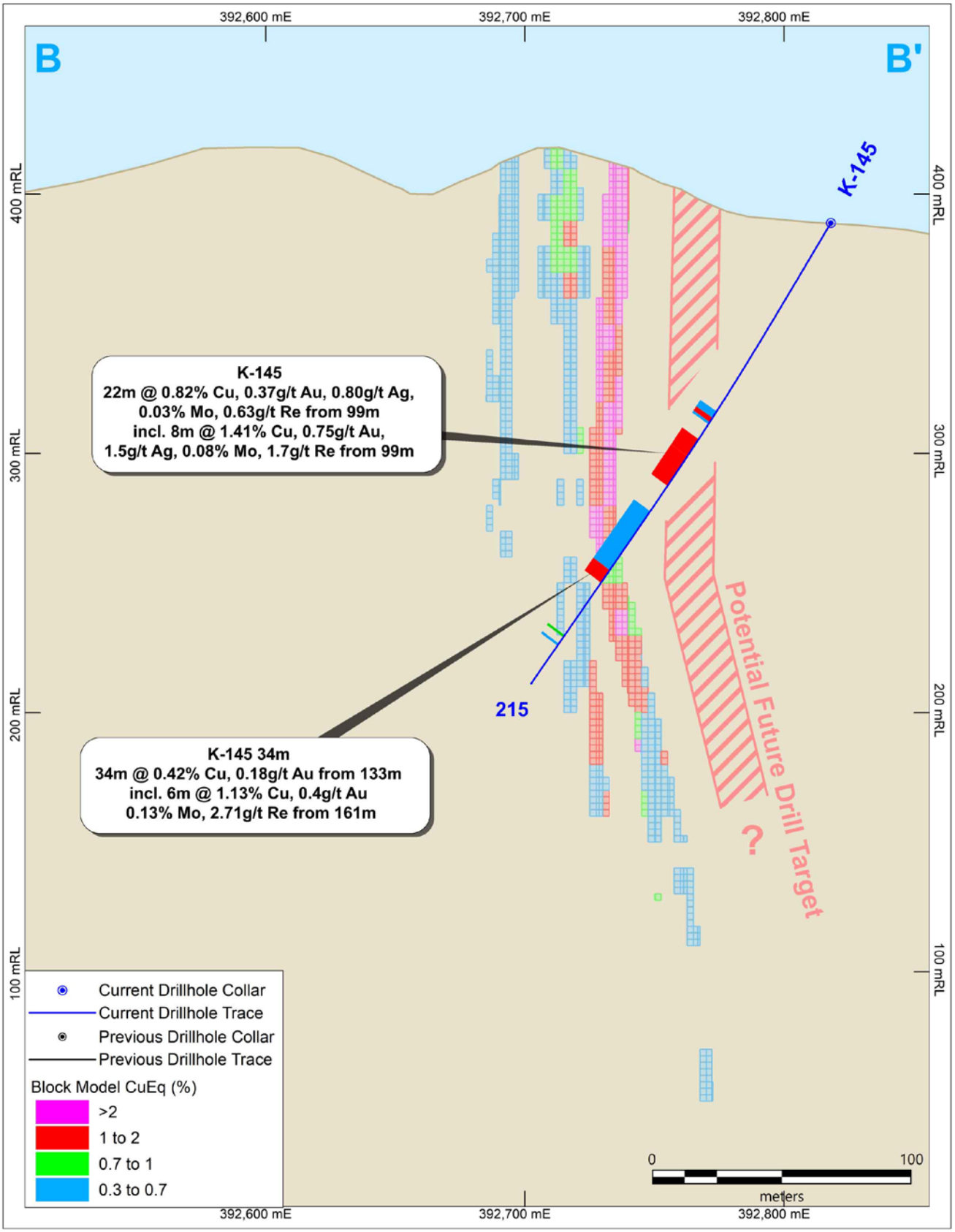

Figure 4. *Section through K-145 with high grade intercept outside of the current JORC Resource Model*

Next Steps at Kalman

The Kalman polymetallic deposit is well-placed as a source of what are termed "New Economy Metals". Apart from the increase in copper usage due to electrification, the potential adoption of new battery technologies utilising metals such as molybdenum is increasing the attractiveness of Kalman's metal suite. Furthermore, Rhenium is emerging as a possible alternate to PGM's given its superior electrochemical properties and lower costs.[**]

Current copper (US$10,220/t) and molybdenum (US$44,750/t) price levels present an opportunity to further evaluate potential development options for Kalman and Hammer's other copper deposits at Overlander and Jubilee. Further work is being commissioned to:

- Add additional JORC resources with extensional drilling;
- Understand the potential opportunities related to ore sorting and metallurgical recoveries; and
- Update previous mining scenarios to determine potential mining scenarios and associated cut off grades.

