28th June 2021

FOUR NEW COPPER DRILL TARGETS DEFINED AT DEVELIN CREEK PROJECT

- **Four new drill targets have been defined by recent geophysical surveys at the Develin Creek copper-zinc massive sulphide project in Queensland.**
- **The new drill targets were identified by induced polarisation (IP) geophysical surveys carried out at the Snook and Wilsons copper-zinc prospects and comprise:**
  - **Two new high-quality drill targets identified at Snook (S1 & S2) located 30km south of the existing resource area and beneath and adjacent to recent Zenith drilling that has intersected massive copper-zinc sulphides.**
  - **Two new high conviction targets beneath shallow soil cover and along strike of surface gossans at the Wilsons prospects (W1 & W2).**
- **The IP geophysical technique is typically used to detect subsurface accumulations of disseminated sulphides that in the case of the Develin Creek type copper-zinc deposits form a broad halo below the massive sulphide copper-zinc deposits.**
- **A total of eight copper-zinc targets are now ready for drill testing, these include the four IP targets at Snook and Wilsons and four additional targets located close to the existing Sulphide City JORC massive copper-zinc sulphide deposits. The latter were defined by a reinterpretation of geology, geochemistry and airborne electromagnetic survey (EM) data.**
- **Assays are anticipated shortly from the recent Sulphide City diamond drill twin hole program which was designed to assess potential copper-zinc grade "under-call" associated with historic open hole percussion drilling. Diamond core from the program will also provide suitable sample material for metallurgical testwork. This work is anticipated to commence in early July 2021.**

Commenting on the new Develin Creek developments Chairman Peter Bird said: *"Develin Creek is a large-scale VMS style copper – base metals system with a pre-existing JORC Resource at the northern end of the property (Sulphide City). The property extends for some 50km south of this Resource. The eight geophysical anomalies mentioned in this release span the total lease area. The anomalies at Snook appear to be located below the early-stage shallow drilling and like the others defined require drill evaluation. VMS styles systems can be discrete but high grade and hence of great value. We see this advancement as a very positive step forward to allow us to build the copper inventory"*

ZENITH MINERALS

Corporate Details

Zenith Minerals Limited (ASX:ZNC)
ABN: 96 119 397 938

Issued Shares	294.4M
Unlisted options	16.55M
Mkt. Cap. ($0.265)	A$78M
Cash (31-Mar-21)	A$3.1M
Debt	Nil

Directors

Peter Bird	Exec Chair
Michael Clifford	Director-CEO
Stan Macdonald	Non-Exec Director
Julian Goldsworthy	Non-Exec Director
Graham Riley	Non-Exec Director
Nicholas Ong	CFO & Co Sec

Major Shareholders

Directors	~7%
HSBC Custody. Nom.	10.4%
BNP Paribas. Nom.	6.0%
Citicorp Nom	4.3%
Granich	4.1%

Our Vision

Zenith has a vision to build a gold and base metals business with a team of proven project finders.

Focus is on 100% owned Zenith projects, whilst partners progress multiple additional opportunities using partner funds.

Contact Us

Level 2, 33 Ord Street
WEST PERTH WA 6005
PO Box 1426
WEST PERTH WA 6872
Telephone: (08) 9226 1110
Email:info@zenithminerals.com.au
Web:www.zenithminerals.com.au

Develin Creek Project Background and New Drill Targets

The Develin Creek project contains a VMS copper-zinc deposit with an Inferred Mineral Resource (JORC 2012) of: 2.57Mt @ 1.76% copper, 2.01% zinc, 0.24g/t gold and 9.6g/t silver (2.62% CuEq) released to ASX on 15-Feb-2015.

Zenith's technical team outlined the Snook target located 30km south of the existing JORC resources (Figure 1). An initial maiden drill test of 7 shallow RC holes has been a success, with hole ZSRC001 intersecting 3m of massive and semi-massive sulphides close to surface, at a depth of only 20m downhole. This zone returned: **3m @ 1.57% Cu, 1.07% Zn, 0.37% Pb, 43 g/t Ag and 0.2g/t Au, including 2m of massive sulphide grading: 1.95% Cu, 1.34% Zn, 0.48% Pb, 55 g/t Ag and 0.3g/t Au, within a broader interval of** disseminated and stockwork sulphides assaying **12m @ 0.81% Cu, 0.56% Zn. 0.19% Pb, 22g/t Ag & 0.1 g/t Au** (see ASX release 7-Dec-20).

Additional RC drill holes (ZSRC002 to ZSRC007) all intersected anomalous levels of copper, zinc and lead as well as precious metals and trace elements, **including 1m @ 0.63 g/t Au, 21 g/t Ag, 0.08% Cu, 0.34% Pb, 0.01% Zn** in ZSRC005 from 3m below surface. Drilling and mapping have outlined a 200m long zone, now interpreted to be a sub-vertical fault structure cutting the flat lying to gently east dipping host rock sequence. A further two short diamond drill holes (ZSDD001 & 002) were subsequently completed close to hole ZSRC001 to obtain core of the massive sulphides and confirm the shallow dip of the sedimentary host sequence at Snook. ZSDD001 returned **0.3m @ 1.5% Cu, 1.8% Zn, 0.5%Pb, 0.2g/t Ag & 65.2g/t Au** associated with a narrow band of massive sulphide, whilst hole ZSDD002 intersected dolerite in the massive sulphide target zone (Table 1 & 2).

The IP survey results show a small coincident chargeability high associated with the Snook massive sulphide zone (Figure 3) **with a deeper much stronger IP target lying beneath the current drilling and another strong target to the east** (refer to details below).

