

1 June 2017

## HIGH-GRADE Zn-Pb INFERRED RESOURCE ESTIMATE AT KILDARE

### Key Points:

- **Maiden JORC Inferred Mineral Resource independently estimated for the McGregor and Shamrock prospects at the 100%-owned Kildare MVT Zinc Project in Ireland.**
  - **5.2Mt @ 8.6% combined Zn+Pb (7.2% Zn & 1.4% Pb)**
- **Assay results pending from recent 20.95m massive sulphide intersection at McGregor.**
- **Potential to increase resource size and/or grade with ongoing drilling.**
- **The Mineral Resource Estimate is complemented by ZMI's option to acquire the Galmoy Lead-Zinc Processing Plant.**
- **Substantial exploration potential exists within ZMI's ~750km<sup>2</sup> landholding in Ireland.**

European base metals explorer Zinc of Ireland NL (ASX: ZMI – “ZMI” or “the Company”) is pleased to announce that it has completed a maiden JORC 2012 compliant Mineral Resource estimate for its flagship 100%-owned **Kildare MVT Zinc Project**, located 40km south-west of Dublin in Central Ireland (Figure 1).

The maiden Global Inferred Mineral Resource Estimate (MRE), which has been independently estimated by geological consultants Al Maynard & Associates (AM&A), comprises approximately **5.2 million tonnes at an average grade of 8.6% combined Zn+Pb (7.2% Zn and 1.4% Pb)** for **374,400 tonnes of contained zinc and 72,800 tonnes of contained lead** based on a cut-off grade of 5% combined Zn+Pb for fresh and 6% combined Zn+Pb for weathered mineralisation. The individual resources at McGregor and Shamrock are as follows:

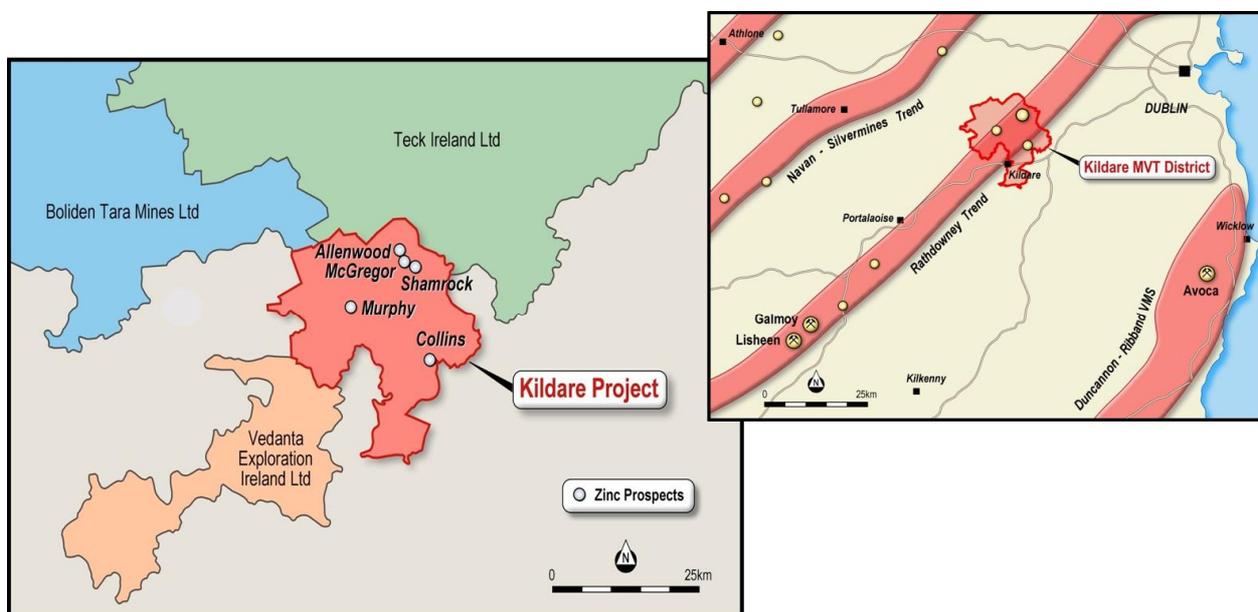
- **McGregor: 4.1Mt at 8.9% combined Zn+Pb (7.5% Zn and 1.4% Pb); and**
- **Shamrock: 1.1Mt at 7.4% combined Zn+Pb (6.1% Zn and 1.3% Pb)**

The initial MRE, which encompasses the McGregor and Shamrock prospects, has been based on the extensive database of historical drilling information, together with generations of geological mapping

and geophysical surveys, which has been exhaustively reviewed, verified and collated by ZMI over the past six months.

The MRE provides a strong foundation for ZMI’s continuing exploration and resource development activities at the Kildare Project, where a pivotal 3,000m diamond drilling program is continuing to test multiple targets, including extensions of mineralisation at the Shamrock and McGregor Prospects.

A recently completed hole intersected a thick zone of massive sulphides at the McGregor Prospect, demonstrating significant mineralisation at this deposit (see ASX Announcement – 19 May 2017). An exploration hole is currently underway ~1km to the west of McGregor.



**Figure 1: Regional setting of the Kildare Project**

### **Maiden Mineral Resource Estimate – McGregor and Shamrock Prospects**

Over the past six months, ZMI’s geological team has taken more than 4,500 assays and 2,300 lithological intervals from historical records and added to a database of nearly 700 drill holes. This information has been merged with generations of geological mapping and geophysical surveys to enable the Company to calculate a maiden resource and optimise its exploration budget.

ZMI engaged AM&A to complete the MRE, which is set out in Table 1 below. The MRE has been classified in accordance with the guidelines as set out in the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves” (JORC, 2012 Edition).

Classification of the Mineral Resource estimate has taken into consideration the mineralised zone drill intersection spacing, quality of geological and sampling data, geological understanding/interpretation

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and geological and grade continuity, and analysis of the estimation results.

The resource extends from surface to a vertical depth of approximately 450m depth and encompasses several mineralised horizons.

**Table 1: May 2017 Global Inferred Mineral Resource estimate for the Kildare MVT Zinc Project**

Inferred	Cut-Off Pb & Zn	M Tonnes	Zn %	Pb %
<b>McGregor</b>				
<i>Weathered</i>	6%	0.1	8.8	3.1
<i>Fresh</i>	5%	4.0	7.5	1.3
<b>Shamrock</b>				
<i>Fresh</i>	5%	1.1	6.1	1.3
<b>Totals</b>		<b>5.2</b>	<b>7.2</b>	<b>1.4</b>

### Technical Summary

Resource estimation and the mineral resource report was completed by Phil Jones B.App.Sc., MAusIMM, MAIG and Al Maynard B.App.Sc., MAusIMM, MAIG, of Al Maynard & Associates Pty Ltd. A database comprising 205 drillholes were supplied to AM&A in order to complete the resource estimate. The majority of holes were drilled from 1972 – 1986 and comprised diamond core with lesser shallow reverse circulation holes. Subsequent exploration by operators after 1986 has occurred to increase the existing mineralisation at both the Shamrock and McGregor deposits.

The resource estimate calculated a range of Zn+Pb% cut-offs and these are summarised in Table 2, Table 3 and Table 4, below. In addition to the quoted MRE in Table 1 (above) a smaller, higher grade mineralisation shell at an increased cut-off grade of 6% combined Zn+Pb is calculated to be approximately **3.5Mt @ 10.1% combined Zn+Pb (8.5% Zn and 1.6% Pb)**.

Conversely, a larger low-grade mineralisation shell at a reduced cut-off grade of 3% combined Zn+Pb is calculated to be approximately **11.1Mt @ 6.0% combined Zn+Pb (5.1% Zn and 0.9% Pb)**.