Recent drilling highlights the potential to expand the Kalman resource near surface adding to the project's potential economic returns.

Figure 5. Drill Rig on site at K-142

[**] New technology advancements include studies to investigate the potential addition of molybdenum to boost lithium battery performance and the use of rhenium as a catalyst in the production of green hydrogen

Mount Isa – Ongoing Exploration Activities

Drilling continues at the Ajax prospect where Hammer has reported intercepting a shallow Copper bearing sulphide. Initial analysis by portable XRF has been completed prior to the samples being submitted to the laboratory[††] (see ASX Announcement 14 February 2022). Significant portable XRF intercepts from HMLVRC014 include:

- **10m[‡‡] at 3.5% Cu from 25m in HMLVRC014[*];with a maximum individual 1m PXRF analysis of 8.9% Cu**

The current drilling program includes several prospects along the Trafalgar trend within the Sumitomo Metal Mining Joint Venture and at Hammer's 100% prospects at Orion, Neptune and Sunset. Assay results are expected to be received throughout March including results for recently completed rock and soil geochemical surveys

Following the nearby "Major Copper Discovery" by Carnaby Resources (ASX: CNB) at Nil Desperandum, Hammer has instigated a geological review of its neighbouring tenements and targets including Revenue (~5km to the East of Nil Desperandum) and Overlander. The review encompasses historical drilling and residual geophysical targets including historical IP surveys which appear to be the key in Carnaby's recent exploration success.

An IP team has been secured for work in March/April to complete initial surveys across a number of Hammer targets. Potential targets being considered for this IP survey include: Kalman, Trafalgar, Shadow, Hammertime, Neptune, Revenue, St Mungo, Mt Mascotte and Saint Andrew.

Additionally, Hammer is reviewing deep magnetic responses below Cambrian Georgina basin cover immediately to the north of the RTX Devoncourt project.

Hammer Metals is also reviewing grassroots targets in the southwestern portion of our 2,600km^2 project area adjacent to the Carnaby Resources, Nil Desperandum Prospect.

Results from recently completed geochemical surveys on the Mount Isa East JV at Dronfield, Shadow North, Prince of Wales are expected soon. Results from the soil geochemical surveys at Hammer's 100% owned project at Lakeview are also anticipated.

[††] *These portable XRF results should be considered preliminary, and they will be subject to confirmation by subsequent laboratory analyses. The lab analyses may vary from those obtained by portable XRF. See ASX Announcement dated 14 February 2022.*

[‡‡] *True thicknesses cannot be ascertained as this is the first drillhole into the Ajax Prospect*