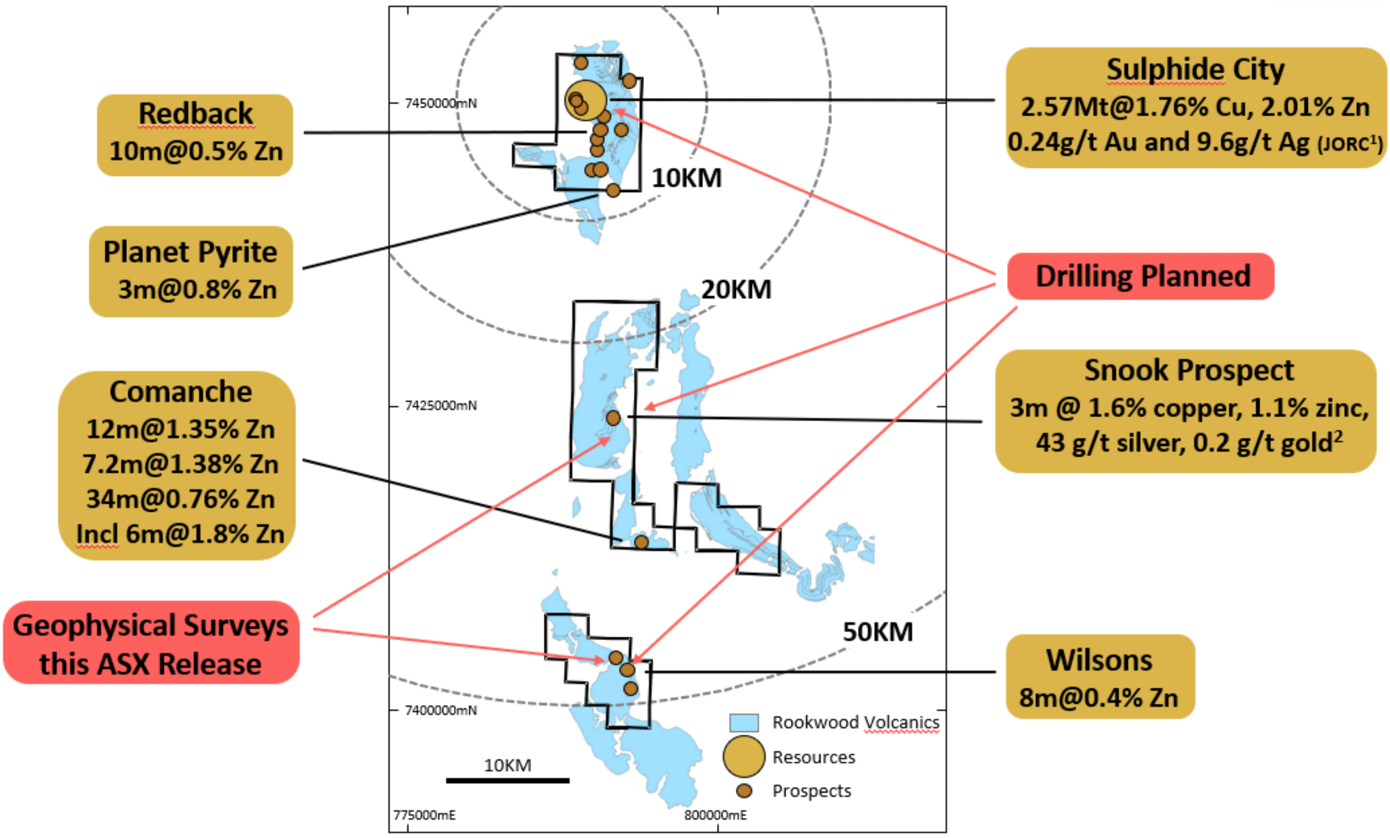

Figure 1: Develin Creek Prospects, Areas of Recent IP Geophysical Surveys and Planned Drilling

New Snook Drill Targets

A dipole-dipole IP survey (DDIP) consisting of 3 trial survey lines at Snook was completed with the aim of identifying zones of disseminated sulphide mineralisation that typically form as a halo or "feeder zones" beneath volcanic hosted massive copper-zinc sulphide deposits.

The survey was successful in identifying several strong chargeability anomalies up to 40mv/V in areas of high resistivity consistent with disseminated sulphides within the basalt host rock target sequence below a sedimentary unit (zone of low resistivity) – refer to Figures 2 – 4. These targets (S1 & S2) lie below the existing drill holes that contained strongly anomalous copper-lead-zinc and precious metals and will be tested by a series of up to 7 drill holes. The IP anomaly remains open to the south (Figure 4) providing further upside.