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**Table 2: McGregor Mineral Resource Estimate Table (weathered mineralisation)**

Cut-off Pb+Zn%	Tonnes	Zn%	Pb%	Pb+Zn%	SG (t/m <sup>3</sup> )
>20.0	16,000	19.38	3.84	23.22	2.00
>15.0	36,500	15.83	4.22	20.05	2.00
>10.0	63,250	12.93	3.74	16.68	2.00
>9.0	75,250	11.82	3.70	15.52	2.00
>8.0	85,250	11.09	3.60	14.69	2.00
>7.0	104,250	10.00	3.36	13.36	2.00
>6.0	132,000	8.84	3.07	11.91	2.00
>5.0	173,750	7.65	2.72	10.37	2.00
>4.0	231,000	6.53	2.38	8.91	2.00
>3.0	299,750	5.56	2.10	7.66	2.00
>2.0	390,000	4.66	1.81	6.46	2.00
>1.0	556,000	3.56	1.39	4.95	2.00

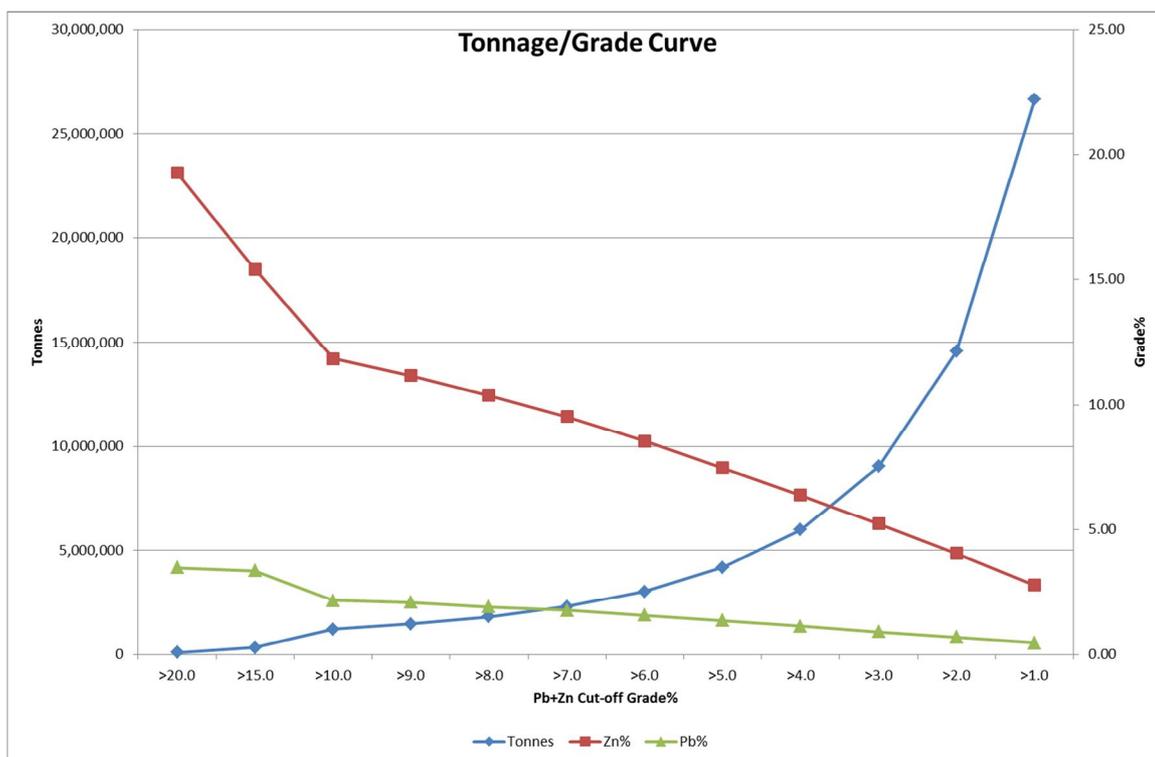
**Table 3: McGregor Mineral Resource Estimate Table (fresh mineralisation)**

Cut-off Pb+Zn%	Tonnes	Zn%	Pb%	Pb+Zn%	SG (t/m <sup>3</sup> )
>20.0	75,075	19.22	3.39	22.62	3.30
>15.0	285,450	15.34	3.26	18.61	3.30
>10.0	1,131,075	11.82	2.11	13.93	3.30
>9.0	1,381,050	11.13	2.00	13.13	3.30
>8.0	1,723,012	10.36	1.85	12.20	3.30
>7.0	2,181,712	9.51	1.70	11.20	3.30
>6.0	2,895,749	8.53	1.51	10.04	3.30
>5.0	4,007,436	7.47	1.30	8.77	3.30
>4.0	5,747,773	6.38	1.08	7.46	3.30
>3.0	8,728,498	5.22	0.87	6.09	3.30
>2.0	14,180,098	4.03	0.66	4.69	3.30
>1.0	26,090,623	2.76	0.44	3.20	3.30

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**Table 4: Shamrock Inferred Resource Estimate Table**

Cut-off Pb+Zn%	Tonnes	Zn%	Pb%	PB+ZN%	SG (t/m <sup>3</sup> )
>20.0	15,400	17.73	4.08	21.81	2.80
>15.0	70,700	14.81	2.67	17.48	2.80
>10.0	164,850	11.55	2.49	14.04	2.80
>9.0	200,550	10.81	2.42	13.23	2.80
>8.0	291,900	9.63	2.12	11.75	2.80
>7.0	364,700	8.95	1.94	10.90	2.80
>6.0	492,450	8.15	1.63	9.77	2.80
>5.0	1,090,250	6.08	1.34	7.41	2.80
>4.0	1,499,400	5.41	1.22	6.63	2.80
>3.0	2,025,450	4.71	1.08	5.79	2.80
>2.0	4,093,600	3.36	0.73	4.08	2.80
>1.0	9,243,150	2.14	0.46	2.60	2.80



**Figure 2: Tonnage/grade curve for resources at McGregor**

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The lead-zinc deposits at Kildare, including at McGregor and Shamrock, are typical Mississippi Valley Type (MVT) carbonate-hosted lead-zinc ore deposits. Metal-bearing ore fluids passing through porous brecciated carbonate rocks chemically react with the limestones forming disseminated or massive sulphides with knife-like margins between carbonate and sulphide mineralogies. The ore minerals in these carbonate replacement deposits are typically colloform lead sulphide - galena, and zinc sulphide - sphalerite.

The reliability of drillhole data and assay results used in the mineral resource estimate was reviewed by Robertson in 1990 of the pre-ZMI drilling against “*standard working methods and assay check analyses*”. Their judgement was that “*the quality of the available data is deemed to be good, though some specific points of detail are lacking*”. Check samples collected by Robertson from Shamrock boreholes and submitted for independent check analysis confirmed the validity of original analysis results within an acceptable range of accuracy. AM&A are also of the opinion that, although the historic data does not include details on the drilling and sampling techniques, the data is suitable for the estimation of an Inferred Resource. The analysis of ZMI QAQC results were all found to meet industry standards. AM&A have not independently sampled drill core in storage or taken field specimens to verify the drilling assay data.

Robertson reported that the pre-1990 core sampling was undertaken on an individual borehole basis without regard to systematic methods. This generally resulted in only the visibly mineralised zones being split. In many cases, upon the notification of results, secondary sampling of core has not been undertaken to determine the zinc, lead and iron content of footwall, hanging-wall and intermediate contact zones. This practice fails to provide assay cut-offs to the mineralisation and may result in the high-grading or underestimation of resources. ZMI drill core was marked up by the site geologist as being mineralised was sawn in half along the long axis by diamond saw operated by a trained technician. The split core was then sampled between lithological boundaries at 1 m intervals with the 1 m samples each bagged in labelled calico bags. This method is considered industry standard.