Table 2: *Kalman Deposit – Significant Intercepts from December 2021 Drilling*

Hole	E_GDA94^	N_GDA94^	RL^	Dip	Az_GDA	TD		From	To	Interval	Au_ppm	Ag_ppm	Cu %	Mo %	Re_ppm	CuEq %*
K-142	392782	7672387	409.0	-55.06	287.43	161		32	55	23	0.17	5.7	0.48	0.10	2.32	0.97
							incl.	***41***	***50***	**9**	***0.27***	***12.09***	***0.65***	***0.23***	***4.82***	***1.74***
								129	130	1	0.02	0.7	0.10	0.13	3.29	0.68
								133	134	1	5.46	1.5	0.02	0.01	0.02	2.50
K-143	392745	7672249	391.0	-64.63	272	185		0	40	40	0.16	0.5	0.48	0.00	0.11	0.49
							incl.	*18*	*22*	*4*	*0.42*	*1.0*	*0.98*	*0.00*	*0.06*	*1.05*
							&	*30*	*31*	*1*	*0.19*	*0.6*	*0.96*	*0.00*	*0.36*	*0.92*
							&	*33*	*36*	*3*	*0.27*	*0.8*	*1.05*	*0.00*	*0.33*	*1.05*
								67	***131***	**64**	***0.10***	***2.97***	***0.23***	***0.12***	***2.64***	***0.75***
							incl.	*61*	*106*	*45*	*0.12*	*1.0*	*0.24*	*0.04*	*0.60*	*0.43*
							incl.	*71*	*73*	*2*	*0.37*	*1.5*	*0.82*	*0.04*	*0.19*	*1.02*
							&	*79*	*80*	*1*	*0.16*	*4.7*	*0.33*	*0.39*	*4.34*	*2.02*
							&	*85*	*86*	*1*	*0.08*	*6.5*	*0.21*	*0.44*	*7.09*	*2.11*
							&	*97*	*98*	*1*	*0.05*	*2.1*	*0.20*	*0.15*	*2.59*	*0.86*
							&	*100*	*101*	*1*	*0.04*	*1.4*	*0.19*	*0.20*	*6.36*	*1.06*
								114	**130**	**16**	**0.08**	**8.84**	**0.19**	**0.34**	**8.59**	**1.71**
							incl.	*118*	*119*	*1*	*0.23*	*17.6*	*0.39*	*0.49*	*8.36*	*2.60*
							&	***125***	***129***	**4**	***0.06***	***16.4***	***0.11***	***0.66***	***20.78***	***3.14***
								181	182	1	0.05	1.2	0.17	0.05	0.47	0.40
K-144	392761	7672294	393.5	-67	276.3	215		12	106	94	0.33	1.8	0.46	0.02	0.68	0.66
							incl.	***20***	***70***	**50**	***0.49***	***0.53***	***0.63***	***0.01***	***0.08***	***0.79***
							incl.	*37*	*38*	*1*	*5.83*	*1.2*	*0.39*	*0.01*	*0.05*	*3.00*
							&	***43***	***59***	**16**	***0.84***	***0.62***	***1.38***	***0.01***	***0.04***	***1.59***
							incl.	***47***	***48***	**1**	***7.30***	***0.8***	***0.92***	***0.01***	***0.04***	***4.08***
							&	*58*	*59*	*1*	*1.00*	*0.9*	*1.10*	*0.01*	*0.02*	*1.42*
							&	*84*	*85*	*1*	*0.08*	*12.8*	*0.19*	*0.22*	*6.87*	*1.24*
							&	*97*	*106*	*9*	*0.29*	*10.8*	*0.27*	*0.14*	*3.50*	*1.04*
								126	127	1	0.97	3.8	0.31	0.05	1.47	0.94
K-145	392818	7672330	389.0	-58.8	289.78	215		86	92	6	0.33	0.9	0.61	0.00	0.03	0.69
							incl.	*89*	*91*	*2*	*0.64*	*1.1*	*1.09*	*0.00*	*0.05*	*1.25*
								99	**121**	**22**	**0.37**	**0.8**	**0.82**	**0.03**	**0.63**	**1.00**
							incl.	***99***	***107***	**8**	***0.75***	***1.50***	***1.41***	***0.08***	***1.70***	***1.88***
								133	167	34	0.18	0.4	0.42	0.03	0.57	0.57
							incl.	***161***	***167***	**6**	***0.40***	***1.3***	***1.13***	***0.13***	***2.71***	***1.73***
								192	193	1	0.08	0.5	0.39	0.10	2.19	0.81
								196	197	1	0.06	3.0	0.29	0.06	1.43	0.54

Note

^	Coordinates relative to GDA94 Zone54 and RL determined from LIDAR DEM
*	The Copper Equivalent calculation is: CuEq = (Cu*0.86) + (0.6042118*Au*0.74) + (0.0076808*Ag*0.74) + (4.671895*Mo*0.86) + (0.01670*Re*0.77)
*	CuEq Price Assumptions are: Cu: US$9,578/t; Au: US$1800/oz; Ag: US$22.88/oz; Mo: US$20.30/lb; and Re: US$1,600/kg
*	Assumed metallurgical recoveries are factored into CuEq calculation