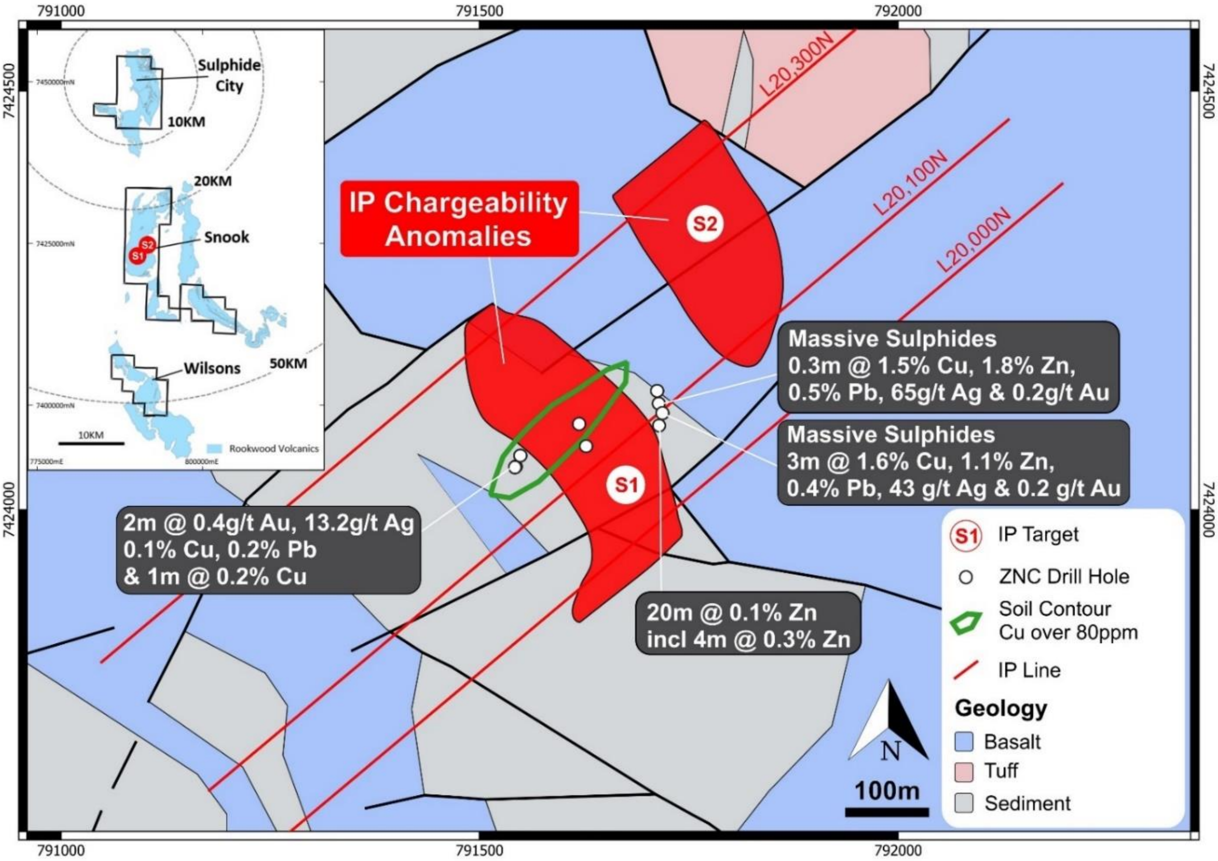

Figure 2: Plan of Snook Prospect with Geology, IP Targets and Planned Drilling

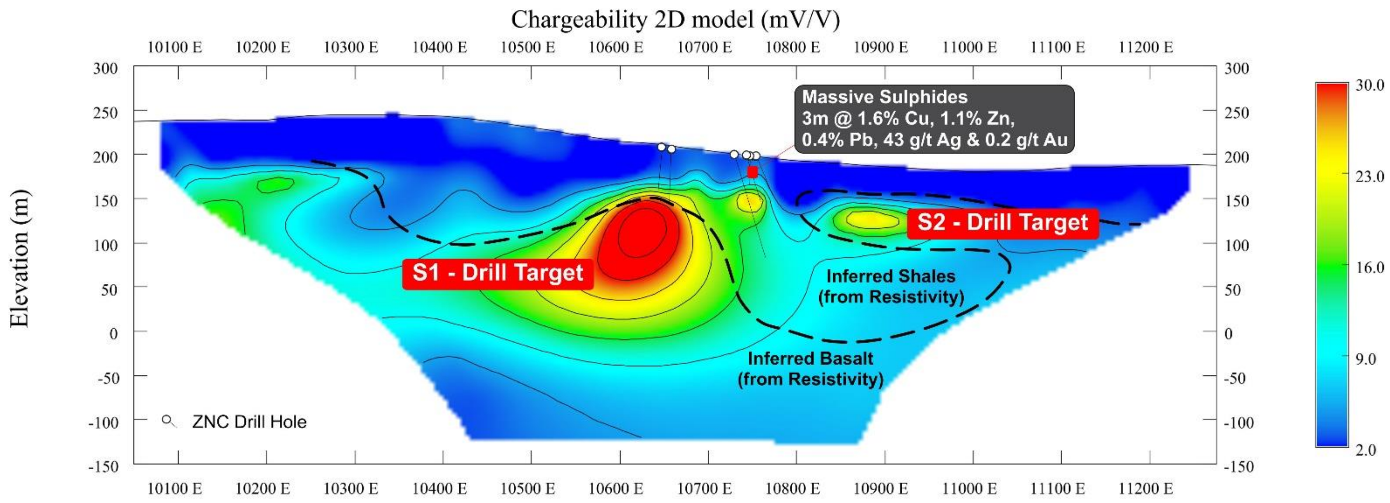

Figure 3: Snook Prospect IP Pseudosection L20,100N Showing Existing Shallow RC & DD Holes that do not reach the S1 Drill Target

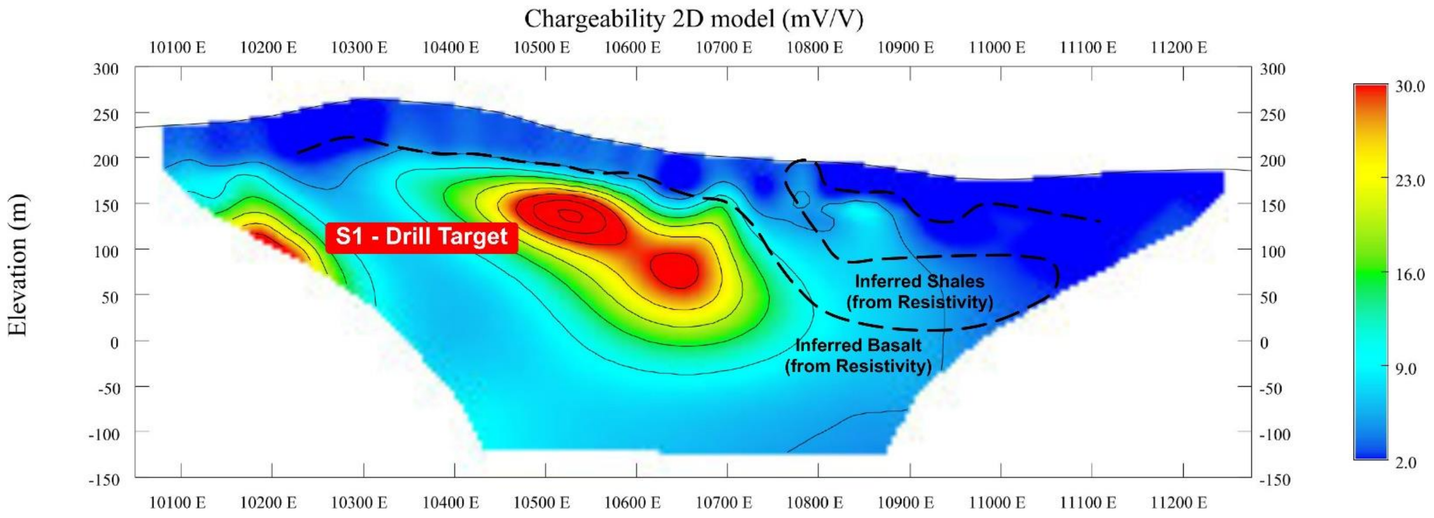

Figure 4: Snook Prospect IP Pseudosection L20,000N Showing S1 Drill Target which is open to the South

<u>New Wilsons Drill Targets</u>

In addition, a DDIP survey consisting of 7 survey lines was completed at the Wilsons prospect extending north. A strong chargeable anomaly coincident with a resistive high (inferred basalt host sequence) was defined beneath the target area that is obscured by soil. Like Snook, the Wilsons drill targets (W1 & W2) are consistent with a zone of sub-surface disseminated sulphides that typically form as a halo or "feeder zones" beneath volcanic hosted massive copper-zinc sulphide deposits (Figures 5 – 6). Two to three drill holes are planned to test the Wilsons IP targets.