Previous tonnage calculations have adopted an assumed specific gravity for the mineralisation (3.0 and 3.5) dependent upon the assessment of low grade and high-grade mineralisation. The present study has made use of a theoretical specific gravity value for Zn (sphalerite), Pb (galena) and Fe (marcasite/pyrite) and a gangue value of 2.7. The AM&A resource estimates for both McGregor and Shamrock utilised a lower cut-off grade of 5% combined lead and zinc.

At McGregor three main lodes, identified using the lead and zinc assays and logged lithologies, were each interpreted on cross sections by snapping points to the drill holes and these sectional interpretations were then linked to form 3D wireframes. The three main lodes were each found to have a sub-horizontal dip with no discernible grade trend direction or overall strike. There were also a large number of mineralised drill intersections between the upper (above 0 m RL) and middle lode (at -250 m to -335 m RL) that could not all be satisfactorily linked between drill holes with wireframes as their continuity and attitude could not be accurately interpreted due to the large number of intersections and a lack of structural drill hole logging.

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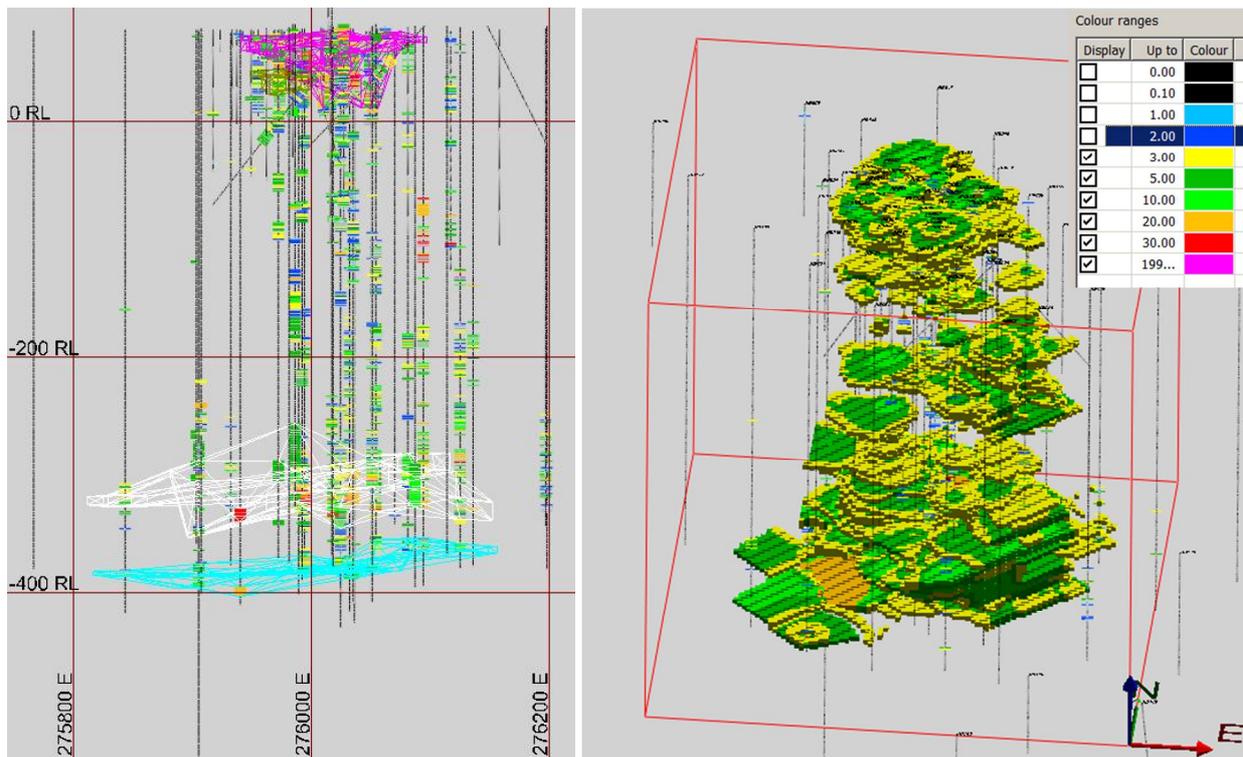


Figure 3: McGregor resource model coloured by Zn + Pb%

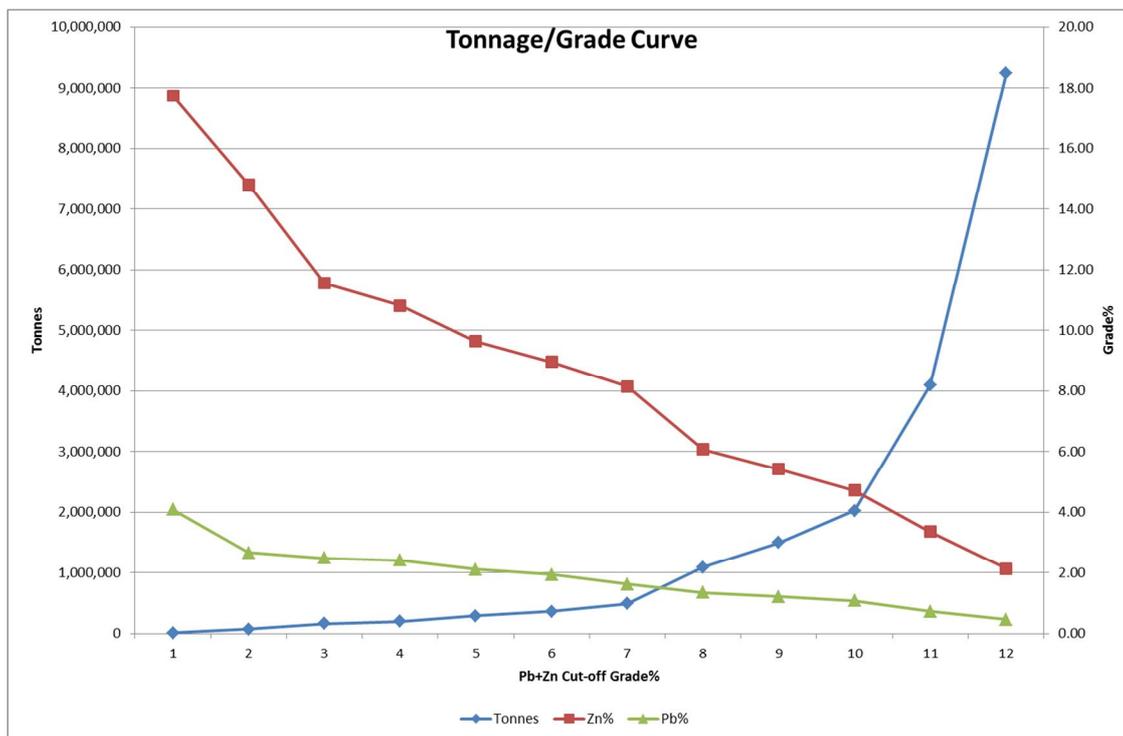
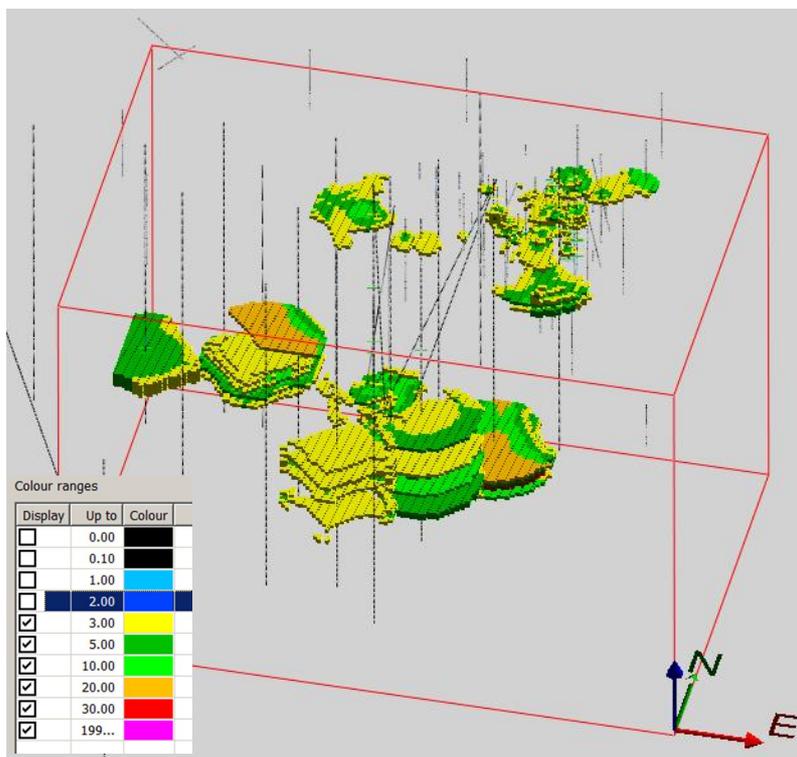