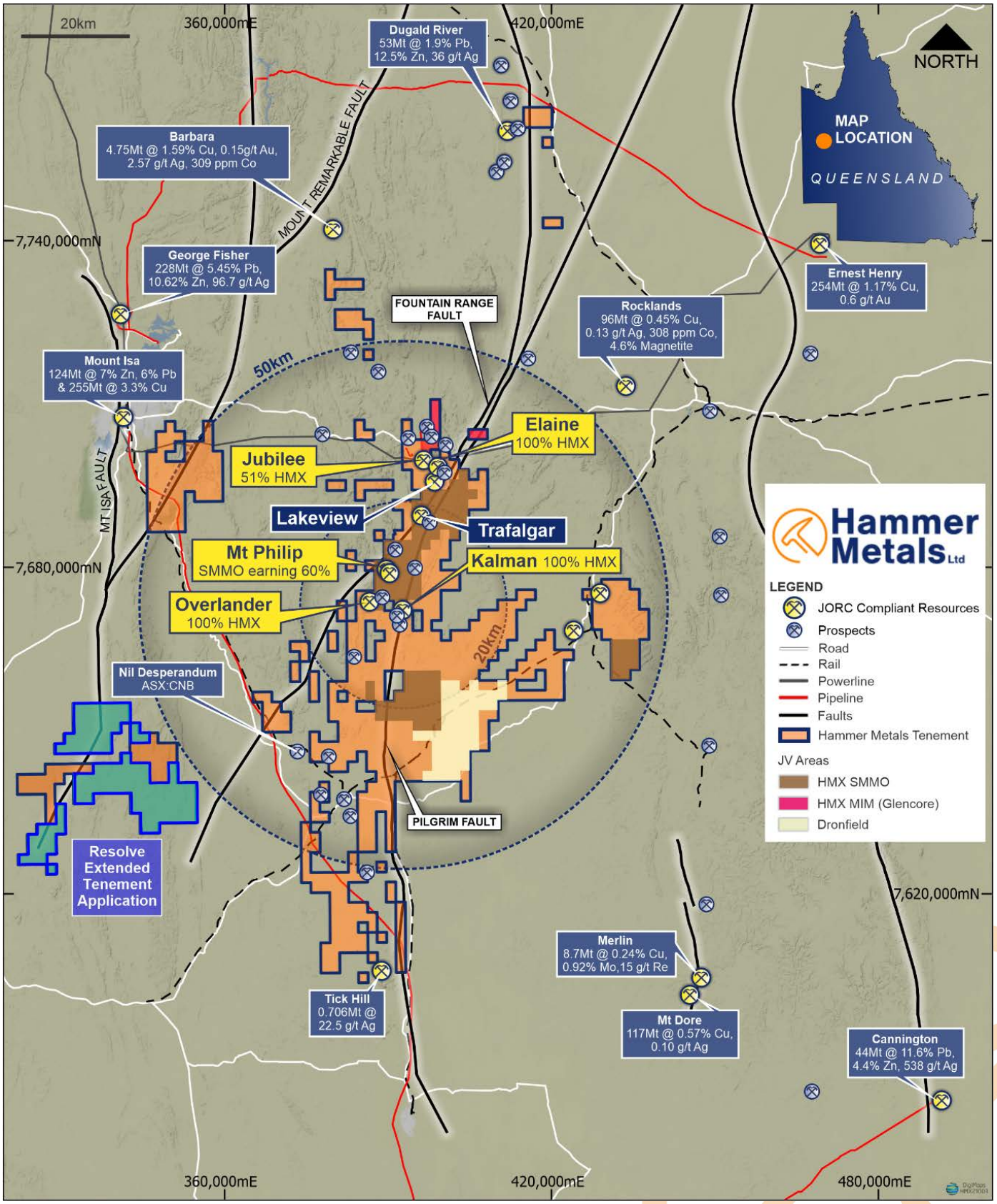

Figure 6: *Mt Isa Project Area*

This announcement has been authorised for issue by the Board of Hammer Metals Limited in accordance with ASX Listing Rule 15.5.

For further information please contact:

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Managing Director

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About Hammer Metals

Hammer Metals Limited (ASX: HMX) holds a 100% interest in the Bronzewing South Gold Project located adjacent to the 2.3 million-ounce Bronzewing gold deposit in the highly endowed Yandal Belt of Western Australia. Hammer holds a strategic tenement position covering approximately 2,600km^2 within the Mount Isa mining district, with 100% interests in the Kalman (Cu-Au-Mo-Re) deposit, the Overlander North and Overlander South (Cu-Co) deposits and the Elaine (Cu-Au) deposit. Hammer also has a 51% interest in the Jubilee (Cu-Au) deposit. Hammer is an active mineral explorer, focused on discovering large copper-gold deposits of Ernest Henry style and has a range of prospective targets at various stages of testing.

Competent Person Statements

The information in this report as it relates to exploration results and geology was compiled by Mr. Mark Whittle, who is a Fellow of the AusIMM and an employee of the Company. Mr. Whittle, who is a shareholder and option-holder, has sufficient experience which is relevant to the styles of mineralisation and types of deposit under consideration and to the activities which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr. Whittle consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

Where the Company references Mineral Resource Estimates previously announced, it confirms that it is not aware of any new information or data that materially affects the information included in those announcements and all material assumptions and technical parameters underpinning the resource estimates with those announcements continue to apply and have not materially changed.