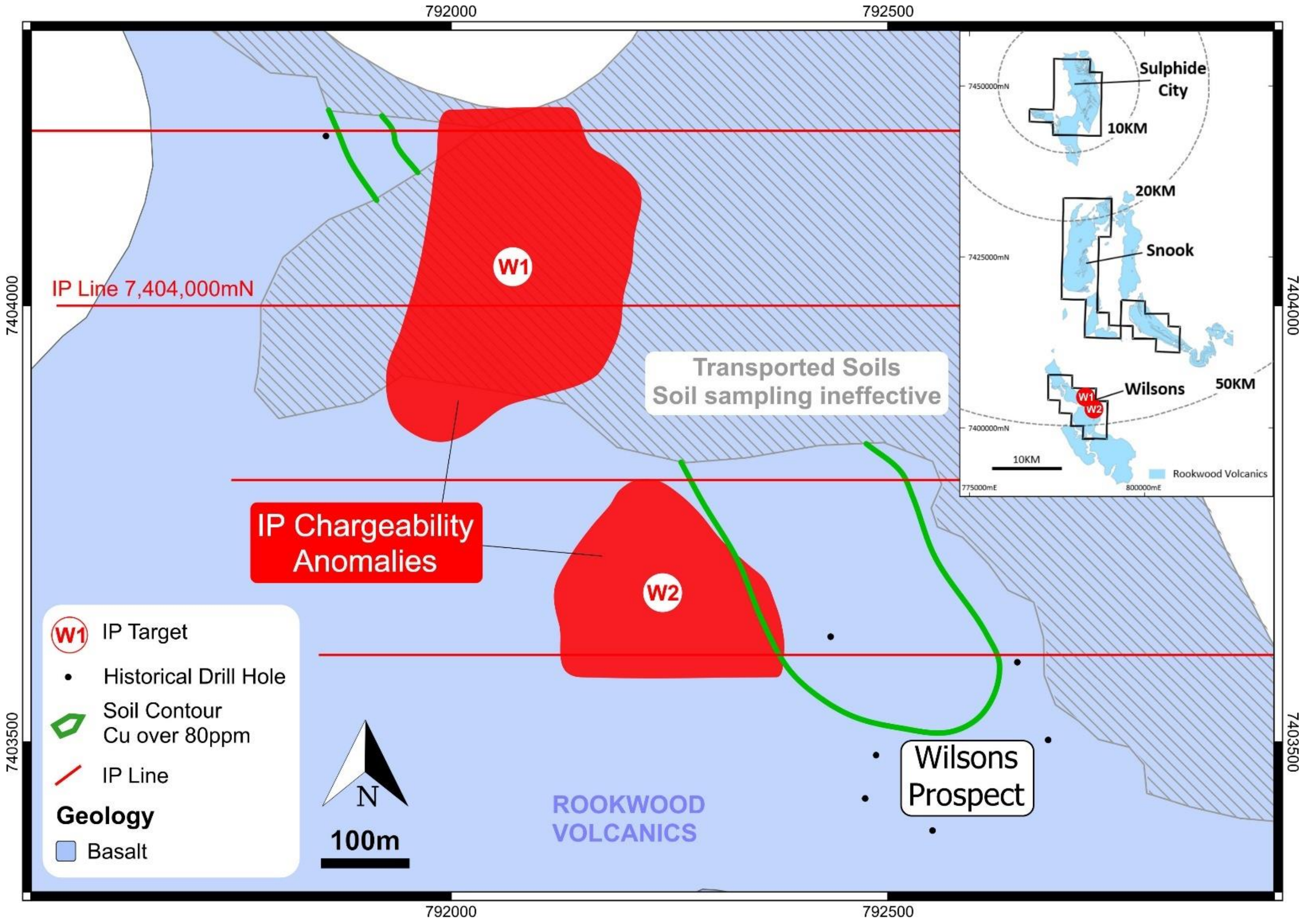

Figure 5:* Plan *of Wilsons Prospect with Geology, IP Targets and Planned Drilling

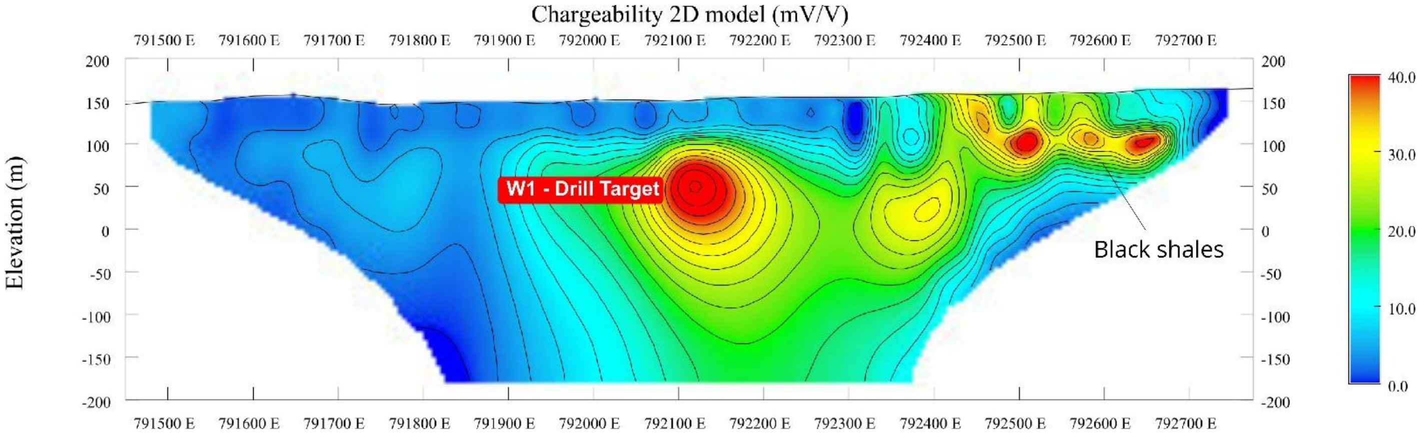

Figure 6: Wilsons Prospect IP Pseudosection 7,404,000mN Showing W1 Drill Target

New Sulphide City Resource Area Drill Targets

Four additional targets (T1 to T4) located close to the existing Sulphide City JORC massive copper-zinc sulphide deposits were defined by a reinterpretation of geology, geochemical and airborne electromagnetic survey (EM) data (Figure 7).