Figure 4: Tonnage/grade curve for resources at Shamrock



**Figure 5: Shamrock resource model coloured by Zn + Pb%**

The apparently randomly distributed style of mineralisation at McGregor cannot be properly modelled by constraining with wireframes so it was decided to model the mineralisation unconstrained by wireframes using a thin horizontal search ellipse/disc within defined limits. A solid was digitised around the drill holes limiting the search ellipse to within approximately 15 m of the resource limiting drill holes to avoid excessive extrapolation beyond these limiting holes (Figure 3). The model cells were populated with an Inverse Distance Squared algorithm in a single pass using a search ellipse 75 m (north-south) x 75 m (east-west) x 3 m (vertical).

The lead and zinc resources at Shamrock was also modelled using IMS (MineMap ©) software by Mr Phil Jones of AM&A. The drilling data used for the resource modelling is summarised in Table 6. This drilling, over the modelled resource, is drilled on a grid with holes spaced approximately 100 m x 100 m in the west and 20 to 40 m apart along lines nominally 30 m apart in the east, but not all the holes on this grid were drilled deep enough to intersect the deeper mineralisation beyond -100 m RL.

At Shamrock there is insufficient drilling, especially in the deeper mineralisation to be properly modelled by constraining with wireframes so it was decided to model the mineralisation unconstrained using a thin horizontal search ellipse/disc within defined limits. A solid was digitised around the drill holes limiting the search ellipse to within approximately 15 m of the resource limiting drill holes to avoid excessive extrapolation beyond these limiting holes (Figure 5). The model cells were populated with an Inverse Distance Squared algorithm in a single pass using a search ellipse 75 m (north-south) x 75 m (east-west) x 3 m (vertical).

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## Drilling Update

Further to its announcement of 19 May 2017, ZMI is pleased to advise that diamond drilling is continuing to make excellent progress at the Kildare Project, with drilling continuing to demonstrate the substantial upside to the maiden Mineral Resource Estimate.

Approximately 1,600m of the planned 3,000m program at the Kildare Project have now been completed, with three holes completed and a fourth in progress. Details of the holes drilled to date are as follows:

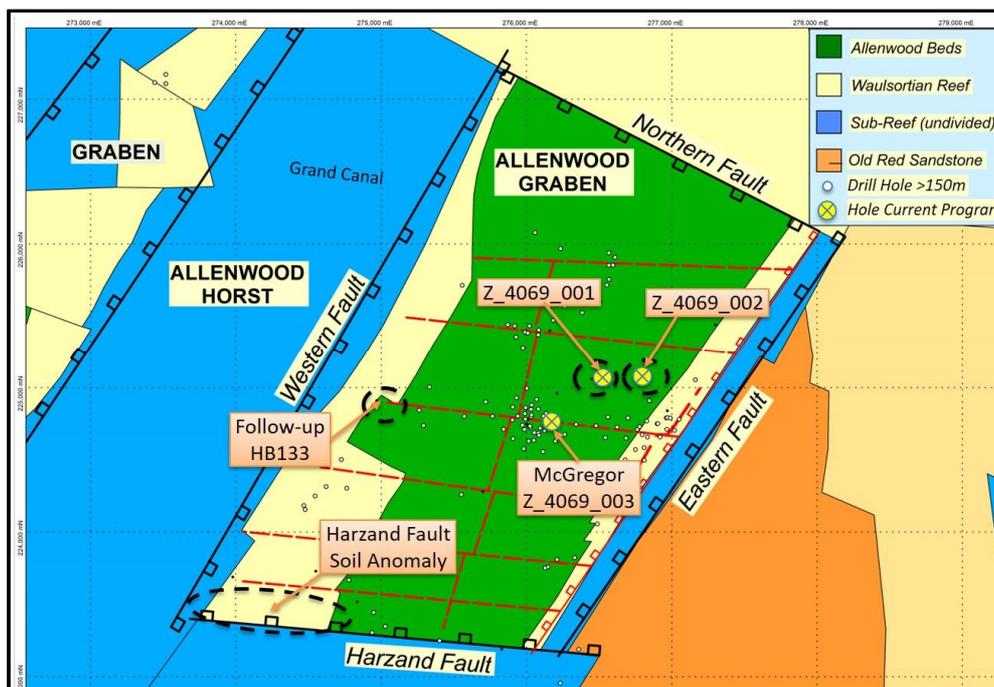
**Table 2: Phase 2 completed hole locations at Kildare (update)**

Hole_ID	Easting_Irish Grid	Northing_Irish Grid	Elevation	Dip	Azimuth	Total_Depth
Z_4069_001	276,585	225,063	81.186	80°	250°	425.4m
Z_4069_002	276,808	225,069	84.324	80°	165°	437.4m
Z_4069_003	276,253	224,938	78.241	56°	225.5°	554.6m

As outlined previously, Z\_4069\_003, was designed to extend the existing mineralisation at the McGregor prospect (see ASX Announcement – 19 May 2017 and Figure 6). The hole intersected broad zones of breccia-hosted massive sulphides with visual estimates of up to 25% zinc sulphide are recorded over 17.61m calculated true thickness (from an intercept length of 20.95m) from 394.5m true depth.

This demonstrates the significant upside potential to the maiden Mineral Resource estimate for the McGregor Prospect.

A fourth hole is currently in progress, located approximately 1km west of the McGregor Prospect, where an historical hole intercepted moderate mineralisation at shallow depths but didn't test the base of reef target beneath.



**Figure 6: Kildare Project phase 2 drill holes**

**Management Comment**

ZMI’s Managing Director, Mr Peter van der Borgh, said the completion of a maiden Mineral Resource estimate for the Kildare Project was a significant milestone for the Company, resulting from the significant effort which has been dedicated to validating and collating the vast historical database over the past six months.

“Being able to put a high-grade JORC Mineral Resource of this magnitude, grade and quality on the table within less than 12 months of acquiring the project is a huge achievement,” he said.

“This is a significant, high quality resource which is supported by a vast amount of drill hole and assay data, and which underpins our ongoing exploration effort with a significant metal inventory on our books.

“Importantly, this resource is located in a world-renowned MVT district, just 40km from Dublin, in an area which has excellent infrastructure and access to services and a skilled workforce.