Notes on Recovered Copper Equivalent Calculation

Copper equivalent (CuEq) grades were calculated from downhole assays for Cu, Au, Ag, Mo and Re. The CuEq calculation is based on commodity process and metallurgical recovery assumptions as detailed in this release. Prices agreed to by Hammer reflected the market as of early February 2022 and forward-looking forecasts provided by consensus analysis, these prices have not varied significantly. Metal prices provided are:

CuEq Price Assumptions are: Cu: US$9,578/t; Au: US$1800/oz; Ag: US$22.88/oz; Mo: US$20.30/lb; and Re: US$1,600/kg

The recovered CuEq equation is: CuEq = (Cu*0.86) + (0.6042118*Au*0.74) + (0.0076808*Ag*0.74) + (4.671895*Mo*0.86) + (0.01670*Re*0.77)

Assumed Metallurgical Recoveries

Based on the testing completed and the current understanding of the material characteristics it has been assumed that the Kalman material can be processed using a "typical" concentrator process flowsheet. The mass balance and stage metallurgical recovery of the four major elements were based on the metallurgical test results from the molybdenum zone sample and benchmarks. The final overall recovery (table below) was established from the mass balance and benchmarked against other operations and projects.

It is the company's opinion that the metals used in the metal equivalent equation have reasonable potential for recovery and sale based on based on metallurgical recoveries in floatation test work undertaken to date. There are a number of well-established processing routes for copper-molybdenum deposits and the sale of the resulting copper and molybdenum concentrates.

Molybdenum concentrates with rhenium require roasting to capture the rhenium from the process off-gas. There are several offshore facilities that process molybdenum concentrates.

Because of the relatively small market for Re there is limited public information available for the payments of credits for rhenium. Enquiries by the company provides the company with sufficient confidence to believe that a credit for the rhenium content of the molybdenum concentrate can be obtained.

Table 3: *Assumed Metallurgical Recoveries*

Process Stage	Molybdenum Recovery (%)	Rhenium Recovery (%)	Copper Recovery (%)	Gold Recovery (%)	Silver Recovery (%) *
Bulk Rougher	95	86	95	82	82
Overall	86	77	86	74	74
* - No Data available for Silver recoveries so they have been assumed similar to Gold recoveries					

JORC Table 1 report – Mount Isa Project Exploration Update

- This table is to accompany an ASX release updating the market with drilling results from the drilling conducted on the Kalman Deposit in late 2021.
- The drilling reported herein was conducted on EPM26775.
- All ancillary information presented in figures herein has previously been reported to the ASX.
- Historic exploration data noted in this, and previous releases has been compiled and validated. It is the opinion of Hammer Metals that the exploration data are reliable.

Section 1 Sampling Techniques and Data

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

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.*	Drill chip samples were taken at dominantly 1m intervals. When multiple metre intervals were sampled, a riffle split of each metre interval was conducted with the split portions then being combined to produce a composite sample. Where mineralisation was anticipated or encountered, the sample length was reduced to 1m with lab submission of the 1m samples. The average sample length and weight for the assays reported herein is 1.38m and 2.82kg respectively. All samples submitted for assay underwent fine crush with 1kg riffled off for pulverising to 75 microns. Samples were submitted to ALS for: • Fire Assay with AAS finish for gold. • 4 acid digest followed by ICP-MS and ICP-OES for a variable element suite. Portable XRF analysis was conducted in the field on each 1m interval. Re-analyses will be conducted as required to investigate element repeatability.
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).*	Holes were drilled by DDH1 drilling using a Sandvik DE840 (UDR1200) drilling rig. The holes were drilled by the reverse circulation method. The reverse circulation technique which uses a face sampling hammer to reduce contamination.

Criteria	JORC Code explanation	Commentary
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 recoveries were generally in excess of 80%. Recoveries are typically low in the first 5m of each hole. In holes where recovery or significant sampling bias was observed, the hole was terminated. No sample recovery bias has been noted.
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 drilling was geologically logged by Hammer Metals Limited Geologists. Quantitative portable XRF analyses were conducted on metre intervals on site. All metres drilled were analysed by the lab methods listed above.
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 insitu 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.*	Samples consist of RC drill chips. Samples from the hole were collected by a three-way splitter with A and B duplicates taken for every sample. Samples were taken at dominantly one metre intervals however where 2 or 4 metre composites were created, samples were composited by riffle splitting material from each one metre sample bag. Where evidence of mineralisation was encountered or anticipated, the sample length was reduced to 1m. Sample collection methodology and sample size is considered appropriate to the target-style and drill method, and appropriate laboratory analytical methods were employed. Standard reference samples and blanks were each inserted into the laboratory submissions at a rate of 1 per 25 samples.
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*	Each metre drilled was subject to site portable XRF analysis. All samples were analysed for gold by flame AAS using a 50gm charge.