Planned Programs

Total of eight copper-zinc targets now ready for drill testing:

- Sulphide City – 4 targets (T1 – T4)
- Snook – 2 targets (S1 – S2)
- Wilsons – 2 targets (W1 – W2)

Assays are anticipated shortly from the Sulphide City diamond drill twin hole program assessing potential copper-zinc grade “under-call” associated with historic open hole percussion drilling. Diamond core from the program will also provide suitable sample material for metallurgical testwork that is anticipated to commence in early July 2021.

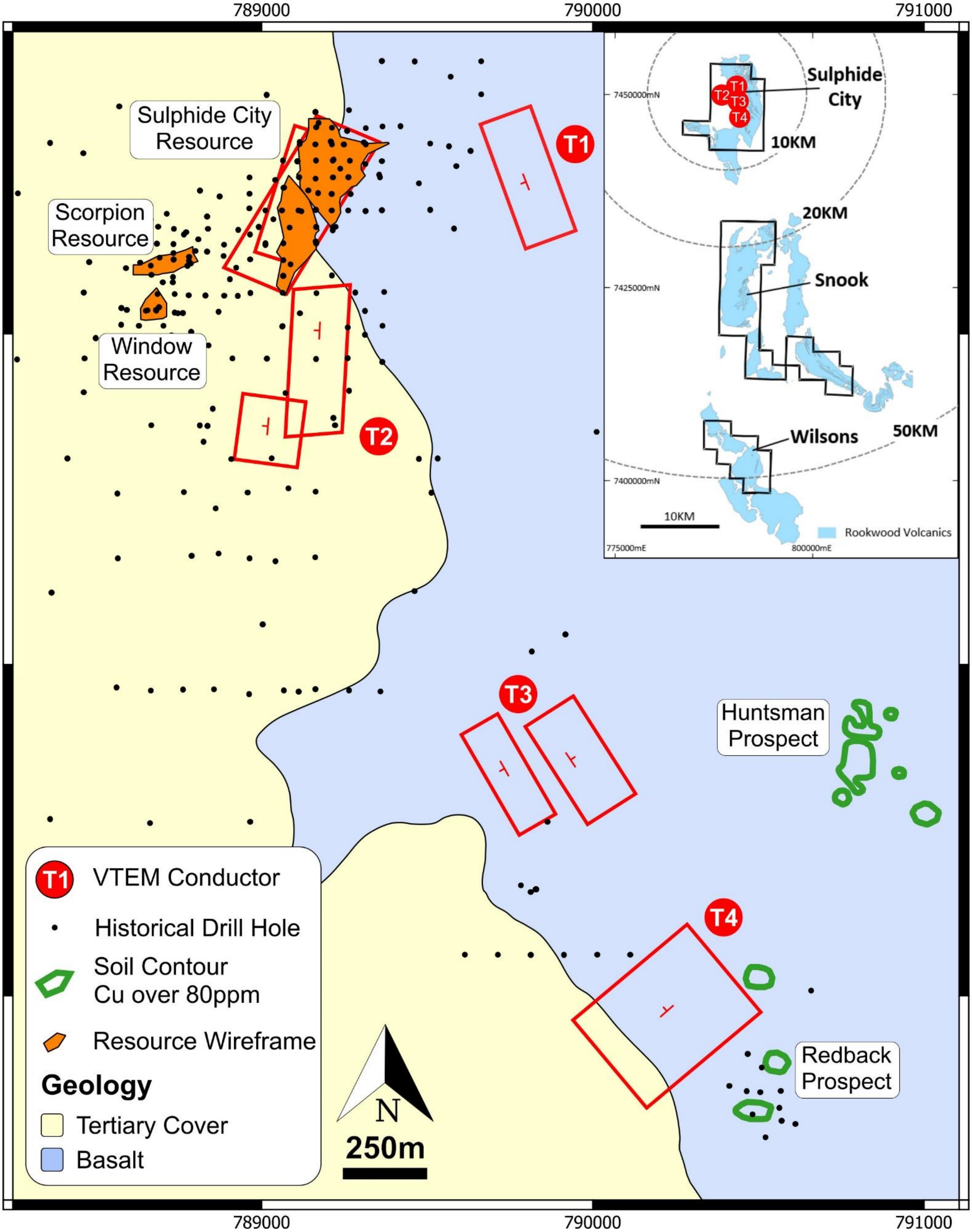

Figure 7: Plan of Sulphide City Prospect Area with Geology and EM Targets (T1 to T4)

Table 1: Snook Diamond Drilling Significant Drill Results

Hole ID	From (m)	To (m)	Interval (m)	Cu (%)	Zn (%)	Pb (%)	Au (g/t)	Ag (g/t)
ZSDD001	14.7	15.0	0.3	1.5	1.8	0.5	0.2	65.2
ZSDD002	Not sampled, hole intersected dolerite							

Reporting criteria - 0.4% Cu cut off, minimum sample length 0.3m (refer to JORC Tables appended to this release for further details).

Table 2: Snook Diamond Drilling Collar Table

Hole_ID	Hole_Type	Easting	Northing	RL	Depth (m)	Azimuth	Dip
ZSDD001	DD	791714	7424127	195	30.5	0	-90
ZSDD002	DD	791712	7424142	195	48.7	0	-60

For further information please refer to the Company's website or contact the Company directly.