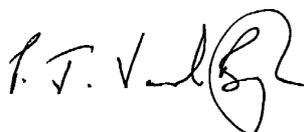
“These positive attributes, together with the fact that we have already secured an option over the former Galmoy processing plant, which once operated 60km along strike treating comparable ore, means that we are very well placed to fast-track the development of the resource to take advantage of forecast strong zinc market conditions over the coming decade, as the market continues to experience severe supply side shortages.”

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“That said, our focus for now is on unlocking the upside of this project, and our ongoing drilling program is already demonstrating the significant potential to grow the resource further and to make significant new discoveries in this proven mineral field.

“The fact that we are operating next door to some of the world’s greatest zinc mines – such as Vedanta’s Lisheen mine – should give investors an indication of the potential we see at Kildare to establish a globally significant zinc project in the heart of Europe,” Mr van der Borgh added.

Yours faithfully,



**Peter van der Borgh**  
Managing Director  
Zinc of Ireland NL

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**Competent Persons Statements**

*The information in this document that relates to exploration results is based on information compiled by Mr Benjamin Sharp BSc (Geol) MAIG, a Competent Person who is a Member of the Australian Institute of Geoscientists. Mr Sharp is a director and shareholder of Zinc of Ireland NL. Mr Sharp has sufficient experience, which is relevant to the style of mineralisation and types of deposits under consideration and to the activity which has been undertaken to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code). Mr Sharp consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

*The information in this document that relates to mineral resource estimates is based on information compiled by Mr Al Maynard BAppSc (Geol), MAIG, MAusIMM, a Competent Person who is a Member of the Australian Institute of Geoscientists and the Australasian Institute of Mining and Metallurgy. Mr Maynard is the principal of Al Maynard & Associates: Geological (AM&A) and does not hold any interest in Zinc of Ireland NL. AM&A invoiced ZMI and ZMI are expected to pay a fee for the preparation of the mineral resource estimate report. This fee comprises a normal, commercial daily rate plus expenses and the payment is not contingent on the results of the report. Mr Maynard has sufficient experience, which is relevant to the style of mineralisation and types of deposits under consideration and to the activity which has been undertaken to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code). Mr Maynard consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

*The information in this document that relates to mineral resource estimates is based on information compiled by Mr Phil Jones BAppSc (App Geol), MAIG, MAusIMM, a Competent Person who is a Member of the Australian Institute of Geoscientists and the Australasian Institute of Mining and Metallurgy. Mr Jones is a full-time employee of Al Maynard & Associates: Geological (AM&A) and does not hold any interest in Zinc of Ireland NL. AM&A invoiced ZMI and ZMI are expected to pay a fee for the preparation of the mineral resource estimate report. This fee comprises a normal, commercial daily rate plus expenses and the payment is not contingent on the results of the report. Mr Jones has sufficient experience, which is relevant to the style of mineralisation and types of deposits under consideration and to the activity which has been undertaken to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code). Mr Jones consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

**Disclaimer**

*Certain statements contained in this announcement, including information as to the future financial or operating performance of ZMI and its projects, are forward-looking statements that:*

- *may include, among other things, statements regarding targets, estimates and assumptions in respect of mineral reserves and mineral resources and anticipated grades and recovery rates, production and prices, recovery costs and results, capital expenditures, and are or may be based on assumptions and estimates related to future technical, economic, market, political, social and other conditions;*
- *are necessarily based upon a number of estimates and assumptions that, while considered reasonable by ZMI, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies; and,*
- *involve known and unknown risks and uncertainties that could cause actual events or results to differ materially from estimated or anticipated events or results reflected in such forward-looking statements.*

## ADDITIONAL INFORMATION JORC CODE, 2012 EDITION – TABLE 1

The following sections are provided for compliance with requirements for the reporting of exploration results under the JORC Code, 2012 Edition.

### **Section 1 Sampling Techniques and Data (ZMI drilling only)**

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

Criteria	JORC Code explanation	Commentary
<b>Sampling techniques</b>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></li> <li>• <i>Aspects of the determination of mineralisation that are Material to the Public Report.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Sampling is by half core (generally NQ diameter) of mineralised sections only. The entirety of the drill hole has not been sampled and additional samples, if collected, may be reported at a later time.</li> <li>• Sampling has occurred within lithological domains and as such does not cross lithological boundaries.</li> <li>• Samples were prepared by ALS Loughrea, Co Galway by crushing to 70% passing &lt;2mm with a representative sample then split using a Boyd splitter. The split sample is pulverised to 85% passing &lt;75um. The samples are then assayed by a multi element oxidising digestion with an inductively coupled plasma atomic emission spectroscopy finish (ICP-AES).</li> <li>• A selection of samples also have specific gravity (S.G.) measured.</li> </ul>
<b>Drilling techniques</b>	<ul style="list-style-type: none"> <li>• <i>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 orientated and if so, by what method, etc).</i></li> </ul>	<ul style="list-style-type: none"> <li>• Diamond drilling, PQ, HQ and NQ sized.</li> <li>• Upper portions of the drill holes were triple tubed or tri-coned to increase hole stability.</li> <li>• The core was not orientated</li> </ul>

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Criteria	JORC Code explanation	Commentary
<b>Drill sample recovery</b>	<ul style="list-style-type: none"> <li>• Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>• Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Drill core had recovery lengths and RQD calculated from these lengths whereby received/expected lengths = RQD.</li> <li>• Triple tubing was used to stabilise the hole.</li> <li>• There does not appear to be a relationship between recovery and grade.</li> </ul>
<b>Logging</b>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>• The total length and percentage of the relevant intersections logged.</li> </ul>	<ul style="list-style-type: none"> <li>• Drill holes have been logged by a competent representative geologist in Ireland. The logging is to such a detail to support addition into a mineral resource estimate.</li> <li>• A visual estimate of mineral types and amounts and interpreted lithology was completed using a standardised logging template. Both qualitative and quantitative logging has occurred.</li> <li>• Photography of mineralised zones is complete.</li> </ul>
<b>Sub-sampling techniques and sample preparation</b>	<ul style="list-style-type: none"> <li>• If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>• If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>• For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>• Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>• 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.</li> <li>• Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul style="list-style-type: none"> <li>• Core has been sampled by cutting in half before lab preparation. This sample is then sent to lab for crush and grind preparation.</li> <li>• The sample preparation is considered “industry standard” for this sample type.</li> <li>• A representative selection of submitted samples comprised duplicates, blanks and standards which were unbeknownst to the assaying laboratory. The laboratory also conducted internal QAQC checks.</li> <li>• Fields duplicates, blanks and standards for the submitted assays have all surpassed internal lab and ZMI QAQC standards.</li> </ul>

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Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Samples are assayed by a multi element oxidising digestion with an inductively coupled plasma atomic emission spectroscopy finish (ICP-AES). A selection of samples also had specific gravity (S.G.) measured.</li> <li>Ore grade analysis for base metals and associated elements by ICPAES, following a strong oxidizing acid digestion. Elements (low reporting limit/upper limit) –units are % unless indicated otherwise: Ag (1/1500 ppm (µg/g)), As (0.005/30.0), Bi (0.005/30.00), Ca (0.01/50.0), Cd (0.001/10.0), Co (0.001/20.0), Cu (0.005/40.0), Fe (0.01/100.0), Hg (8/10000 ppm (µg/g)), Mg (0.01/50.0), Mn (0.005/50.0), Mo (0.001/10.0), Ni (0.001/30.0), P (0.01/20.0), Pb (0.01/30.0), S (0.05/50.0), Sb (0.005/100.0), Tl (0.005/1.0), Zn (0.01/100.0).</li> <li>Internal QAQC results all appear within limits.</li> <li>Lab-produced QAQC results all appear within limits.</li> <li>Handheld XRF instruments have not been used.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul style="list-style-type: none"> <li>Drill hole data is compiled digitally by company representatives.</li> <li>Samples have not been submitted to an umpire laboratory for check analysis.</li> <li>Holes were not twinned.</li> <li>Assays were adjusted to represent weighted averages over 1m.</li> </ul>
Location of data points	<ul style="list-style-type: none"> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul style="list-style-type: none"> <li>Collars were surveyed by a Trimble Geo-Explorer 6000, RTK Differential GPS in Irish Grid 65.</li> <li>Downhole surveys were completed using a Reflex EZ-TRAC.</li> <li>Location of the collar and downhole information is considered appropriate for this stage of exploration</li> </ul>