Criteria	JORC Code explanation	Commentary
	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.*	Each sample was also analysed by 4-acid multielement ICP OES and MS. Standard reference samples and blanks were inserted at 25 sample intervals. ALS also maintained a comprehensive QAQC regime, including check samples, duplicates, standard reference samples, blanks and calibration standards.
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.* *Discuss any adjustment to assay data.*	All assays have been verified by alternate company personnel. Assay files were received electronically from the laboratory.
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.*	Datum used is GDA 94 Zone 54. RL information will be merged at a later date utilising the most accurately available elevation data. In this specific case holes will be surveyed by DGPS prior to rehabilitation.
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.*	The drill density is sufficient to establish broad trends of mineralisation and the holes are located on the margins of an established JORC resource. See ASX release dated September 27th, 2016. The average grade has been utilised where multiple repeat analyses have been conducted on a single sample.
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.*	Drill holes were oriented as close to perpendicular as possible to the orientation of the targets based on interpretation of previous exploration.
Sample security	*The measures taken to ensure sample security.*	Pre-numbered bags were used, and samples were transported to ALS by company personnel. Samples were packed within sealed polywoven sacks.

Criteria	JORC Code explanation	Commentary
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	The dataset associated with this reported exploration has been subject to data import validation. All assay data has been reviewed by two company personnel. No external audits have been conducted.

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 Mt Isa Project consists of 28 tenements. The drilling reported herein was conducted on EPM26775. These tenements are held by Mt Dockerell Mining Pty Ltd, a 100% owned subsidiary of Hammer Metals Limited.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Exploration at Kalman has been conducted since 2005 by Kings Minerals NL (now Santana Minerals Ltd) Syndicated Metals Ltd (now Discoverex Resources Ltd) and Hammer Metals Ltd. Prior to this period work was also undertaken by Texins (1970's), PIMEX (1980's) and MIM (early 1990's).
Geology	*Deposit type, geological setting and style of mineralisation.*	Kalman Deposit The Kalman Deposit is a polymetallic Deposit hosted within with the Kalman Fault on the western side of the Pilgrim Fault Zone. The Deposit is hosted by strongly altered calc silicates of the Corella Formation. Mineralisation consists of separate Cu-Au and Mo-Re zones which occupy the same spatial position but were emplaced separately.
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.*	See the attached tables.

Criteria	JORC Code explanation	Commentary
	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.	
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.*	Intercepts are quoted at a 0.3% recovered CuEq cut-off with included intercepts highlighting zones of increased grade of Cu, Au, Mo and Re. See the notes on the copper equivalent calculation and assumed metallurgical recoveries in the body of this report. CuEq Price Assumptions are: Cu: US$9,578/t; Au: US$1800/oz; Ag: US$22.88/oz; Mo: US$20.30/lb; and Re: US$1,600/kg CuEq = (Cu*0.86) + (0.6042118*Au*0.74) + (0.0076808*Ag*0.74) + (4.671895*Mo*0.86) + (0.01670*Re*0.77)
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').*	True thicknesses are interpreted to be 55-75% of downhole thicknesses.
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.*	See attached figures.
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 avoiding misleading reporting of Exploration Results.*	Intercepts are quoted at a 0.3% Cu equivalent grade. See the notes on the copper equivalent calculation and assumed metallurgical recoveries in the body of this report. CuEq Price Assumptions are: Cu: US$9,578/t; Au: US$1800/oz; Ag: US$22.88/oz; Mo: US$20.30/lb; and Re: US$1,600/kg Recovered CuEq = (Cu*0.86) + (0.6042118*Au*0.74) + (0.0076808*Ag*0.74) + (4.671895*Mo*0.86) + (0.01670*Re*0.77)

Criteria	JORC Code explanation	Commentary
		Portions of a drillhole that are not quoted in the intercept table contain grades less that the quoted cut-off.
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.*	All relevant information is disclosed in the attached release and/or is set out in this JORC Table 1.
Further work	*The nature and scale of planned further work (eg 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.*	Hammer Metals Limited is reviewing the drilling results with a view to conducting follow-up drilling in 2022.