Authorised for release by the Zenith Minerals Limited Board of Directors – 28th June 2021

For further information contact Zenith Minerals Limited:

Directors Michael Clifford or Peter Bird
E: mick@zenithminerals.com.au / peter@zenithminerals.com.au
Phone +61 8 9226 1110

Competent Persons Statement

The information in this report that relates to Exploration Results is based on information compiled by Mr Michael Clifford, who is a Member of the Australian Institute of Geoscientists and an employee of Zenith Minerals Limited. Mr Clifford has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity 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 Clifford consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Material ASX Releases Previously Released

The Company has released all material information that relates to Exploration Results, Mineral Resources and Reserves, Economic Studies and Production for the Company's Projects on a continuous basis to the ASX and in compliance with JORC 2012. The Company confirms that it is not aware of any new information that materially affects the content of this ASX release and that the material assumptions and technical parameters remain unchanged.

About Zenith

Zenith has a vision to build a gold and base metals business with a team of proven project finders. Focus is on 100% owned Zenith projects, whilst partners progress multiple additional opportunities using third party funds.

Zenith is continuing to focus on its core Australian gold and copper projects including:

- **Red Mountain Gold Project** in Queensland (100% owned) where ongoing drilling is following-up the high-grade near surface gold and silver intersected in the maiden & subsequent drill programs (ASX Releases 3-Aug-20 & 13-Oct-20, 9-Nov-20, 21-Jan-21), including:
    - 13m @ 8.0 g/t Au & 3.2 g/t Ag from surface
    - 15m @ 3.5 g/t Au, incl. 2m @ 22.4 g/t Au
    - 5m @ 10.4 g/t Au, and
    - 12m @ 4.9 g/t Au

- **Split Rocks Gold Project** in Western Australia (100% owned), where recent drilling returned, high-grade near surface gold mineralisation at multiple targets (ASX Release 5-Aug-20, 2-Sep-20, 19-Oct-20, 28-Oct-20, 15-Ja-21, 11-Mar-21, 21-Apr-21, 24-Jun-21), including:
    - <u>Dulcie North</u>: 32m @ 9.4 g/t Au, incl 9m @ 31.4 g/t Au.
    - <u>Dulcie Laterite Pit:</u>
        - 2m @ 14.5 g/t Au, incl. 1m @ 20.8 g/t Au,
        - 18m @ 2.0 g/t Au (EOH) incl. 1m @ 23.7 g/t Au &
        - 14m @ 3.5 g/t Au
    - <u>Estrela Prospect</u>: 2m @ 9.8 g/t Au (open to north & south)
    - <u>Dulcie Far North</u>: 5m @ 5.6 g/t Au incl. 4m @ 6.8 g/t Au, 3m @ 70 g/t Au
    - <u>Water Bore</u>: 3m @ 6.6 g/t Au

- **Develin Creek Copper-Zinc Project** in Queensland (100% owned) – maiden drill test of the new Snook copper target located 30km south of Zenith's JORC resources discovers massive copper-zinc sulphides (ASX Release 17-Dec-20).

- **Jackadgery Gold Project** in New South Wales (option to earn initial 90%), historic trenching returned 160m @ 1.2 g/t Au. No drilling to date. Zenith planning maiden drill test (ASX Release 10-Sep-20).

- **Earaheedy Zinc Project** in Western Australia (25% free carry to end BFS). New major zinc discovery to be fast tracked with extensive accelerated exploration program underpinned by a recent $40M capital raising by partner Rumble Resources Limited (ASX:RTR) (ASX Releases 28-Apr-21 & 2-Jun-21).

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	*Nature and quality of sampling (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.*	Assays received for selectively sampled diamond drill hole. Details and specifications are provided for IP & VTEM surveys.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Diamond core was selectively sampled based on geological observations at intervals no less than 0.3m and no greater than 1m.
	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.	Diamond core drilling was used to obtain samples ranging from 0.3m to 1.7m. After cutting with a diamond saw, ½ core samples produced 3 to 5 kg which was pulverised to produce a 30 g charge for fire assay and ICP-AES multi-element assays.
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.).*	Diamond drilling from surface with short rotary mud-pre-collar that was not sampled
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	Diamond core was orientated whilst RC drill chips were sieved and logged by a qualified geologist on site, data recorded in field on paper logs and transferred to digital database
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Diamond core was cut on site and ½ core was submitted for analysis.
	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.	No indications of sample bias based on results to date.

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.*	Drill core and drill chips were sieved and logged by a qualified geologist on site. No reporting of resources.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Drill core logging is qualitative, all core has bene photographed.
	The total length and percentage of the relevant intersections logged.	All intervals logged and sampled
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Core is ½ core, core is cut by diamond saw
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	na
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Samples were analysed at ALS Laboratories in Brisbane, the samples were crushed, pulverised and assayed by gold using fire assay and silver & base metals by ICP-AES.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	~2 to 3kg of drill sample was crushed and pulverised and a sub-sample was taken in the laboratory and analysed.
Sub-sampling techniques and sample preparation - continued	*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.*	No duplicates this program
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Each sample was 2kg to 5kg in weight which is appropriate to test for the grain size of material.
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.*	The samples were crushed and assayed for gold using fire assay, which is considered a near total technique. Silver & base metals by ICP-AES is close to total given the host matrix
	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.	Refer to details of geophysical surveys in Section 2 – Other Substantive Exploration Data.
	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.	Certified reference material and blanks was included in each sample batch and appropriate levels of precision and accuracy.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Company personnel have observed the assayed samples
	The use of twinned holes.	No twinning

	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Field data were all recorded in field laptops and sample record books and then entered into a database
	Discuss any adjustment to assay data.	No adjustments were made.
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.*	Holes surveyed by GPS +/-5m accuracy. DGSP surveying planned.
	Specification of the grid system used.	The grid system used to compile data was MGA94 Zone 56
Location of data points - continued	*Quality and adequacy of topographic control.*	Topography control is +/- 25mm.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	Drill holes shown in Figures in text and Tables 1 & 2.
	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.	The data alone will not be used to estimate mineral resource or ore reserve
	Whether sample compositing has been applied.	Results are reported as length weighted average composites at a minimum cut-off grade of 0.4 % Cu (refer to Table 1).
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.*	Orientation of mineralisation based on 2 x orientated drill holes, indicates shallow flat lying mineralised zone cut by later dolerite dykes
	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.	As above
Sample security	*The measures taken to ensure sample security.*	Samples were kept in numbered and secured bags until delivered to the laboratory
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	Sampling techniques are consistent with industry standards