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Criteria	JORC Code explanation	Commentary
<i>Data spacing and distribution</i>	<ul style="list-style-type: none"> <li>• <i>Data spacing for reporting of Exploration Results.</i></li> <li>• <i>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i></li> <li>• <i>Whether sample compositing has been applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Drill collars are not at a standard data spacing but are placed to intersect maximum metal grades.</li> <li>• Sample compositing has not been applied.</li> </ul>
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> <li>• <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Mineralisation appears to be horizontal/sub-horizontal.</li> <li>• Drillholes drilled at 90° have therefore not appeared to bias the reported results.</li> <li>• Any angled hole intersections have had true thickness calculated.</li> </ul>
<i>Sample security</i>	<ul style="list-style-type: none"> <li>• <i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Samples were under the custody of company representatives in-country until delivery to the lab.</li> </ul>
<i>Audits or reviews</i>	<ul style="list-style-type: none"> <li>• <i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<ul style="list-style-type: none"> <li>• No audits or reviews have taken place.</li> </ul>

## Section 1 Sampling Techniques and Data (Historic drilling only)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li>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.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>All data is open file obtained from DCENR and GSI and does not represent new exploration information.</li> <li>Robertson reported that the core logged as being mineralised was split into two halves using a diamond cutting saw. One half of the core (normally of NQ wireline size) was composited over the assay length and submitted for zinc, lead and sometimes iron analysis. The sample preparation procedures are unknown.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>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).</li> </ul>	<ul style="list-style-type: none"> <li>Diamond drilling, NQ size and RC (reverse circulation drilling) using a face-sampling bit.</li> <li>The core was not orientated</li> </ul>

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Criteria	JORC Code explanation	Commentary
<b>Drill sample recovery</b>	<ul style="list-style-type: none"> <li>• <i>Method of recording and assessing core and chip sample recoveries and results assessed.</i></li> <li>• <i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The methods used for measuring and recording sample recoveries are unknown.</li> <li>• Empirical assessments of percentage recovery are occasionally referred to in the drillhole logs, though this practice is considered to have occurred only where recoveries were extremely poor or where cavities were intersected resulting in no recovery. In some instances, for example the unconsolidated 'sand' mineralisation present at shallow depths in the McGregor and Shamrock Zones, average grades have been calculated on the basis of recovered sludge samples.</li> </ul>
<b>Logging</b>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i></li> <li>• <i>The total length and percentage of the relevant intersections logged.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Drillholes were logged but to an unknown standard.</li> <li>• Drillhole logging utilised qualitative and quantitative assessments of geology, mineralisation and/or structure (un-orientated).</li> <li>• Robertson reported that the quality of available borehole logs for the project area is generally good. However, some inconsistencies occur in the schematic and tabulated accounts, due to the large number of geologists who have been responsible for logging since the mid-1970s.</li> </ul>

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Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>• <i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></li> <li>• <i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i></li> <li>• <i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></li> <li>• <i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> <li>• <i>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i></li> <li>• <i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Mineralised core (normally NQ size) was halved and submitted for assay.</li> <li>• The procedures used for sample preparation are unknown.</li> <li>• Robertson reported that the core sampling was undertaken on an individual borehole basis without regard to systematic methods. This generally resulted in only the visibly mineralised zones being split. In many cases, upon the notification of results, secondary sampling of core has not been undertaken to determine the zinc, lead and iron content of footwall, hanging-wall and intermediate contact zones.</li> </ul>
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li>• <i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li>• <i>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i></li> <li>• <i>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Analytical methods are unknown but are assumed to be by conventional acid digest with atomic absorption spectrometry for Fe, Zn &amp; Pb.</li> <li>• Robertson reported that the chemical analytical method for the samples was recorded, but assumed to be by conventional acid digestion and atomic absorption spectrometry, giving values for zinc, lead and iron against a calibrated series of standards.</li> </ul>

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Criteria	JORC Code explanation	Commentary
<b>Verification of sampling and assaying</b>	<ul style="list-style-type: none"> <li>• <i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li>• <i>The use of twinned holes.</i></li> <li>• <i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li>• <i>Discuss any adjustment to assay data.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The reliability of drillhole data and assay results was reviewed by Robertson in 1990 of the pre-ZMI drilling against “<i>standard working methods and assay check analyses</i>”. Their judgement was that “<i>the quality of the available data is deemed to be good, though some specific points of detail are lacking</i>”.</li> <li>• Significant historic intersections have been checked against multiple sources, where available, but alternative company personnel.</li> </ul>
<b>Location of data points</b>	<ul style="list-style-type: none"> <li>• <i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i></li> <li>• <i>Specification of the grid system used.</i></li> <li>• <i>Quality and adequacy of topographic control.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Historic exploration boreholes were not surveyed, and as such their geometry can only be assumed to be vertical for resource estimation purposes.</li> <li>• Accuracy and quality of collar location surveys are unknown.</li> <li>• Accuracy and quality of downhole surveys, if they exist, are unknown.</li> </ul>
<b>Data spacing and distribution</b>	<ul style="list-style-type: none"> <li>• <i>Data spacing for reporting of Exploration Results.</i></li> <li>• <i>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i></li> <li>• <i>Whether sample compositing has been applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The drilling is widely spaced throughout the PLs, mainly designed to test geochemical and geophysical targets. This drilling provides only an indication of the likely geological and grade continuity and is not sufficient for Mineral Resource estimation.</li> <li>• At McGregor and Shamrock much of the drilling spaced on an approximate 20 m to 100 m grid.</li> <li>• For many of the drill intersections only records of composite assays are available.</li> </ul>

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Criteria	JORC Code explanation	Commentary
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> <li>• <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The mineralisation is interpreted to be horizontal/sub-horizontal. Most of the drilling is designed to be vertical, therefore in these holes the drilled intersections are approximately orthogonal to the mineralisation and approximates the true width of the mineralisation.</li> <li>• The orientation of the drilling should not have introduced a sampling bias.</li> </ul>
<i>Sample security</i>	<ul style="list-style-type: none"> <li>• <i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Details of sample security are unknown but are assumed to be under the custody of company representatives and assay lab representatives.</li> </ul>
<i>Audits or reviews</i>	<ul style="list-style-type: none"> <li>• <i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The Robertson Group PLC completed a review of the project in March 1990 (Report No. 4376). They concluded that “<i>when the data is reviewed against standard working methods and check assays, an overall judgment the quality of the available data is deemed to be good, though some specific points of detail are lacking</i>”.</li> </ul>

## Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>The Kildare Project is comprised of 6 tenements namely PL3846, PL3866, PL4069, PL4070, PL4072 and PL4073.</li> <li>All tenements are 100% owned by Raptor Resources, a subsidiary of Zinc of Ireland NL.</li> <li>No historical, wilderness or national parks are known to infringe significantly on the tenure.</li> <li>A comprehensive list of all tenure owned by Zinc of Ireland NL is included after the JORC table in Table 5.</li> </ul>
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> <li><i>Acknowledgment and appraisal of exploration by other parties.</i></li> </ul>	<ul style="list-style-type: none"> <li>Exploration completed by other parties is summarised in ASX:GXN Announcement dated 17th March 2016 and associated annexes.</li> <li>No additional material information regarding historical information is known to the company that would affect the interpretation of this announcement.</li> </ul>