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 Sulphide City Copper-Zinc Prospect is part of the Develin Creek VMS project, that lies on EPM17604. The project is 100% owned by a wholly owned subsidiary of Zenith Minerals Limited. The prospect area is on private grazing lands with access subject to a land access agreement between Zenith & the landholder.
	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.	All tenements are 100% held by Zenith and are in good standing with no known impediment to future granting of a mining lease.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	• Mineralisation was first identified in late 1992 by Queensland Metals Corporation (QMC) over what is now the Scorpion deposit. Between 1993 and mid-1995, QMC undertook an extensive geological and geophysical exploration program focused on the Develin Creek area and other prospects to the South. • In July 1995, QMC entered into a joint venture agreement with Outokumpu Mining Australia Pty Ltd (OMA) to continue exploration. OMA completed the first resource estimate for the Develin Creek deposits, then withdrew from the joint venture in 1996 and QMC (later changed names to Australian Magnesium Corporation) maintained the tenements until relinquishment in 2002. • Icon Limited (Icon) acquired the tenement and in 2007 completed this resource estimate for Sulphide City, Scorpion and Window from historical drilling data. • Fitzroy Resources acquired the project from Icon and listed via prospectus dated October 2010 and subsequently completed a HeliTEM survey, minor DHEM, some geochemical sampling and drilling of 12 holes). Of those 12 holes, 6 diamond holes were drilled to the south and east of the Develin Creek resource. • Drill hole FRWD0002 collared near the southern edge of the resource intersected 13.5m grading 3.3%Cu, 4.0%Zn, 0.5g/t Au and 30g/t Ag in massive sulphide from 182m. The mineralisation was intersected in a position that extends the known limits of the resource by around 40m to the south where it remains open to further upside. • In addition, Fitzroy completed 3 RC holes at the Lygon Prospect and a further 2 south of the Develin Creek resource area.
Geology	*Deposit type, geological setting and style of mineralisation.*	Sulphide City, Scorpion and Window are later Permian age volcanogenic massive sulphide deposits hosted with the Rookwood Volcanics basaltic sequence. Mineralisation observed at the Snook Copper prospect is consistent with this style of mineralisation. Copper observed at surface occurs within bleached and altered sedimentary rocks that are interbeds within the basalt sequence.

		Massive sulphides intersected in RC & subsequent diamond drilling
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:* *o easting and northing of the drill hole collar* *o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* *o dip and azimuth of the hole* *o down hole length and interception depth* *o 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.*	Refer to Table 1 & 2
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.*	Length weighted average grades, 0.4% Cu cut-off, minimum 0.3m sample length.
	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.	As above
Data aggregation methods - continued	*The assumptions used for any reporting of metal equivalent values should be clearly stated.*	Length weighted average grades
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.*	The intersections in drill holes are interpreted to be close to true widths. Host sequence confirmed as shallow dipping.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	The intersections in drill holes are interpreted to be close to true widths.
	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').	As above
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.*	Refer attached maps & sections
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.*	Results for all holes are 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.*	The Devein Creek project contains a VMS copper-zinc deposit with an Inferred Mineral Resource (JORC 2012) of: 2.57Mt @ 1.76% copper, 2.01% zinc, 0.24g/t gold and 9.6g/t silver (2.62% CuEq) released to ASX on 15- -Feb-2015. Upside to resource grades are considered likely with Zenith RC hole twinning previous 1993 percussion hole returning significantly higher copper, zinc, gold and silver grades (300% to 700% higher). Initial **metallurgical testwork** results show positive first stage "rougher" recoveries of 90%. The Company holds exploration permits that cover the highly prospective host rocks over 50km north – south. The **Snook IP** survey was completed by Fender Geophysics. Equipment used included a GDD TxII 5kVA Transmitter (Tx) and a GDD RX-32 IP Receiver (Rx). Receiving electrodes were standard non-polarising porous pots and transmitter electrodes were buried aluminium plates. The Snook IP survey was completed using a standard roll along Dipole-Dipole (DDIP) configuration. Figure 2 illustrates the survey layout. The Snook IP survey specifications were as follows: DDIP : • Dipole Size 50m • Rx Array Length 800m (16 Channels) • Number of lines 3 • Line spacing 100m/200m • Line Length 1 x 1.7km, 2 x 1.3km The survey was completed on a local grid system. The conversion between the local grid system and GDA94 / MGA55 coordinates is as follows: Local 10000E 20000N = GDA94/MGA55 791214.7E 7423564.5N, Line Bearing = 050.0º Data review and processing was completed by RAMA Geoscience of QLD. Raw IP data supplied by Fender was imported into TQIPdb, an IP data quality control and processing software package. Individual chargeability decays from each station were inspected and any noisy decays, bad repeat readings, or readings with very low primary voltage were flagged in the database. Any readings flagged for low quality are not used at any subsequent stage of the processing. Data quality for the Snook IP surveys was generally very good. Signal levels were high, and repeatability excellent. The validated data was exported from TQIPdb for subsequent plotting and inversion processing. The chargeability was calculated using an integration window of 590ms to 1540ms. Shuttle Radar Topography Mission (SRTM) elevation data downloaded from the USGS Earth Explorer portal

and transformed to the AUSGeoid09 datum was utilised for the topography.

For the Snook DDIP data, 2D inversion modelling was completed using Res2D from Geotomo Software. Res2D determines a 2D resistivity and chargeability model of the subsurface that satisfies the observed DDIP data to within an acceptable error level. This is a robust way of converting the observed pseudo-section data into resistivity and chargeability model sections which reflect the likely geometry and location of anomaly sources.

Using default parameters for the inversion processing generally produces smooth models. As the geology is expected to be mostly flat lying or shallowly dipping at Snook, weighting towards horizontal formations has been applied to the models presented.

The **Wilson IP** survey was completed by Fender Geophysics. Equipment used included a GDD TxII 5kVA Transmitter (Tx) and a GDD RX-32 IP Receiver (Rx). Receiving electrodes were standard non-polarising porous pots and transmitter electrodes were buried aluminium plates.

The Wilson IP survey was completed using a standard roll along Dipole-Dipole (DDIP) configuration. Figure 5 illustrates the survey layout, and Table 1 lists the survey coverage.

The Wilson IP survey specifications were as follows:
DDIP : Dipole Size 50m

- Rx Array Length 800m (16 Channels)
- Number of lines 4
- Line spacing 200m
- Line Length 1.4km
- The survey was completed using the GDA94/MGA55 coordinate system.

Data review and processing was completed by RAMA Geoscience of QLD. Raw IP data supplied by Fender was imported into TQIPdb, an IP data quality control and processing software package. Individual chargeability decays from each station were inspected and any noisy decays, bad repeat readings, or readings with very low primary voltage were flagged in the database. Any readings flagged for low quality are not used at any subsequent stage of the processing.

Data quality for the Wilson IP surveys was generally very good. Signal levels were high, and repeatability excellent.

The validated data was exported from TQIPdb for subsequent plotting and inversion processing. The chargeability was calculated using an integration window of 590ms to 1540ms. Shuttle Radar Topography Mission (SRTM) elevation data downloaded from the USGS Earth Explorer portal and transformed to the AUSGeoid09 datum was utilised for the topography.

For the Wilson DDIP data, both 2D and 3D inversion modelling was completed.

The 2D inversion modelling was completed using Res2D produced by Geotomo Software. Res2D determines a 2D resistivity and chargeability model of the subsurface that satisfies the observed DDIP data to within an acceptable error level. This is a robust way of converting the observed pseudo-section data into resistivity and chargeability model sections which reflect the likely geometry and locations of anomaly sources.

The 3D inversion modelling was completed using Res3D from Geotomo Software. Res3D determines three-dimensional resistivity and chargeability distributions that satisfy the observed DDIP data to within an acceptable error level. Data from all four DDIP lines collected at Wilson was used as the input data. The resulting 3D models consist of values of resistivity and chargeability distributed over a 3D mesh of cells. The cell dimension used for the model mesh was 25m x 50m x 12.5m.

Using default parameters for the inversion processing generally produces smooth models. To add more geological structure to the models, weighting towards narrower discrete sub-vertical formations has been applied to all the models presented.

VTEM

A VTEM airborne electromagnetic (EM) trial survey was carried out at Zenith Minerals' Develin Creek Project, QLD, by Geotech Airborne Ltd, during May 2015.

The VTEM "Max" airborne E system was trialled over the known VMS deposits: Sulphide City, Scorpion and Window, to determine if these deposits produce a discernible VTEM response.

Principal geophysical sensors included a versatile time domain electromagnetic (VTEM max) system, and a caesium magnetometer. Ancillary equipment included a GPS navigation system and a radar altimeter.

In-field data quality assurance and preliminary processing were carried out on a daily basis during the acquisition phase. Preliminary and final data processing, including generation of final digital data and map products were undertaken from the office of UTS Geophysics in Aurora, Ontario.

The geophysical surveys consisted of helicopter borne EM using the versatile time-domain electromagnetic (VTEM max) with Full-Waveform processing. Measurements consisted of Vertical (Z) and In-line Horizontal (X) components of the EM fields using an induction coil and the aeromagnetic total field using a caesium magnetometer. A total of 33 line-km of geophysical data were acquired during the survey.

During the survey the helicopter was maintained at a mean altitude of 84 metres above the ground with an average survey speed of 80 km/hour. This allowed for an actual average transmitter-receiver loop terrain clearance of 46 metres and a magnetic sensor clearance of 74 metres.

The on-board operator was responsible for monitoring the system integrity. He also maintained a detailed flight log during the survey, tracking the times of the flight as well as any unusual geophysical or topographic features.

The electromagnetic system was a Geotech Time Domain EM (VTEM max) full receiver wave form streamed data recorded system. The “full waveform VTEM system” uses the streamed half-cycle recording of transmitter and receiver waveforms to obtain a complete system response calibration throughout the entire survey flight. VTEM, with the serial number 24 had been used for the survey.

Fortyfive time measurement gates were used for the final data processing in the range from 0.026 to 12.250 msec. Zero time for off-time sampling scheme is equal to current pulse width and defined as the time near the end of the turn-off ramp where the dI/dt waveform falls to 1/2 of its peak value.

VTEM max system specification:
Transmitter

- Transmitter loop diameter: 35 m
- Effective Transmitter loop area: 3848 m2
- Number of turns: 4
- Transmitter base frequency: 25 Hz
- Peak current: 294 A
- Pulse width: 4.93 ms
- Wave form shape: trapezoid
- Peak dipole moment: 1,131,312 nIA
- Average transmitter-receiver loop terrain clearance: 46 metres above the ground

Receiver

- X Coil diameter: 0.32 m
- Number of turns: 245
- Effective coil area: 19.69 m2
- Z-Coil diameter: 1.2 m
- Number of turns: 100
- Effective coil area: 113.04 m2

The calibration is performed on the complete VTEM system installed in and connected to the helicopter, using special calibration equipment. The procedure takes half-cycle files acquired and calculates a calibration file consisting of a single stacked half-cycle waveform. The purpose of the stacking is to attenuate natural and manmade magnetic signals, leaving only the response to the calibration signal.

The Full Waveform EM specific data processing operations included:

- Half cycle stacking (performed at time of acquisition);
- System response correction;
- Parasitic and drift removal.

		A three-stage digital filtering process was used to reject major sferic events and to reduce system noise. Local sferic activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with geological phenomena. To avoid this possibility, a computer algorithm searches out and rejects the major sferic events. The signal to noise ratio was further improved by the application of a low pass linear digital filter. This filter has zero phase shift which prevents any lag or peak displacement from occurring, and it suppresses only variations with a wavelength less than about 1 second or 15 metres. This filter is a symmetrical 1 sec linear filter. The results are presented as stacked profiles of EM voltages for the time gates, in linear - logarithmic scale for the B-field Z component and dB/dt responses in the Z and X components. B-field Z component time channel recorded at 0.880 milliseconds after the termination of the impulse is also presented as contour colour images. VTEM max has two receiver coil orientations. Z-axis co il is oriented parallel to the transmitter coil axis and both are horizontal to the ground. The X-axis coil is oriented parallel to the ground and along the line-of-flight. This combined two coil configuration provides information on the position, depth, dip and thickness of a conductor. Additional validation and interpretation of the VTEM data was carried out by Resource Potentials of Western Australia
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).*	Follow-up drill planning in progress, diamond drill core will provide new samples for metallurgical testwork, with a program anticipated to commence early July 2021.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Refer to figures in body of report.