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Criteria	JORC Code explanation	Commentary
<p><b>Geology</b></p>	<ul style="list-style-type: none"> <li>• <i>Deposit type, geological setting and style of mineralisation.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The Kildare Project is situated approximately 2km NW of the Lower Paleozoic Kildare Inlier on a northeast-southwest trending reverse fault. Local geology consists of sediments conformably overlying Carboniferous Waulsortian Mudbank. This mudbank overlies a thick succession of carbonates and limestones atop basement volcanics.</li> <li>• Lithologies at the Kildare Project are overlain by up to 20m of glacial overburden comprising a mix of boulders, gravel, sand and clay. At McGregor this is underlain by the pelspartic and micritic Allenwood Beds, which are in turn underlain by Waulsortian Reef, a pink/grey micritic limestone with varying degrees of shale and biological fauna, calcite veining, brecciation and sulphides, which is recognised as a regionally significant host rock for zinc across the Irish Carboniferous Basin.</li> <li>• The area is considered prospective for breccia-hosted Fe-Zn-Pb deposits (a Mississippi Valley-type mineralisation style).</li> <li>• Detailed geology is summarised in ASX:GXN Announcement dated 17th March 2016 and associated annexes.</li> </ul>

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Criteria	JORC Code explanation	Commentary
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <li>• <i>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:</i> <ul style="list-style-type: none"> <li>○ <i>easting and northing of the drill hole collar</i></li> <li>○ <i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i></li> <li>○ <i>dip and azimuth of the hole</i></li> <li>○ <i>down hole length and interception depth</i></li> <li>○ <i>hole length.</i></li> </ul> </li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• No new exploration results are being reported.</li> <li>• Material drill hole information (Z_4069_003) is summarised in ASX:ZMI Announcement dated 19<sup>th</sup> May 2017.</li> </ul>
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>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.</i></li> <li>• <i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i></li> </ul>	<ul style="list-style-type: none"> <li>• No minimum cut-off grade has been applied to the reported intersections.</li> <li>• Assays have been weighted to 1m intervals.</li> <li>• Internal dilution may occur.</li> <li>• Reported intersections reflect the highest grade and/or the widest mineralized intersections</li> <li>• No metal equivalents have been quoted.</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>Relationship between mineralisation widths and intercept lengths</b>	<ul style="list-style-type: none"> <li>• <i>These relationships are particularly important in the reporting of Exploration Results.</i></li> <li>• <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i></li> <li>• <i>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').</i></li> </ul>	<ul style="list-style-type: none"> <li>• The mineralisation is interpreted to be horizontal/subhorizontal. Most of the drilling is designed to be vertical, therefore in these holes the drilled intersections are approximately orthogonal to the mineralisation and approximates the true width of the mineralisation.</li> <li>• Angled holes have a lower angle of intersection and as such true vertical widths have been calculated and reported in the announcement.</li> </ul>
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Plans and sections appear throughout this announcement</li> </ul>
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Reported intervals are those which are of the highest grade and/or greatest width.</li> </ul>
<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li>• <i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i></li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<b>Further work</b>	<ul style="list-style-type: none"> <li>• <i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li>• <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The Company is currently drilling at Kildare.</li> <li>• The current program is a combination of resource extension drilling and regional exploration drilling (Figure 8).</li> </ul>

### Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	<ul style="list-style-type: none"> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	<ul style="list-style-type: none"> <li>The data is predominantly based on historical drilling results. ZMI drilled six holes into the prospects in 2016 to confirm the geology and mineralisation of the deposits.</li> <li>ZMI engage local geological consultants with a long history of experience at Kildare and other Irish Zn-Pb deposits who have been instrumental in the collation and validation of much of the geological and assay data into a drill hole database.</li> <li>Drill hole collars have been validated against historical maps and plans.</li> <li>The drill hole database has been validated via specialist geological computer software packages including Micromine and Mapinfo which are capable of identifying discrepancies in absent and multiple collars, sample intervals, samples that extend beyond hole depth, and survey and location data.</li> <li>The software places restrictions on continued use until such discrepancies are corrected.</li> </ul>
Site visits	<ul style="list-style-type: none"> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul style="list-style-type: none"> <li>No site visits have been undertaken due to the remote nature of the project.</li> </ul>

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Criteria	JORC Code explanation	Commentary
Geological interpretation	<ul style="list-style-type: none"> <li>• <i>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</i></li> <li>• <i>Nature of the data used and of any assumptions made.</i></li> <li>• <i>The effect, if any, of alternative interpretations on Mineral Resource estimation.</i></li> <li>• <i>The use of geology in guiding and controlling Mineral Resource estimation.</i></li> <li>• <i>The factors affecting continuity both of grade and geology.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The geology and mineralisation of the deposit has been discussed in published papers (e.g. Emo 1986). Relatively flat lying stratigraphy dominated by carbonate sequences is evident in the drill logs and sections derived from them. Mineralisation is associated with a range of breccias that are likely to have involved at least some dissolution and collapse. Recently ZMI has interpreted the regional geological setting of the deposits to be a fault-bounded block or 'Graben'. At this stage it is not known whether these major faults or subsidiary faults have played a role in the siting and nature of the deposits.</li> <li>• Historical drill logs were compared with those drilled by ZMI last year. Correlations of geology, the nature of mineralisation, and assays were acceptable for interpreting mineralisation.</li> <li>• Alternative interpretations could potentially have a positive, neutral or negative effect on the Mineral Resource estimate although this would most likely be local in nature due to the relatively high drilling density and the good correlation between drill holes of mineralisation along specific horizons.</li> <li>• The geology and assays from the historic and recent drill holes have guided controls on the Mineral Resource estimate.</li> <li>• Continuity of geology and grade between drill holes appears to be good. However, the controlling factors are not yet fully understood and uncertainties exist consistent with an Inferred Minerals Resource classification.</li> </ul>

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Criteria	JORC Code explanation	Commentary
Dimensions	<ul style="list-style-type: none"> <li><i>The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.</i></li> </ul>	<ul style="list-style-type: none"> <li>The extent of mineralisation is yet to be defined.</li> <li>The resource is comprised of two parts, the McGregor and Shamrock Zones. Mineralisation extends along mineralised horizons at various depths from within 10m of the surface to approximately 400m depth. The McGregor zone has well developed mineralisation formed in a vertical pipe-like structure, with mineralisation at many levels but best developed at the base of the Waulsortian Reef, The pipe like structure has lateral dimensions of approximately 250m by 250m.</li> </ul>

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Criteria	JORC Code explanation	Commentary
Estimation and modelling techniques	<ul style="list-style-type: none"> <li>• <i>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</i></li> <li>• <i>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</i></li> <li>• <i>The assumptions made regarding recovery of by-products.</i></li> <li>• <i>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</i></li> <li>• <i>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</i></li> <li>• <i>Any assumptions behind modelling of selective mining units.</i></li> <li>• <i>Any assumptions about correlation between variables.</i></li> <li>• <i>Description of how the geological interpretation was used to control the resource estimates.</i></li> <li>• <i>Discussion of basis for using or not using grade cutting or capping.</i></li> <li>• <i>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The distribution of the mineralisation could not be properly modelled by constraining individual “shoots” with wireframes so it was decided to model the mineralisation unconstrained by wireframes using a thin horizontal search ellipse/disc, as indicated by the interpreted overall dip of the mineralisation, within defined limits. A solid was digitised around the drill holes limiting the search ellipse to within approximately 15 m of the resource limiting drill holes to avoid excessive extrapolation beyond these limiting holes. The model cells were populated with an Inverse Distance Squared algorithm in a single pass using a search ellipse 75 m (north-south) x 75 m (east-west) x 3 m (vertical).</li> <li>• MineMap© software was used to model the resources.</li> <li>• Only lead and zinc were modelled. No other potentially economic or deleterious minerals were modelled.</li> <li>• The metallurgical test work completed to date on the mineralisation at Kildare has not identified and potentially deleterious minerals that require modelling.</li> <li>• The model block dimensions and search ellipses are considered reasonable for modelling an Inferred resource of the style (MVT) mineralisation and sample density found at Kildare.</li> <li>• Since the resource is only Inferred and no mining studies have been commissioned, no selective mining units were modelled.</li> <li>• No assumptions were made about correlations between grade variables.</li> <li>• The interpreted overall dip of the mineralisation influenced the dip of the search ellipses used.</li> <li>• No grade cutting/capping was used</li> </ul>

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		<p>during the modelling since there are no statistical high grade outliers.</p> <ul style="list-style-type: none"> <li>The resource model was colour coded by grade and visually checked against drill holes similarly colour coded by Pb and Zn grade and was confirmed to correlate as expected.</li> <li>There is no historic mine production to reconcile the model against.</li> </ul>
Moisture	<ul style="list-style-type: none"> <li>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</li> </ul>	<ul style="list-style-type: none"> <li>The calculated tonnages are estimated on a dry basis.</li> </ul>
Cut-off parameters	<ul style="list-style-type: none"> <li>The basis of the adopted cut-off grade(s) or quality parameters applied.</li> </ul>	<ul style="list-style-type: none"> <li>The resource grade of 5% combined Zinc and Lead for fresh rock is considered more than adequate for the style of mineralisation in an underground mining scenario. The higher cut-off for the weathered mineralisation at McGregor is considered acceptable in the absence of metallurgical test work in such material.</li> </ul>
Mining factors or assumptions	<ul style="list-style-type: none"> <li>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.</li> </ul>	<ul style="list-style-type: none"> <li>No mining study has been carried out as part of this study, but an underground mining scenario is assumed for most of the Mineral Resource estimate and reflected in the cut-off grade.</li> </ul>

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Metallurgical factors or assumptions	<ul style="list-style-type: none"> <li>The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.</li> </ul>	<ul style="list-style-type: none"> <li>The only substantive metallurgical test work carried out on sample from Kildare was by Billiton. The sulphide mineralisation is predominantly sphalerite, galena and pyrite. Flotation of the fresh ore was successful using conventional froth flotation.</li> <li>The Galmoy and Lisheen mines, which are 60km to 80km along strike from Kildare, both operated successful conventional froth floatation plants in what is deemed to be comparable Zn-Pb ore.</li> </ul>
Environmental factors or assumptions	<ul style="list-style-type: none"> <li>Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.</li> </ul>	<ul style="list-style-type: none"> <li>No Environmental Impact Study has been carried out on the project however there are no known issues that should prevent a responsibly managed underground mining operation at the site. A large quarry located less than two kilometres from the site at Lowtown is currently mining building stone and aggregate so the community is apparently familiar and accepting of mining within the community.</li> </ul>
Bulk density	<ul style="list-style-type: none"> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	<ul style="list-style-type: none"> <li>This study made use of a theoretical specific gravity value sphalerite (Zn), galena (Pb) and marcasite/pyrite (Fe) and a gangue value of 2.7g/m<sup>3</sup>. SG calculations were computed for each respective assay interval of a significantly mineralised intersection (&gt;2.0% Zn+Pb) The resultant values have been weighted against the length of intersection and used to derive a tonnage estimate for the resource.</li> </ul>

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Criteria	JORC Code explanation	Commentary
Classification	<ul style="list-style-type: none"> <li>• <i>The basis for the classification of the Mineral Resources into varying confidence categories.</i></li> <li>• <i>Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</i></li> <li>• <i>Whether the result appropriately reflects the Competent Person's view of the deposit.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Although the drill hole/sample density is considered to be reasonably high for this style of mineralisation the resource was classified as only Inferred due to the lack of data to verify the accuracy and reliability of the historic drilling data. Considering the reputation of the companies that drilled and sampled these holes and carried out the assays, and recently confirmed by limited ZMI drilling, this data however is considered to be sound enough for the Inferred classification. Further in-fill and twinning drilling has been recommended to verify the accuracy and reliability of these historic holes so an Indicated resource can be eventually estimated.</li> <li>• AM&amp;A believe that the Inferred resource category and the reported resource estimate appropriately reflects their view of the deposit.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>• <i>The results of any audits or reviews of Mineral Resource estimates.</i></li> </ul>	<ul style="list-style-type: none"> <li>• There have been no independent audits or reviews of the reported Mineral Resource estimates.</li> </ul>

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Discussion of relative accuracy/ confidence	<ul style="list-style-type: none"> <li>• <i>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</i></li> <li>• <i>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</i></li> <li>• <i>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The reported resource estimate and model reasonably reflects the interpreted MVT style of mineralisation when checked against the drilling and considering the density and distribution of the sampling data as presumed by the Inferred resource category.</li> <li>• The resource estimate is a global estimate.</li> <li>• There is no historic production data to compare with the resource model.</li> </ul>

## TENEMENT DETAILS

Table 5: ZMI Tenement Details

PL Number	Owner	Status	County
3846	Raptor Resources Ltd. (100%)	Held	Kildare
3866	Raptor Resources Ltd. (100%)	Held	Kildare
4069	Raptor Resources Ltd. (100%)	Held	Kildare
4070	Raptor Resources Ltd. (100%)	Held	Kildare
4072	Raptor Resources Ltd. (100%)	Held	Kildare
4073	Raptor Resources Ltd. (100%)	Held	Kildare
890	Raptor Resources Ltd. (100%)	Held	Kildare
2440	Beal Na Blath Resources Ltd. (100%)	Held	Cork
3202	Beal Na Blath Resources Ltd. (100%)	Held	Cork
2724	Beal Na Blath Resources Ltd. (100%)	Held	Galway
3251	Beal Na Blath Resources Ltd. (100%)	Held	Galway
3459	Beal Na Blath Resources Ltd. (100%)	Held	Galway
3880	Beal Na Blath Resources Ltd. (100%)	Held	Galway
1450	Beal Na Blath Resources Ltd. (100%)	Held	Meath
2836	Beal Na Blath Resources Ltd. (100%)	Held	Meath
2193	Beal Na Blath Resources Ltd. (100%)	Held	Monaghan
3027	Beal Na Blath Resources Ltd. (100%)	Held	Monaghan
3871	Beal Na Blath Resources Ltd. (100%)	Held	Monaghan
2105	Beal Na Blath Resources Ltd. (100%)	Held	Roscommon
3163	Beal Na Blath Resources Ltd. (100%)	Held	Roscommon
1690	Beal Na Blath Resources Ltd. (100%)	Held	Sligo
3969	Beal Na Blath Resources Ltd. (100%)	Held	Sligo
3397	Beal Na Blath Resources Ltd. (100%)	Held	Monaghan
3870	Beal Na Blath Resources Ltd. (100%)	Held	Monaghan
4247	Beal Na Blath Resources Ltd. (100%)	Application	Monaghan
4248	Beal Na Blath Resources Ltd. (100%)	Held	Monaghan
4249	Beal Na Blath Resources Ltd. (100%)	Application	Monaghan
4250	Beal Na Blath Resources Ltd. (100%)	Application	Monaghan
4251	Beal Na Blath Resources Ltd. (100%)	Held	Monaghan
3414	Beal Na Blath Resources Ltd. (100%)	Application	Monaghan
3526	Beal Na Blath Resources Ltd. (100%)	Held	Monaghan

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